QS

DIGITAL MATURITY FRAMEWORK

Scorecard and Roadmap

Delhi University

QS Quacquarelli Symonds

Table of contents

Introduction

Background

With the world's second-largest population and a fast-growing economy, India's higher education system has undergone rapid expansion over the past decade. India now has one of the largest higher education systems in the world (after China and the US). India's higher education system was ranked 26th in the world in the QS Higher Education System Strength Rankings 2018. A total of 41 top universities in India feature in the QS World University Rankings 2023.

The advent of the pandemic, coupled with increasing competition for students, has driven many universities to deliver blended and online learning, with mixed results.

Alongside this, the cloud, Artificial Intelligence (AI) and associated technologies are increasing the potential for innovative universities to deliver personalised and adaptive learning based on the passion for student performance. Universities like Arizona State University (ASU) in the US, which have invested in the infrastructure and developed collaborative third-party partnerships, have achieved digital maturity, and are quickly establishing leadership in reputation for teaching and teaching commitment, enabling rapid growth in student numbers (ASU has increased student numbers from 50,000 to over 140,000 in less than eight years).

Today, India needs quality courses online and in a blended format, to meet the growing demand for higher education. Moreover, employers are increasingly demanding digital-savvy recruits, as 21st skills requirements change. Institutions that show innovation in learning delivery will be highly attractive to international partners as well as at the forefront of attracting the top international students, which, aside from the funding implications, is relevant for TNE, joint degrees and other forms of collaboration.

All of these factors combine to require that Indian universities invest in excellent technical and data infrastructure and in enhancing their digital teaching and delivery capabilities, both by developing their faculty and through third-party partnerships.

The National Education Policy 2020 makes a call to action for all Indian universities. Indian universities need to become digitally mature universities.

QS, in collaboration with Intel and AWS, have developed a vision of a digitally mature institution, which embraces opportunities to provide courses online, whilst continuing to adopt in-person teaching where desired. This enables students and faculty to take full advantage of the opportunities provided by online environments. However, Digital Maturity does NOT require that every department has 100% online programs, but instead supports access to hybrid instruction, encouraging students and faculty to collaborate, study and access materials online.

The Digital Maturity Framework and the Institutional Scorecard

The QS Digital Maturity Framework, in collaboration with AWS and Intel, is intended to help institutions understand their current level of maturity against global standards, and the steps they need to take to accelerate their digital progression.

By evaluating the institution's performance in different aspects of digitalisation (Governance and Human Commitment, Teaching & Learning, Data Infrastructure, and Technological Infrastructure) its purpose is to inform and educate the leaders of the institution as to (a) the institution's current maturity level; and (b) the gap that is needed to be crossed to achieve its digital ambition. All the parameters mentioned include sub-parameters which are considered significant to the functioning of every institution offering higher education through technology, in India.

The assessment of the Institution is carried out through an audit, resulting in the Institutional Scorecard. The audit has been customised to highlight the digital readiness of the Indian higher education system. The objective is to evaluate the institution's performance in the digitalisation of the system and structure of higher education in India and to deduce areas of excellence. The institution is awarded an overall digital maturity level badge that reflects the audit outcomes. A key component of the framework is that the digital maturity level rating obtained through this framework is not dependent on the performance of other institutions.

Outcomes

- Provides an objective assessment of the progress of your Digital Transformation.
- Provides the Roadmap for the next steps in your Digital Transformation.
- Provides a globally recognised certificate signed by QS, AWS and Intel, which will impress prospective students and employers alike.

No university journey will be the same, but the Digital Maturity Framework aims to help Universities to understand the right digital journey for them.

Further Assistance

If further assistance is needed to interpret this report's content or have any queries, please contact the QS I-GAUGE office. To report any anomalies detected in this report, please send an email to Mr Ravin Nair.

QS welcomes feedback/suggestions from our clientele. Our objective is to constantly improve our services. Therefore, please feel free to communicate your suggestions.
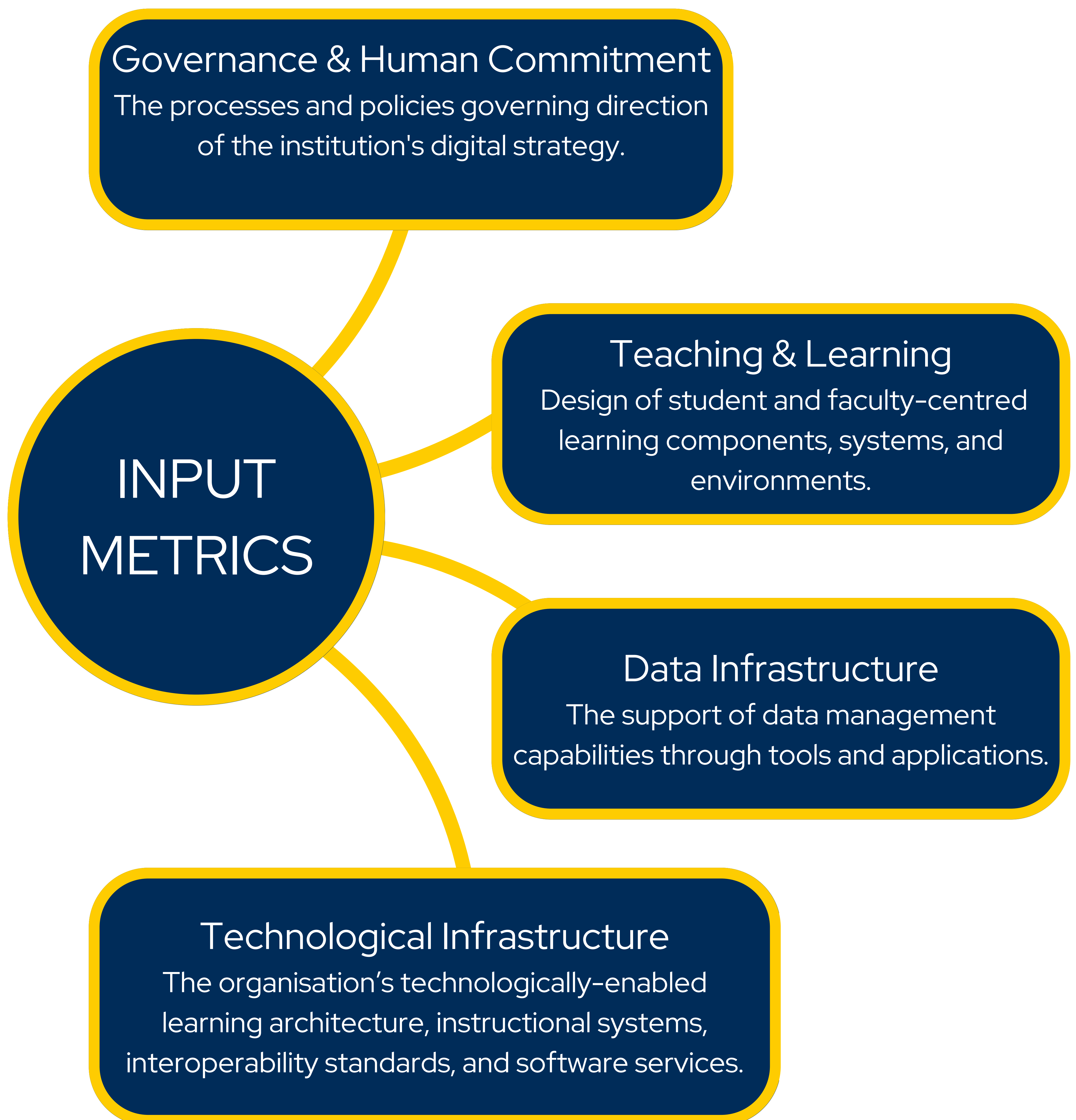
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FRAMEWORK

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Key Elements

Governance & Human Commitment
The processes and policies governing direction of the institution's digital strategy.

