MAJOR COMPONENT-   Quality Interventions

SUB-COMPONENT-   Funds for Quality (LEP, Innovation, Guidance etc)

ACTIVITY MASTER-   Project - Innovative Activities (Secondary & Sr. Secondary)

ACTIVITY-   Connected Classrooms with Digital Board

1. Progress Report in r/o Connected Classrooms with Digital Board 2018-19

2. Proposal for Connected Classrooms with Digital Board in AWP&B 2019-20

a. Establishment of Connected Classroom for the Government (DOE) Schools

Connected classroom is a "Technology Enabled" learning environment where student learning and interaction with the teacher and peers are fully supported through strategic use of ICT tools. This is a solution where a teacher can bring the day's educational topic to life , engaging students and creating an environment that's ripe for learning. A Connected Classroom integrates modern & trending technology resources into students' daily learning activities. Teachers provide opportunities for students to critically think, collaborate, and solve problems while building 21st century skills. Additionally, a Connected Classroom enhances the student/teacher relationship by allowing teachers the ability to provide instant feedback, opportunity for blended or flipped instruction, and access to learning outside of the traditional setting.

Benefits of Technology Integration in Education:

- Transforming the teaching - learning as educational technologies enhances the communication and collaboration among the teachers, students and administrators of the school

- Technology integration in education inspires students to become creators of their own learning by incorporating 21st century skills such as creativity and critical thinking
- Accelerated learning through differentiated instruction and a broader set of learning resources
- The teaching strategies based on educational technology make learning more interactive, effective and interesting for students

Expected Outcomes:
- Different style of imparting knowledge: Incorporating technology tools to the classroom environment will positively change the way of teaching. It gives the excellent opportunity to teachers to impart knowledge to students and at the same time it also simplifies the teaching -learning process for students and teachers.
- Improved thoughtful skills: It shifts the classroom experience to a more collaborative environment so that learners start thinking in more logical and improved way.
- Increased Student involvement: Students who normally do not raise their hands in class or the back-benchers, or somewhat if they are weak, now can take interest to learn something new as these modern age tools provide more understanding to them as all the senses begin to involve in the connected class rooms. By fostering discussions and developing new and out-of-the-box ideas, technology also helps improve the student- teacher bond.
- Updating with online information: Teachers can utilize the various online information such as knowledge databases, online audio-video and worldwide resources to strengthen their lessons and classroom teaching. Students and learners can quickly access the wide range of powerful and resourceful tools in their respective fields and resources to conduct their academics.
- Wide connectivity in different fields and locations: Interactive technology tools and techniques allow for wide connectivity in various locations, making ideal linkages and collaboration and also provides distance learning environment.
- Interact and share: The interactive nature of technology tools provide learners an opportunity to share and participate in the teaching learning process. Classrooms with technology provide a platform for students and teachers to demonstrate their hold of the subject through touching, drawing, and writing. Every student has an opportunity to participate or contribute to the presentation and discussion.
- Teachers can do more experiment in pedagogy: As an academic professional, teaches learn more about how to effectively design and execute a class guided with technology. Whether it's a dramatic change, such as teaching with a

blended or flipped-classroom, or just adopting a single tool for a specific project or term, he will learn something new in modern academia. Being well-versed in technology can also help build his credibility with students, and even with fellow colleagues.

Requirements of Connected Classroom:-

S. No.	Items	Minimum Specifications	Quantity
1	Interactive Board	Infrared & Touch Smart Board, Low Reflection 5th X 4ft with writing board (white/green) of 5ft X 4fit.	1
2	Projection System	3000 ANSI Lumens DLP/LCD Short Throw Projector with all accessories and mount kit.	1
3	Personal Computer	CPU- Corei3 (6th Gen)/1TB HDD/4GB DDR3 RAM/Windows 10 OS Optical Mouse and Keyboard.	1
4	Speakers	Amplified Stereo Speakers.	1
5	Tablets/ Laptops/ chromebooks	As per latest specifications	20
6	Charging Cart for 20 Nos Tablets	Input Voltage: AC 100-240 Volt, Output Voltage: DC 5V/2.1A, Max Load: 1000 W, Bays: Min 32, Rubber Coated Divides, Ventilation Holes each side, Power Distribution Outlet with Locking Doors.	1
7	Classroom Management Solution	Screen Broadcast, Student Demonstration, Camera Broadcast, Group Management, Group Teach & Chat, Monitor & Control, Remote Setting & Command, Quiz & Survey, File Distribution, User Application Policy & Controlling.	1
8	Wifi Router	Dual Band Wireless Gigabit Router.	1
9	Digital Content	Soft Copy of classroom contents for classes I to XII as per State Board.	1
10	Professional Development	Training of teachers including refresher for 2nd and 3rd year.	1

In this context it is worth mentioning that the items at Sl. No 1 to 4 are part of the project of Digital Board which had been sanctioned separately by the PAB and was implemented in 441 schools during the financial Year 2017-2018 and in 503 schools during the year 2018-19. Accordingly PAB had approved the project of connected class in the FY 2018-19.