INPUT METRICS

Teaching & Learning
Design of student and faculty-centred learning components, systems, and environments.

Data Infrastructure
The support of data management capabilities through tools and applications.

Technological Infrastructure
The organisation's technologically-enabled learning architecture, instructional systems, interoperability standards, and software services.

Key Elements

Student Experience
Student satisfaction with their overall learning experience

Academic Experience
Academic satisfaction with the teaching and research environment.

Employability
Outcomes aligned to employers' needs and student goals.

OUTPUT METRICS

Levels of Digital Maturity

L4 **Digitally Mature**

L3 **Digitally Advanced**

L2 **Digitally Progressive**

L1 **Digitally Progressive**
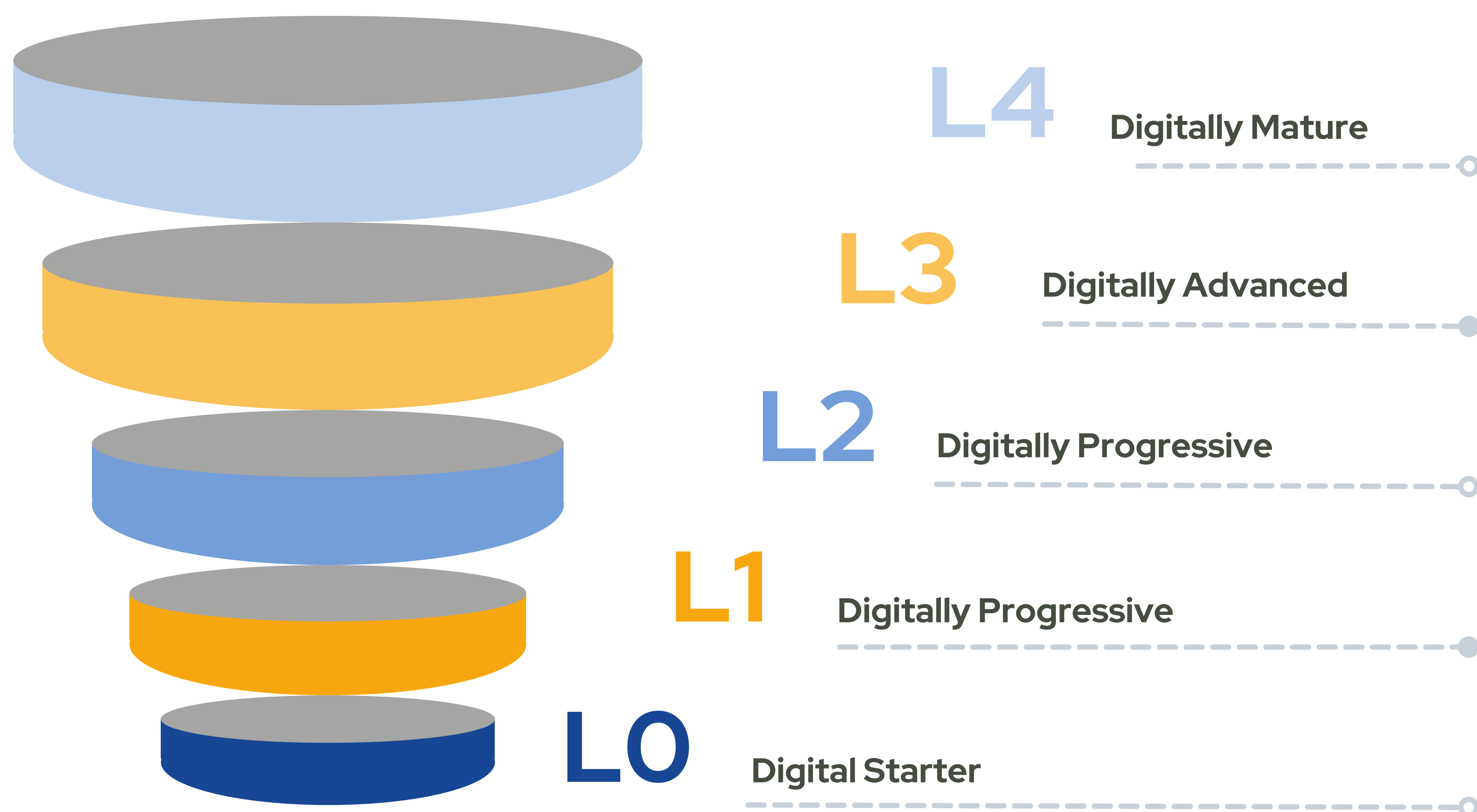
L0 **Digital Starter**

- L0– Digital Starter: The institution is not digitally ready to deliver online/blended learning. Processes are unpredictable, poorly controlled and reactive.

- L1– Digitally Progressive: The institution has begun to develop and implement a digital readiness plan to meet the academic and administrative requirements within at least one department. Processes are largely siloed and reactive.

- L2– Digitally Progressive: The institution has a fundamental digital readiness plan to meet academic and administrative requirements across the institution. Processes are in place across the organisation and are largely proactive.

- L3– Digitally Advanced: The institution has a digital readiness plan at the institutional level and a mechanism to capture the stakeholder feedback. Processes are measured and controlled.

- L4– Digitally Mature: The institution uses stakeholder feedback to design and implement a suitable plan of action to overcome the challenges involved in delivering online/blended learning. There is a continuous focus on process improvement.

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Performance analysis

Delhi University

Overall Institutional Performance

After a thorough analysis of the provided evidence and considering the responses of the stakeholders for individual parameters of DMF, the institution's overall level of digital maturity along with domain-wise levels are provided below.

Governance & Human Commitment

Vision, Quality Assurance, Professional Development, Knowledge Management, Enterprise Collaboration, Leadership & Effective Cost Management.

2 Level specified by the institution

2 Actual level specified by QS

Teaching & Learning

Instructional Design, Assessment Design, Learning Management & Environment, Personalised Learning, Online Library.

Level specified by the institution **1**

Actual level specified by QS **1**

Specified Level vs Actual Level

Technological Infrastructure

Tech Governance, Tech Infrastructure, Learning Management Maturity, Security, Learner Identity Management, Granularity of Student Records, Business Continuity Plan.

1 Level specified by the institution

1 Actual level specified by QS

Data Infrastructure

Data Strategy, Data Analysis, Data Management, Data-driven Decisions, Data-Interoperability, Privacy.

Level specified by the institution **1**

Actual level specified by QS **1**

Overall
Actual Level:
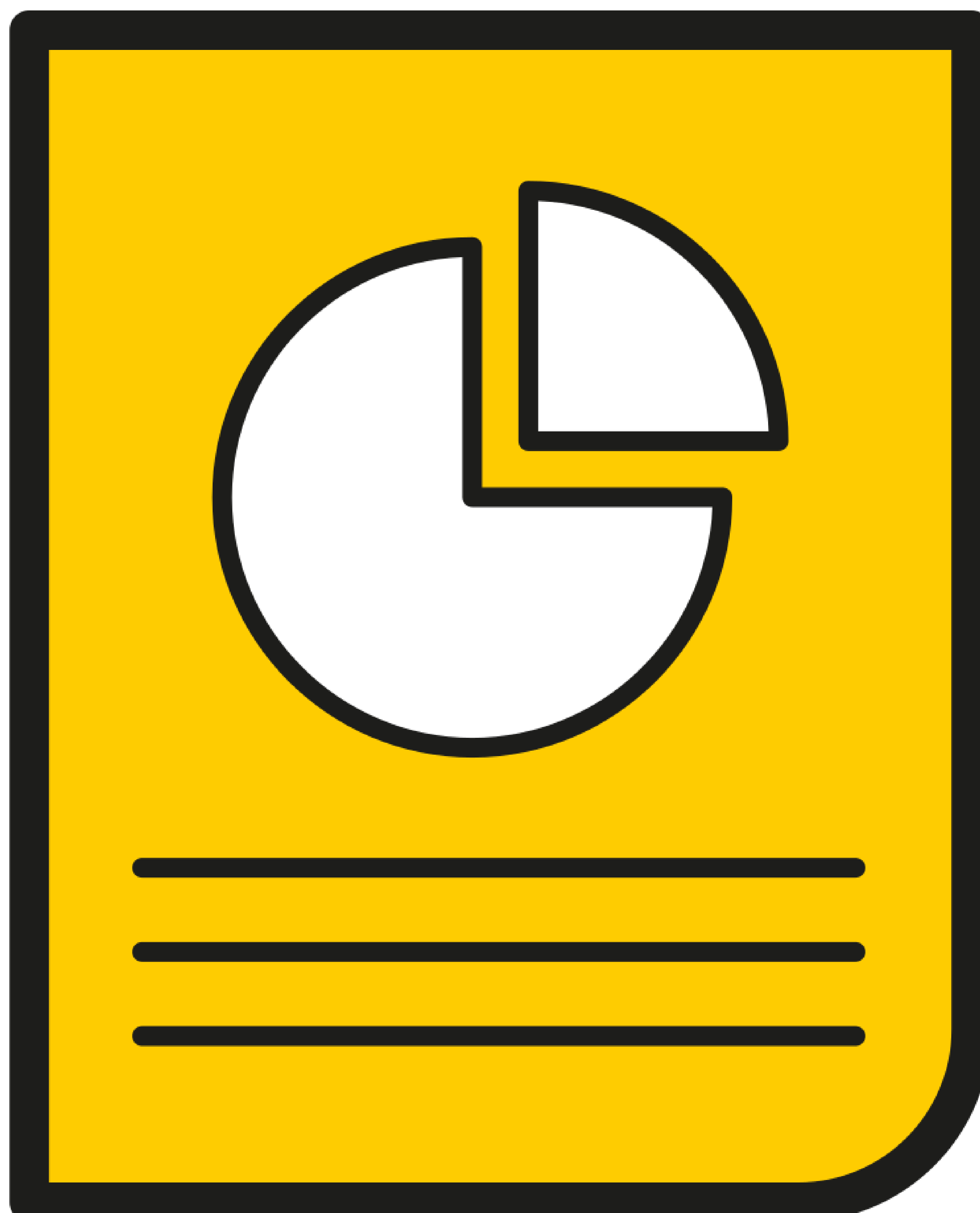Level 1

>>>

Roadmap
Recommendations

>>>

Overall
Desired Level:
Level 3

Output Metrics

Delhi University

Analysis of output metrics of Delhi University

| Output Metrics	Satisfaction percentage (Current)
Student satisfaction with digital learning experience	55.29
Student satisfaction with personalised teaching and learning	54.71
Student satisfaction with faculty quality	63.53
Student satisfaction with learning management system	47.65
Student satisfaction with e-library facilities	40.00
Student satisfaction with placement opportunities	53.53
Academic satisfaction with digital environment	51.85
Academic satisfaction with training in online teaching	43.21
Academic satisfaction with student assessment methods	60.49
Academic satisfaction with facilities for online teaching	43.21
Academic satisfaction with campus automation	38.27
Academic satisfaction with overall functionalities of learning management system	47.14
Academic satisfaction with the actions taken based on the faculty feedback	35.80
Academic awareness with the institution's business continuity processes	41.10
Employer reputation (QS Asia region rankings)	56.90

QS will track the progress of output metrics over time to help the institution see the impact of their digital transformation and other initiatives. These metrics do not contribute to the Digital Maturity Score, but should improve as a consequence of greater digital maturity.

Input metrics

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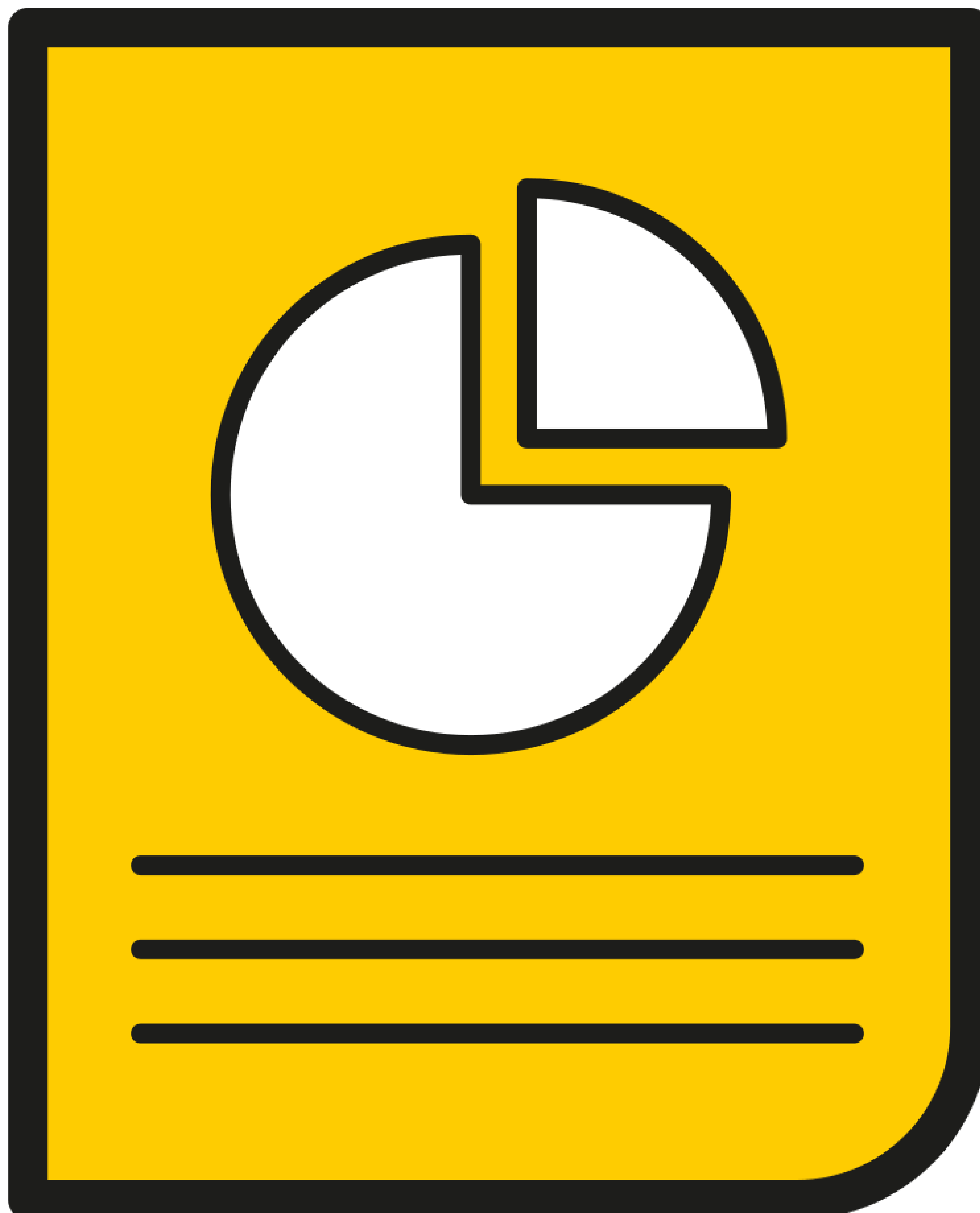
Governance & Human Commitment