Department of Education, Govt of NCT of Delhi in the PAB 2018-19 got the approval of Rs 2802.25 Lakhs for the proposal for setting up of Digital Board/ Smart Classroom at a cost of Rs 2.75 Lakh per classroom in 1019 schools. Deptt signed an agreement with EDCIL (PSE of MHRD) the implementation agency for implementing Connected Classroom Project in 944 schools of Delhi. However, due to non availability of specific chipsets the delayed supply of 25% of approved devices (2/3 per school) is being received.

Considering the feedbacks received from various stake holders, the desired impact of the connected classroom can be achieved by increasing the number of personalized learning devices for students from 2/3 per school to 20.Therefore the proposal is now for remaining devices approved in last PAB and more devices for FY 2019-20, so that there are 20 devices per school to make personalized learning possible.

Budget Provision:

S. No	Activity Description	Quantities for 112 schools	Quantities for 832 schools	Quantities for 75 schools	Unit cost (in Rs)	Total No of Schools (Physical quantities)
1	Student Devices with Devices Education License	1904 (17 per school)	14976 (18 per school)	1500 (20 per school)	27,986 per device	1019
2	Capacity Building of Teachers (2 days of training for a batch of 25 teachers)	112	832	75	10,832 per school	
3	Wireless Router	0	0	75	3,972 per school	
4	Device Cart	0	0	75	41,523 per school	

Financial Proposal

Sl. No.	No. of Device already order for school	No. of School	Additional device required	Total cost of device @27986 per device	Cost of capacity building of teachers @ Rs.10,832 per school	Cost of wireless router @ Rs.3972 per school	Cost of Device Cart @ Rs. 41523 per school	Total Cost (Rs. In Lakh)
1	3	112	17	532.85344	12.13184			544.98528
2	2	832	18	4191.18336	90.12224			4281.30560
3	0	75	20	419.79000	8.12400	2.97900	31.14225	462.03525
Total		1019	55	5143.82680	110.37808	2.97900	31.14225	5288.32613

b. Digital Classroom Technology for Improved Learning Outcomes And Education Quality (K-Yan)

Department of Education, Govt of NCT of Delhi in the PAB 2018-19 got the approval of Rs 652.3 Lakhs for the proposal for setting up of Digital Board/ Smart Classroom at a cost of Rs 1.1 Lakh per classroom in 593 schools.

In this connection, Department have completed the setting up of Digital Board/ Smart Classroom project with 01 Integrated Community Computer per school in 503 schools of Delhi for the year 2018-19

Department of Education, Govt of NCT of Delhi has taken the initiative to digitalize all the Government schools. On this mission till date, it has supplied 01 Integrated Community Computer device in 944 schools across the state. Further, we have received a very positive feedback for the solution from the respective Head of Schools and the demand to have more such smart classrooms to be set up in school as one smart classroom per school was not sufficient. Considering the feedbacks received from various stake holders, we would like to take this solution to other government schools so that the benefit would reach maximum number of students, thus improving the students learning abilities.

We also received several requests from the Principal/HoS of government schools for setting up Integrated Community Computer for more classrooms at their schools, so that maximum students get benefited out of it.

Therefore, requesting to provide 01 units of Integrated Community Computer (ICC) may be provided to the 1019 government schools of Delhi.

Establishment of Digital Board/ Smart Classrooms:

As education continues to develop through the integration of technology in and outside the classroom, the mentality among many teachers has started to shift as well. There used to be a fear that technology would eventually replace the teacher, but the more prevalent view now is that it is a tool which can be applied to enhance conventional teaching rather than replace it. Integrating technology in education helps students stay engaged. Technology uses all interactive modules like videos and presentations and these visually attractive methods of teaching become appealing to students who are already struggling with the traditional method of teaching in a classroom. This is because the audio-visual senses of students are targeted and it helps the students store the information fast and more effectively.

Benefits of Technology Integration in Education:

- The teaching strategies based on educational technology can be described as ethical practices that facilitate the students' learning and boost their capacity, productivity, and performance.
- Technology integration in education inspires positive changes in teaching methods on an international level.
- The teacher simply cannot discover a way of presenting tough concepts that makes the concept clear for each and every student in the class. Technology has that power. Through audio-visual presentations, students will understand exactly how the knowledge is applied in practice.