Level 2

This section covers the aspects related to the below-mentioned components viz. Vision, Quality Assurance, Professional Development, Knowledge Management, Enterprise Collaboration, and Leadership & Effective Cost Management.

INDICATOR	Desired Level	Specified Level	Actual Level
Vision Whether your institution has clearly defined organisational digital readiness goals, vision, and purpose to serve students effectively using modern technologies and processes.	**L4**	**L4**	**L2**
Quality Assurance Whether your institution has undertaken recognised accreditations.	**L4**	**L3**	**L2**
Professional Development Whether career growth and leadership opportunities are extended to your staff based on performance tracking and talent identification. Also, whether your institution has a dedicated budget and tracking tools to implement and measure the effectiveness of faculty development training.	**L4**	**L2**	**L2**
Knowledge Management Availability of pervasive policies and practices to share information across your institution.	**L4**	**L3**	**L2**
Enterprise Collaboration Whether enterprise collaboration tools, document sharing, and other collaborative services are institutionalised/centralised for the tools to provide anytime/anywhere access.	**L3**	**L2**	**L2**
Leadership & Effective Cost Management Your institution has a well-defined leadership structure that is responsible for delivering an excellent digital and blended learning experience, while also ensuring an effective cost management strategy is in place.	**L3**	**L1**	**L1**

- Achieved desired level
- Below specified level
- At or above specified level

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Governance & Human Commitment

Institution's Specified vs Actual Levels

Vision	Specified level L4	Actual level L2

Existing Practices Identified	Analyst Comments
Defined and documented organisational goal, vision and purpose. At least one department has a digital plan. Departments/Campuses plan centrally. The institution has an overarching digital plan.	No evidence of a measurement mechanism and optimisation. Unable to find a digital/strategic plan.

Quality Assurance	Specified level L3	Actual level L2

Existing Practices Identified	Analyst Comments
NAAC A or above. I-GAUGE Gold or above.	DU has NAAC A+, but no international accreditations.

Governance & Human Commitment

Institution's Specified vs Actual Levels

Professional Development	Specified level L2	Actual level L2

Existing Practices Identified	Analyst Comments
Career growth and leadership opportunities are monitored. Career growth and leadership opportunities extended to academics based on talent identification. Talent identification centrally. Clear monitoring of academic performance and training.	No evidence provided

Knowledge Management	Specified level L3	Actual level L2

Existing Practices Identified	Analyst Comments
Strategic focus on information and knowledge management. Well-defined information management processes.	The institution has a knowledge management tool and the screenshot of the same is provided.

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Governance & Human Commitment

Institution's Specified vs Actual Levels

Enterprise Collaboration	Specified level L2	Actual level L2

Existing Practices Identified	Analyst Comments
Availability of enterprise collaboration tools for communication beyond email. Processes in place for sharing documents across the organisation. Sharing between departments.	No evidence provided

Leadership & Effective Cost Management	Specified level L1	Actual level L1

Existing Practices Identified	Analyst Comments
Accountability defined for leadership. Leadership structure consistent with delivering physical and blended learning experience for students and faculty.	Accepted based on the Administrative Offices and Committees of DU and online/blended learning is restricted to few departments.

Recommendations – Governance & Human Commitment

Parameter	Desired Level	Actual Level	Recommended Plan of Action
Vision	L4	L2	Implement an objective measurement mechanism present to record how well the institution is achieving its goals. Implement evidence collection, mapping and update mechanism to reflect feedback received.
Quality Assurance	L4	L2	Get certified by International Body: AACSB, ABIT, QS Stars, ISO etc. Ensure and implement adherence to standards requirements is enforced across the organisation.
Professional Development	L4	L2	Implement mechanism to ensure measurement of adherence to the plan. Implement mechanism to ensure evidence of measurement results being used to support continuous improvement.

Recommendations – Governance & Human Commitment

Parameter	Desired Level	Actual Level	Recommended Plan of Action
Knowledge Management	L4	L2	Implement mechanism to ensure measurement of adherence to processes using centrally defined metrics. Mechanism to ensure evidence of measurement results being used to support continuous improvement.
Enterprise Collaboration	L3	L2	Implement mechanism to ensure Use of tools is monitored and measured, using centrally defined metrics.
Leadership & Effective Cost Management	L3	L1	Implement mechanism for organisation-wide focus of leadership structure, defining accountability for leadership and making it consistent with delivering physical and blended learning experience for students and faculty. Put a Governance Board in place for the organisation. Implement mechanism/platform for comprehensive measurement of performance.

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Teaching & Learning

Level 1

This section covers the aspects related to the below-mentioned components viz. Instructional Design, Curriculum Design, Assessment Design, Learning Management & Environment, and Personalised Learning.

INDICATOR	Desired Level	Specified Level	Actual Level
Instructional Design Whether your institution has adequate processes in place to create and deliver blended learning programs that meet organisational objectives, ensuring accessibility to students wherever they are located. Also, the ability to support multiple hardware and operating systems.	L3	L1	L1
Assessment Design Whether the collected assessment data of your institution's students provide more granular details of learner proficiencies and deficiencies. Assessments inform remedial learning opportunities as well as examination results.	L4	L0	L1
Learning Management & Environment Whether your institution has online, mobile, or physical learning resources as stand-alone capabilities and whether these learning resources can be blended into a single program of instruction.	L4	L2	L2
Personalised Learning Whether your institution has a practice of using policy-driven scaffolding and personalised learning to serve a large proportion of students. Active learning methods like case studies, hands-on practice, or collaborative exercises using cloud-based collaboration tools are used across the organisation, to some extent.	L2	L1	L1

■ Achieved desired level   ■ Below specified level   ■ At or above specified level

Teaching & Learning

Institution's Specified vs Actual Levels

Instructional Design	Specified level L1	Actual level L1

Existing Practices Identified	Analyst Comments
Processes to deliver blended learning programs. Processes to deliver blended learning programs across locations.	LMS restricted to few departments.

Assessment Design	Specified level L0	Actual level L1

Existing Practices Identified	Analyst Comments
Policies in place relating to the design and reporting of assessment. Learning analysis metrics identified and captured. Data collected with a focus on completions and satisfying higher level course requirements.	Considered stakeholders feedback.

Teaching & Learning

Institution's Specified vs Actual Levels

Learning Management & Environment	Specified level L2	Actual level L2

Existing Practices Identified	Analyst Comments
Online Learning Resources. Learning resources connected to other organisational resources. Learning resources are blended into programs of instruction.	The institution has shared a link to the online courses offered and e-library facilities

Personalised Learning	Specified level L1	Actual level L1

Existing Practices Identified	Analyst Comments
Policy in place.	No evidence provided.

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Recommendations – Teaching & Learning

Parameter	Desired Level	Actual Level	Recommended Plan of Action
Instructional Design	L3	L1	Upgrade the software solutions and infra requirements, IaaS, PaaS, SaaS to support enhanced number of students (80%) being able to use LMS and systems for blended learning for programs. Host LMS likely to be hosted in the cloud. Enable the systems to support multiple hardware and operating systems. Implement mechanism for measuring outcomes across the institution.
Assessment Design	L4	L1	Develop and implement policies relating to the design and reporting of assessment. Identify and capture learning analysis metrics. Implement data collection tools for collecting data with a focus on completions and satisfying higher level course requirements. Implement tools/platform components and processes to provide remedial learning using data with evidence.

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Recommendations – Teaching & Learning

Parameter	Desired Level	Actual Level	Recommended Plan of Action
			Implement data capture tools to provide granular details of learner proficiencies and deficiencies. Implement tools to cover assessments informing remedial learning opportunities. Implement process and tools to ensure all or most students are covered under granular assessments.
Learning Management & Environment	L4	L2	Implement mobile learning resources. Implement process and tools to ensure learning resources are connected to other organisational resources. Implement a centrally managed learning resources platform. Implement tools and platforms to ensure learning resources are blended into programs of instruction.
Personalised Learning	L2	L1	Design policy for large proportion of students.

Data Infrastructure

Level 1

This section covers the aspects related to the below-mentioned components viz. Data Strategy, Data Analysis, Data management, Data-driven decisions, Data interoperability, and Privacy.

INDICATOR	Desired Level	Specified Level	Actual Level
Data Strategy Whether your institution has a strategy for managing data that is adequate for the organisational objectives?	L4	L1	L1
Data Analysis Whether your institution has advanced tools and tailored visualisations are accessible via dashboards constructed with specialised software and standard open-source libraries.	L4	L0	L1
Data Management Whether your institution has an ad-hoc or coordinated use of federated data internal or external to the organisation. Formal processes are established for obtaining authority to connect to disparate systems.	L3	L1	L1
Data-driven Decisions Whether your institution's data analytics are used by course builders and high-level decision-makers regularly. This is evidenced in the institutional strategy document.	L3	L2	L2
Data Interoperability Whether institutional education systems are required by policy to use recognised data standards and store these data on a common Datawarehouse hosted on the cloud.	L3	L2	L2
Privacy Whether your institution's privacy management is centrally defined, compliant with international regulations, and enforced at all levels.	L3	L1	L2

- ■ Achieved desired level
- ■ Below specified level
- ■ At or above specified level

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Data Infrastructure

Institution's Specified vs Actual Levels

Data Strategy	Specified level L1	Actual level L1

Existing Practices Identified	Analyst Comments
Data captured from education activities. Standard process of storage. Standard approach/format to collect data.	Relevant evidence not provided

Data Analysis	Specified level L0	Actual level L1

Existing Practices Identified	Analyst Comments
Data analysis is standardized. Methods of reporting in place.	The institution's specified level is 0, but the stakeholder satisfaction has been reported to be higher.

Data Infrastructure

Institution's Specified vs Actual Levels

Data Management	Specified level L1	Actual level L1

Existing Practices Identified	Analyst Comments
Integrated data management. Standardized process and mechanism of data management.	Relevant evidence not provided

Data-driven Deccisions	Specified level L2	Actual level L2

Existing Practices Identified	Analyst Comments
Decision-makers consider data analytics in education and training planning. Decision-makers use data analytics in education and training planning.	The institution has shared screenshot of the tool used to capture the data and use the same for decision making

Data Infrastructure

Institution's Specified vs Actual Levels

Data Interoperability	Specified level L2	Actual level L2

Existing Practices Identified	Analyst Comments
Possibility of easy data transfer between systems without extensive effort. Standardized procurement of education and training systems with an overarching policy policy dictating how education and training data will be promulgated through the organisation. Usage of common data standards. Interoperability of data.	Samarth eGov platform is used across university, therefore data interoperability is present.

Data Infrastructure

Institution's Specified vs Actual Levels

Privacy	Specified level L1	Actual level L2

Existing Practices Identified	Analyst Comments
Institution–wide privacy management defined. Remediation supported, disclosed information is audited. Privacy management is enforced at all levels.	The institution has a privacy policy, and the stakeholder satisfaction is quite high.

Recommendations – Data Infrastructure

Parameter	Desired Level	Actual Level	Recommended Plan of Action
Data Strategy	L4	L1	Implement converged/interoperable tools and technologies for capturing data. Implement organisation– wide common data store, likley to be cloud based Implement standard approach/format to collect data. Implement common LRS. Build and implement institution–wide data strategy. Implement standard data definitions for all education activities to capture learner performance data (over 80%).
Data Analysis	L4	L1	Put in place methods of reporting for analysis. Implement coordinated and standardized method of reporting. Leverage advanced tools for future analysis. Implement machine learning and AI techniques to allow analysis of all education and training generated data.

Recommendations – Data Infrastructure

Parameter	Desired Level	Actual Level	Recommended Plan of Action
			Implement tools for summative evaluations of individuals, teams, or other organisational elements.
Data Management	L3	L1	Implement tools for normalized mature data management and implement in more than 1 course/department.

Imlpement tools for federated data systems and usage in more than one course/department.

Establish formal processes for obtaining Authorities to Connect to disparate systems and implement it across the institution.

Implement organisation–wide policy mandatory for federated data systems.

Establish formal processes to enable access, authentication, and anonymization while also ensuring protection of Personally Identifiable Information (PII) and cybersecurity.

Implement tools to measure policy adherence. |

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Recommendations – Data Infrastructure

Parameter	Desired Level	Actual Level	Recommended Plan of Action
Data-driven Decisions	L3	L2	Implement tools and mechanisms for collection and use of data includes measurement to see how accurate predictions / forecasts have been.
Data Interoperability	L3	L2	Implement policy to use recognized data standards across the organisation.
Privacy	L3	L2	Implement proactive privacy breach detection policies and tools. Implement reactive and proactive policies and controls to prevent, detect, and respond to loss of privacy information. Implement tools for quantifiable effectiveness of controls, which can be measured and results be reported.

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Technological Infrastructure

Level 1

This section covers the aspects related to the above-mentioned viz. Tech-Governance, Tech Infrastructure, Learning Management Maturity, Security, Learning Identity Management, and Granularity of Student Records.