Expected Outcomes:

- The use of multimedia tools in classroom will motivate the students and enhance their knowledge.
- The students' physical as well as mental presence in class will be increased.
- Student will get the experience to travel throughout the world from the virtual space.
- The use of technology will help the students to get quality education with less expenditure.
- This will lead to child-center learning through technology.
- The use of exploratory learning helps students to learn with ease and enjoyment.
- It motivates the creativity, aesthetic aspect, analytical ability, problem solving ability and sensitivity of the teacher and students.
- It helps the teacher and students to be more enthusiastic in teaching learning process.
- The teacher can improve the attendance and get better results through integration of technology in education.
- By using audio/video modules in class, the involvement of students can be made easy. Technology can make them better understand about the concept.
- Activity-based digital learning helps the students to explain the things to present their views and to find the solution.

Proposal:

Going by the response of students as well as teachers regarding the benefits of Digital Board/ Smart Classrooms, it has been found that there is overwhelming excitement among the teacher and the taught. The students have shown a keen

interest in learning through smart classes. The recommendations of teachers and school heads are also heart warming.

In view of the overwhelming response from the students and teachers, the Department of Education feels the need to convert all schools into Smart Classroom by supplementing with Four Integrated Devices at least. The proposed solution and requirement of funds fo**r** establishment of these Smart classrooms are given below:-

Integrated Community Computer (ICC) based learning solution:

The ICC solution is a holistic solution towards providing an interactive learning environment in the school. This is a teacher-centric-approach-based solution. All components of the platform, be it technology, or content, has been devised to facilitate the teacher to make the entire learning experience magical in the classroom.

Benefits of Integrated Community Computer (ICC) Solution:

(a)   All in one educational device: This ensures that one device performs several different functions removing both the hassle and cost of buying, using and maintaining separate devices.

(b)   Cost optimisation: Eliminates the need for installing separate infrastructure in every classroom as it can be carried into every classroom with ease

(c)   Any room can convert into an interactive classroom: This is a unique feature which eliminates   the limitation of having special boards, thereby making it a perfect solution for those on constrained budget of limited number of classrooms

(d)   Concept based multi-media content: The solution must come with NCERT framework-based state board syllabus for the schools to introduce concept-based learning approach. This will reduce the absenteeism in the school and create learning interest in the students. This content makes learning fun, engaging and helps students connect to it better

About Solution:

The Digital Integrated Community Computer (ICC) is based on the Holistic Classroom Learning Model for the Schools, which incorporates the following components:

1. Integrated Community Computer (ICC)
2. Training and Capacity Building of Teachers
3. Project Monitoring and Maintenance

I. **Objective of the Proposed Solution:**

The proposed solution aims to achieve the following objectives:

(a) Revolutionize the Teaching-Learning process in the schools by setting up of innovative IT enabled education solution
(b) Enable a technology driven learning environment in schools with an ingenious combination of technology and curriculum mapped content
(c) Empower the teachers of schools in acquiring IT skills and to feel confident in using IT as an effective teaching tool
(d) Facilitate overall development of the students by providing them access to the world of information and modern teaching methodologies
(e) Focus on the traditional methodologies of learning delivered through futuristic technologies but with a clear focus on learning outcomes

II. **Components of Integrated Community Computer (ICC) Solution**

The Technology Platform for the Integrated All-in One solution is based on an Integrated and Innovative Technology Platform.

Compared to conventional smart class technologies, the Integrated All-in One technology was developed keeping in mind the user i.e. teacher and student and not the technology itself, as given below:

Features	Integrated Community Computer (ICC)
Technology Integration	Multiple Components Integrated into a Single Compact Unit including Large Screen TV
Ease of Setup & Use	Being a Single Cable Plug-in Device, it is very easy to Setup
Portability	A Compact Unit with single Plug-in Cable, it can easily be moved anywhere in the school
Experiential Learning	Wireless Keyboard and Mouse, can be carried anywhere in classroom for use by Students
Image Size	Screen Size can go up to 300" diagonally
Costs and Maintenance	An Integrated device which is affordable and requires low maintenance

III. Training and Capacity Building of Teachers

The capacity-building of teachers is designed to create comprehensive teachers' capacity. The concepts covered are:

- Basic IT Know- how
- How to use the Solution
- Integration of Multimedia Learning Modules in Regular Teaching
- Classroom Management Skills

IV. Project Monitoring and Maintenance:

The education provides complete project maintenance and monitoring for three years wherein a dedicated team of project monitoring resources works continuously to ensure the adequate service delivery to each place through a Centralized Control Centre.

V. Technical Specifications of Integrated Community Computer (ICC) solution:

Technical Specifications	Integrated Community Computer (ICC) Solution
Brightness	3000 ANSI Lumens (Short Throw)
Contrast Ratio	18000:1
Lamp Life	4000 Hours (Standard Mode) & 3000 Hours (Bright Mode)
Resolution	SVGA 800 x 600
Computer System	Intel Core i3 Processor, 6 USB ports,
HDD	1 TB
Input	Wireless Keyboard and Mouse, DVD RW
Output	VGA
RAM	4 GB RAM
LAN / Internet	1 x Gbps Ethernet Connectivity, Interne ready device, Bluetooth and Wi-Fi
Audio	30 W
Inbuilt Interactivity	Minimum 120" diagonal Finger Touch/Pen Interactive Screen
Operating System	Windows 10 SL or higher
Weight	6.5 Kg
Certification	UL

The prioritization of schools is as under:

Prioritization	No. of Schools	Unit Cost (in lakh)	No of Units per school	Requirement of funds (in lakh)
Delhi Government Schools	1019	1.1	1	112.09
Left out schools (2018-19)	75	1.1	1	82.50
Total	**1094**			**1203.40**

Financial Proposal:

Sr.	School Category	No of schools	Unit Cost (Rs. In lakh)	No of Units per school	Total funds (Rs. In lakh)
1	Delhi Government Schools	1019	1.1	1	112.09
2	Left out schools (2018-19)	75	1.1	1	82.50
	Total	**1094**			**1203.40**

Budget Provision:

Sr No	Activity Description	No of Units per school	Total Cost (in Lakh)
1	One Lakh Ten Thousand (1.1 Lakh) per Classroom for 1094 number of schools including all taxes	1	**1203.40**

Note: Amount of Rs. 30 Lakh. for 441 Smart Boards procured during 2017-18 and Rs.131 Lakh for 503 Smart Boards procured during 2018-19 is yet to be paid.

3. Recommendation of Technical Support Group (TSG) -2019-20

Project - Innovative Activities (Secondary & Sr. Secondary)							
Connected Classrooms with Digital	1019	5.18972	5288.32468	1019	5.18972	5288.32468	Considered as proposed by the state
Smart Class Rooms/Digital Boards	1094	1.1	1203.4	1094	1.1	1203.4	Considered as proposed for 1094 schools

4. Approval of Plan Approval Board 2019-20

c) **Project Innovation (Secondary):** An amount of Rs.5711.365 lakh has been estimated under Project Innovation (Secondary) for various activities such as Celebration of Language festival, Open Gym, Sports Day, Coonnected classroom and smart classroom/ Digital Boards. In the connected classroom it is recommended one lab per school with 20 systems in each lab for 1019 schools with total estimated value of Rs. 5186.424 lac and smart board is recommended only for 75 schools, previously not covered with total estimated value of Rs. 82.50 lac. Details list of Schools approved for connected classroom is attached in **Annexure- IV.** List of Schools approved for Smart Classroom/Digital Boards is attached in **Annexure-V.**

(Rs. in lakh)

Activity Master	Physical	Unit Cost	Financial
Project Innovation(Secondary)			
Celebration of Language festival	2564	0.01	25.64
Open Gym	100	2	200
Sports Day	1019	0.2	203.8
Connected classroom (20 systems per school)	1019	5.08972	5186.425
Smart Classroom/Digital Boards	75	1.1	82.5
Ek Bharat Shresth Bharat	13	1	13.00
Total of Project Innovation(Secondary)			5711.365

5. **Costing of Project Approval Board (PAB)**

Particulars					Proposal			Final Approved Outlay		
Major Compone nt	Sub Compone nt			Activity Master	Physic al	Unit Cost	Financial	Physica l	Unit Cost	Financial
				Schools						
				Total of Quality Component s (Secondary & Sr. Secondary)			20.78			20.78
		6 6		Project - Innovative Activities (Secondary & Sr. Secondary)						
			66.	Celebration of Language Festival	2564	0.04500	115.38	2564	0.01000	25.64
				Open Gym	100	3.00000	300	100	2.00000	200
				Sports Day	1019	0.20000	203.8	1019	0.20000	203.8
				Teacher IdCards	1644	0.00050	0.822	1644	0.00050	0.822
				Youth & Eco Club	1282	0.25000	320.5	1036	0.25000	259
			66. ak	Connected Classrooms with Digital	1019	5.18972	5288.3246 8	1019	5.08972	5186.425
			66. bg	Smart Class Rooms/Digit al Boards	1094	1.10000	1203.4	75	1.10000	82.5
			66. g	BAND Competition	58	6.12690	355.3602	1	5.00000	5
			66.l	EK BHARAT SHRESTH BHARAT	13	13.6538 5	177.50005	13	1.00000	13
				Total of Project - Innovative Activities (Secondary & Sr. Secondary)			7965.09			5976.19