INDICATOR

	Desired Level	Specified Level	Actual Level
Tech Governance Whether your institution has standard and configurable IT infrastructures to host dedicated learning capabilities. Policies manage the acquisition and maintenance of key IT systems. No single points of failure, with a business continuity plan.	L4	L2	L2
Tech Infrastructure Whether your institution has adequate infrastructure in place to deliver blended learning programs that meet organisational objectives and are scalable and on-demand (likely to be cloud-based).	L4	L3	L2
Learning Management Maturity Whether your institution's policies guide the acquisition and implementation of learning management capabilities. Data interoperability requirements are prescribed, and systems are connected to other organisational education systems.	L2	L0	L1
Security Whether your institution's security policies and procedures are managed, proactively address potential risks and user access management is strictly maintained by your institution.	L3	L1	L1
Learner Identity Management Whether single Sign-On with email verification is available for a high proportion of learners in your institution to minimise the risk of fraudulent access through multifactorial identification.	L3	L1	L1
Granularity of Student Records Whether your institution provides the transcript of credentials and manages recertification requirements electronically as well as by post and if your institution has established processes and systems that provide deeper insight into staff and student credentials.	L4	L1	L1

Achieved desired level

Below specified level

At or above specified level

Technological Infrastructure

Institution's Specified vs Actual Levels

Tech Governance	Specified level L2	Actual level L2

Existing Practices Identified	Analyst Comments
Tech governance in place. Common IT Infrastructure. Common learning platforms and learning technologies.	The institution has a computer centre, DUCC, that offers training to its faculty on various modules of digitisation and the centre also has an efficient tech governance structure.

Tech Infrastructure	Specified level L3	Actual level L2

Existing Practices Identified	Analyst Comments
IT infrastructure enables blended learning to be provided. Infra capable of handling % of students getting blended learning: >80%. IT Infrastructure supports open and closed solutions. IT Infra adhere to specific guidance or standards. IT Infra is scalable and on demand (likely to be cloud based).	The evidence provided for 'Learning Management and Environment' indicates DU's ability to support most of its students to learn online, but the satisfaction amongst the faculty is quite low.

Technological Infrastructure

Institution's Specified vs Actual Levels

Learning Management Maturity	Specified level L0	Actual level L1

Existing Practices Identified	Analyst Comments
Modernized LMS with advanced functions in addition to basic catalog and track education and training activities.	Based on stakeholders survey responses.

Security	Specified level L1	Actual level L1

Existing Practices Identified	Analyst Comments
No practices identified	No evidence provided,

Technological Infrastructure

Institution's Specified vs Actual Levels

Learner Identity Management	Specified level L1	Actual level L1

Existing Practices Identified	Analyst Comments
Single Sign On with email verification available	No evidence provided

Granularity of Students Records	Specified level L1	Actual level L1

Existing Practices Identified	Analyst Comments
Trascripts provided in electronic form. Clear policies to minimise fraud.	Institution did not provide specified and desired levels

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Technological Infrastructure

Institution's Specified vs Actual Levels

Parameter	Desired Level	Actual Level	Recommended Plan of Action
Tech Governance	L4	L1	Fully implement tech governance Fully Implement common IT Infrastructure. Fully implement common learning platforms and learning technologies Implement standard, configurable IT Infra and networks. Implement policies for managing the acquisition and maintenance of key IT systems. Implement enterprise infrastructure facilitating distributed education and training delivery and human performance improvement. Implement globally managed and compatible learning systems and records accessible on a common network. Collect usage and performance metrics.

Technological Infrastructure

Institution's Specified vs Actual Levels

Parameter	Desired Level	Actual Level	Recommended Plan of Action
Tech Infrastructure	L4	L2	Implement enterprise infrastructure facilitating distributed education and training delivery and human performance improvement. Implement globally managed and compatible learning systems and records accessible on a common network. Collect usage and performance metrics. Implement learning system improvements originating from campus–based usage and performance metrics. Implement distributed education and training delivery in conjunction with external partners. Implement globally managed, standards–based IT infrastructure that supports emerging learning technologies. Share and use the usage and performance metrics to influence improvements in cross–Institution learning systems and infrastructure platforms.

Technological Infrastructure

Institution's Specified vs Actual Levels

Parameter	Desired Level	Actual Level	Recommended Plan of Action
			Implement learning system improvements originating from campus- based usage and performance metrics.
Learning Management Maturity	L2	L1	Set up formal policies to guide the acquisition of Training Management Systems. Implement a LMS with advanced functions as a unified training management solution with minimal operational and administrative burden, and is interoperable. Ensure prescription of data interoperability requirements and systems to be connected to other organisational education and training systems.
Security	L3	L1	Define and implement institution–wide security policies and procedures. This includes proactive security policies with focus on technical controls, industry standard security policies and procedures proactively address potential risks and investigating proactive measures.

Technological Infrastructure

Institution's Specified vs Actual Levels

Parameter	Desired Level	Actual Level	Recommended Plan of Action
			Implement proactive measures to prepare for future security risks, including measuring proactive and reactive controls through audits and assessment for effectiveness and correlating security events across endpoints. Effectiveness of the controls should be quantifiable against a known baseline.
Learner Identity Management	**L3**	**L1**	Implement SSO with email verification for all learners of the institution. Use a secure token–SSO, like ID.ME, within the infrastructure.
Granularity of Student Records	**L4**	**L1**	Define and implement mechanisms to provide transcripts in electronic form and with clear policies to minimise fraud. Establish processes and systems that provide deeper insight into staff and student credentials. Provide students and staff on demand access to credentials and certifications through a personalised, verified access. Establish and implement Personalised, verified access in the Institution blockchain.

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Summary of Recommendations and Proposed Next Steps

1. <u>Governance & Administration</u>:
The institution has made a strategic commitment to digital transformation through the adoption of Samarth e-Gov and other initiatives under the guidance of Delhi University Computer Center and is in the initial stage. It is important that milestones are defined to monitor and track progress.

The presence of a committee and centralised data team reporting to the Board is a necessary step for digital maturity and this is not apparent yet. The Committee and data team need an empowered leader with authority to drive change across departments.
The development of online teaching skills and digital skills of faculty is fundamental to delivering a quality learning experience in a hybrid or online learning environment. The institution needs to plan for systematic training of faculty across all departments.

Collaboration should be encouraged within the institution and with key partners selected to support the digital transformation journey.

NEXT STEP: Internal or external short consulting project –to set KPIs and Milestones through the lifetime of the Strategic Plan & to specify role descriptions for leadership structure, with quarterly/semi–annual reviews scheduled to monitor progress. And to highlight Best Practices, potential partners & suppliers.

2. <u>Teaching & Learning Experience</u>:
Online and hybrid Programs are planned to be extended to more departments and this plan should be monitored and measured against milestones.

Increased use of LMS-embedded assessment tools, or integrated assessment tools will enhance data standardisation and optimisation. Offline and LMS-based Assessments should be recorded as a data record for each candidate.

NEXT STEP: Internal or external ongoing consulting project – Development of guidelines for all faculty for standard institution-wide use of LMS and data definitions. Progress against assessment records, analysis and optimisation should be tracked and monitored against milestones.

3. <u>Data Infrastructure</u>:

The data strategy should define a vision for the institution which encapsulates the level of digital maturity the institution aspires to, complete with milestones to monitor and measure progress.

The institution needs to define data standards to be used across the organisation to enable data interoperability.

NEXT STEP: Internal or external ongoing consulting project - Define data standards and monitor data across the institution, as well as train faculty to use data to support the instructional design and enhanced and personalised instruction. Develop reporting mechanisms to evidence; enhanced data management, data analysis, data decision making and the resultant improved and optimised learning outcomes.

4. <u>Tech Infrastructure</u>:

The institution needs an up-to-date tech infrastructure capable of supporting digital transformation. Full implementation of Samarth e-Gov will go a long way towards delivering Digital Advanced status, with subsequent monitoring and optimisation required for Maturity.

The institution needs to have a wide range of capabilities provided by an institution-wide LMS. The institution needs to continue the upgrade, roll out and adoption of the LMS.

Security and Learner Identity Management are critical to protecting the institution and students and faculty. The institution needs partner advice on best practices.

NEXT STEP: External expert Tech review –to define processes and to monitor and measure milestones, to help set up a governing body and to advise on third-party suppliers across the Tech Infrastructure.

Conclusion

We congratulate Delhi Univeristy for securing an overall level of 'L1 – Digitally Progressive' in the QS Digital Maturity Framework in collaboration with AWS and Intel. The institution has scored 'L2' in Governance and Human Commitment, and 'L1' in Teaching & Learning, Data Infrastructure, and Technological Infrastructure.

During the data evaluation process, a few gaps were identified against the level specified by the institution. The dedicated analyst who has analysed the shared evidence has provided the observations for each category against all the parameters that are evaluated as per the framework. There is a gap identified between the institution's specified level and stakeholders' satisfaction levels.

The institution is recommended to go through the specified recommendations provided for every category and look into the possibility of taking necessary steps as suggested, to achieve an optimised level of digital maturity.

The institution is also recommended to have clearly defined policies and continuously monitor the implementation of these policies at the institutional level. Monitoring the performance holistically at the institutional level gives a clear picture of the aspects which are to be focused on and improved.

The recommendations provided by the QS team will help the institution to overcome the existing gaps in the aspect of digitisation thus improvising the stakeholders' satisfaction with the institution, and also enabling the institution to deliver quality education through technology.

Finally, we, the QS team, would like to take this opportunity to appreciate the efforts put into the completion of the Digital Maturity Framework audit of Delhi University. The continuous cooperation from the POC and the leadership has helped us complete the audit within the stipulated timeline.

We once again congratulate the leadership of Delhi University, for taking the first step towards an optimised digitally matured journey using the QS Digital Maturity Framework in collaboration with AWS and Intel.

CERTIFICATE

दिल्ली विश्वविद्यालय
University of Delhi

recognised as

DIGITALLY PROGRESSIVE

QS Quacquarelli Symonds
Digital Maturity Framework
in collaboration with AWS and Intel

QS

AWS

Valid till February, 2024

DIGITAL MATURITY FRAMEWORK

in collaboration with

aws | intel

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igaugerating

QS Quacquarelli Symonds

www.qs.com

contact@igauge.in

APPLICATION TO ATOMIC ENERGY REGULATORY BOARD (AERB) FOR APPROVAL FOR PROCUREMENT OF CONSUMER PRODUCT

This application would be considered by the Competent Authority for issuance of relevant consents under the Atomic Energy (Radiation Protection) Rules, 2004

Application Number	:	**23-1207420**
Date of Application	:	**23/11/2023**

Part A

Institute Details:

Name	:	UNIVERSITY OF DELHI
Permanent Address	:	NORTH CAMPUS, UNIVERSITY OF DELHI
Landmark	:	VICE REGAL LODGE
City	:	DELHI
State	:	DELHI
Postal Code	:	110007
Telephone Number	:	01127667853
Fax Number	:	01127666350
Email Id	:	registrar@du.ac.in

Head of the Institute Details:

Name	:	VIKAS GUPTA
Designation	:	REGISTRAR
Telephone Number(Office)	:	01127667853
Mobile Number	:	9810569336
Email Id	:	registrar@du.ac.in

Licensee Details:

Name	:	VIKAS GUPTA
Designation	:	REGISTRAR
Telephone Number(Office)	:	01127667853
Mobile Number	:	9810569336
Email Id	:	registrar@du.ac.in

Part B

Equipment Details:

Type of Procurement	:	Import
Equipment Type	:	X-ray Diffractometer
Equipment Model	:	Miniflex 600
Source Model	:	NA
Radioactive source	:	NA
Activity required (in MBq)	:	NA

Number of sources	:	NA
Operating Potential (kVp)	:	40
Operating Current (mA)	:	15
Equipment Manufacturer Name with country	:	Rigaku Corporation,Japan
Supplier Name with country	:	Rigaku Corporation, Japan
Whether proposed location of installation is same as your e-LORA Institute registration address?	:	Yes
Whether approved RSO is available in the institute	:	Yes
Name of the person designated as RSO for this Equipment	:	SANJAY CHAMOLI

Part C

Undertaking

Radiation Safety: As a part of radiation safety awareness for the installations in consumer product and scanning facilities, it is confirmed that the RSO has gone through the safety procedures of the equipment and understood the principles behind the operation.

The equipment used in this practice generates/emits ionizing radiation which are hazardous if not handled safely. The maximum operating parameters of the equipment shall not be modified. The software and hardware systems of the equipment will never be modified. Equipment will not be tempered for any purpose, interlocks shall not be bypassed.Any unauthorised person will not service/repair the equipment. Equipment shall be operated by person having appropriate training on radiation safety by the supplier/manufacturer. Any incident/accident involving radiation will be promptly reported to AERB. For further details on radiation safety please visit help menu (click here) in your home page after login.
For details related to updates about regulatory requirements/radiation safety aspects, AERB website www.aerb.gov.in may be visited.

I have read and agree to the Terms & Conditions and Radiation Safety as mentioned above. I hereby certify that
1. all the information submitted in this application is correct to the best of my knowledge and belief.
2. applicable provisions of the Atomic Energy (Radiation Protection) Rules, 2004 will be strictly complied with.
3. the equipment will be put into operation only after obtaining Licence from the Competent Authority.
4. full facilities will be accorded by me/us to any authorised representatives of the Competent Authority to inspect this installations at any time.
5. full necessary facilities will be provided to the RSO to discharge his duties and functions effectively.
6. on receipt of "Licence", I will abide by the terms and conditions of "Licence"" (Refer AERB website for further details).
7. will ensure that I/ nominated RSO will observe "Duties and Responsibilities of RSO" (Refer AERB website for further details).
8. keep AERB informed about any changes in the information furnished.

In case, it is found, at any stage, that the information provided by me/us is false and/ or not authentic, then I hereby accept that appropriate regulatory actions may be initiated against me and my institution, in accordance with the applicable Rules.

---End of Application---

दिल्ली विश्वविद्यालय
University of Delhi

Sanjay Kumar Chamoli <skchamoli@physics.du.ac.in>

Fwd: Approval of your Safety Status Report application with application reference number: 23-1062069.
1 message

Registrar DU <registrar@du.ac.in>   Tue, Feb 21, 2023 at 10:36 AM
To: Sanjay Kumar Chamoli <skchamoli@physics.du.ac.in>

---------- Forwarded message ---------
From: <eLORA@aerb.gov.in>
Date: Mon, Feb 20, 2023 at 10:08 PM
Subject: Approval of your Safety Status Report application with application reference number: 23-1062069.
To: <registrar@du.ac.in>

Dear Dr. VIKAS GUPTA,

    Your application ref no. 23-1062069 is Approved. Approval No 23-SSR-903266

Warm regards
eLORA Administrator

    This is a system-generated mail. Please do not reply to this email address.

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दिल्ली विश्वविद्यालय
University of Delhi

Sanjay Kumar Chamoli <skchamoli@physics.du.ac.in>

Fwd: Approval of your Safety Status Report application with application reference number: 23-1062034.

1 message

Registrar DU <registrar@du.ac.in>   Tue, Mar 7, 2023 at 10:24 AM
To: Sanjay Kumar Chamoli <skchamoli@physics.du.ac.in>

---------- Forwarded message ---------
From: <eLORA@aerb.gov.in>
Date: Mon, Mar 6, 2023 at 8:43 PM
Subject: Approval of your Safety Status Report application with application reference number: 23-1062034.
To: <registrar@du.ac.in>

Dear Dr. VIKAS GUPTA,

    Your application ref no. 23-1062034 is Approved. Approval No 23-SSR-910363

Warm regards
eLORA Administrator

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दिल्ली विश्वविद्यालय
University of Delhi

Sanjay Kumar Chamoli <skchamoli@physics.du.ac.in>

Fwd: Approval of your Radiation Safety Officer application with application reference number: 22-873308.
1 message

Registrar DU <registrar@du.ac.in>   Fri, Feb 18, 2022 at 11:41 AM
To: Sanjay Kumar Chamoli <skchamoli@physics.du.ac.in>

---------- Forwarded message ---------
From: <eLORA@aerb.gov.in>
Date: Fri, Feb 18, 2022 at 10:03 AM
Subject: Approval of your Radiation Safety Officer application with application reference number: 22-873308.
To: <registrar@du.ac.in>

Dear Dr. VIKAS GUPTA,

    Your application ref no. 22-873308 is Approved. Approval No 22-RSO-738867

Warm regards
eLORA Administrator

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University of Delhi

Sanjay Kumar Chamoli <skchamoli@physics.du.ac.in>

Fwd: Approval of your Application for Registration application with application reference number: 22-875984.
1 message

Registrar DU <registrar@du.ac.in>   Mon, Mar 7, 2022 at 10:57 AM
To: Sanjay Kumar Chamoli <skchamoli@physics.du.ac.in>

---------- Forwarded message ---------
From: <eLORA@aerb.gov.in>
Date: Mon, Mar 7, 2022 at 10:27 AM
Subject: Approval of your Application for Registration application with application reference number: 22-875984.
To: <registrar@du.ac.in>

Dear Dr. VIKAS GUPTA,

      Your Application for Registration [Reference no.: 22-875984] is Approved. Approval No is 18-SSAR-256828.

Warm regards
eLORA Administrator

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Disclaimer:

Case File Number: DL-38335-RF-CP-003

Issuance Date: 12/01/2024

Document Number: 24-PROC-1061021

Expiry Date: 12/01/2025

PERMISSION FOR PROCUREMENT OF X-RAY DIFFRACTOMETER

This has reference to your application no. 24-1241812 dated 12/01/2024. In exercise of powers conferred under Section 16 of the Atomic Energy Act, 1962 read in conjunction with Rule (3) of the Atomic Energy (Radiation Protection) Rules, {AE(RP)R}, 2004 the Atomic Energy Regulatory Board (AERB) hereby grants permission to Dr. VIKAS GUPTA,REGISTRAR,UNIVERSITY OF DELHI for procurement of radiation generating equipment/source(s) as mentioned in ANNEXURE-I, subject to the following conditions.

1. Licensee, shall abide by all applicable regulatory documents issued by AERB from time to time.

2. Licensee shall submit equipment/source receipt intimation immidiately after receipt of the equipment/source(s).

3. Application for license for operation shall be submitted within three months from the date of receipt of the

   equipment/source(s), as applicable.

Issuing Authority,

Shri R. K. Singh
Head, IAS

(This is an electronically generated letter and hence signature is not required)

DR. VIKAS GUPTA
UNIVERSITY OF DELHI
NORTH CAMPUS, UNIVERSITY OF DELHI VICE REGAL LODGE DELHI, DELHI-110007

Copy to: REGISTRAR,
UNIVERSITY OF DELHI
NORTH CAMPUS, UNIVERSITY OF DELHI VICE REGAL LODGE DELHI, DELHI-110007

ANNEXURE-I

Details	
Type of Equipment	X-ray Diffractometer
Quantity	1
Equipment Model Name	X'pert3 Powder
Radioisotope Name	NA
Number of source(s)	NA
Total Activity(MBq)	NA
Voltage Rating (kV)	52
Current Rating (mA)	60
Original Equipment Manufacturer	PANalytical B.V,The Netherlands
Name of Original Equipment supplier with Country	PANalytical B.V. ,The Netherlands

Issuing Authority,

Shri R. K. Singh
Head, IAS

भारत सरकार
परमाणु ऊर्जा नियामक परिषद्
विकिरण संरक्षा प्रभाग

GOVERNMENT OF INDIA
ATOMIC ENERGY REGULATORY BOARD
RADIOLOGICAL SAFETY DIVISION

Case File Number: DL-38335-RF-CP-001	**Issuance Date:** 23/09/2022
Document Number: 22-PROC-833493	**Expiry Date:** 23/09/2023

PERMISSION FOR PROCUREMENT OF X-RAY DIFFRACTOMETER

This has reference to your application no. 22-983438 dated 23/09/2022. In exercise of powers conferred under Section 16 of the Atomic Energy Act, 1962 read in conjunction with Rule (3) of the Atomic Energy (Radiation Protection) Rules, {AE(RP)R}, 2004 the Atomic Energy Regulatory Board (AERB) hereby grants permission to Dr. VIKAS GUPTA,REGISTRAR,UNIVERSITY OF DELHI for procurement of radiation generating equipment/source(s) as mentioned in ANNEXURE-I, subject to the following conditions.

1. Licensee, shall abide by all applicable regulatory documents issued by AERB from time to time.

2. Licensee shall submit equipment/source receipt intimation immidiately after receipt of the equipment/source(s).

3. Application for license for operation shall be submitted within three months from the date of receipt of the

   equipment/source(s), as applicable.

Issuing Authority,

Shri R. K. Singh
Head, IAS

(This is an electronically generated letter and hence signature is not required)

DR. VIKAS GUPTA
UNIVERSITY OF DELHI
NORTH CAMPUS, UNIVERSITY OF DELHI VICE REGAL LODGE DELHI, DELHI-110007

Copy to: REGISTRAR,
UNIVERSITY OF DELHI
NORTH CAMPUS, UNIVERSITY OF DELHI VICE REGAL LODGE DELHI, DELHI-110007

परमाणु ऊर्जा नियामक परिषद्,नियामक भवन, अणुशक्तिनगर, मुंबई 400094 (महाराष्ट्र)
Atomic Energy Regulatory Board, Niyamak Bhavan, Anushaktinagar, Mumbai 400094 (Maharashtra)

वेबसाइट/Website: www.aerb.gov.in   दूरभाष/Tel: 91-22-2599 0656   फैक्स/Fax: 91-22-2599 0650

ANNEXURE-I

Details	
Type of Equipment	X-ray Diffractometer
Quantity	1
Equipment Model Name	XtaLAB Synergy S
Radioisotope Name	NA
Number of source(s)	NA
Total Activity(MBq)	NA
Voltage Rating (kV)	50
Current Rating (mA)	1
Original Equipment Manufacturer	Rigaku Corporation,Japan
Name of Equipment supplier with Country	I R TECHNOLOGY SERVICES PVT. LTD.,India

Issuing Authority,

Shri R. K. Singh
Head, IAS