

DOST TNA Form 01

APPLICATION FOR TECHNOLOGY NEEDS ASSESSMENT

Name of Enterprise: Department of Education Occidental Mindoro Division		
Contact Person: Elaine A. Dizon	Position: Education Program Supervisor (Science)	
Office Address: Brgy. Payompon, Mamburao, Occidental Mindoro	Tel. No. 09178290907	Fax No.
	E-mail Address:	
Factory Address:	Tel. No.	Fax No.
	E-mail Address:	
Website:		

GENERAL AGREEMENTS:

1. The applicant shall, at the earliest opportunity, make available to the DOST Regional Office No. IVB-MIMAROPA all information (manuals, procedures, etc.) required to establish the technology status of the selected core business functions and management systems;
2. If DOST IVB-MIMAROPA is not satisfied that all the requirements for business registration are complied with, it shall inform the applicant of the observed deficiencies before starting the assessment;
3. When the required inputs to the assessment are already supplied by the applicant, including Attachment A, the DOST IVB-MIMAROPA will assess the firm through the core business functions and management systems, whichever is applicable to identify technology needs and verify compliance to standards vis-à-vis existing practices;
4. When the DOST IVB-MIMAROPA has completed the technology assessment, a report will be prepared on the results of the assessment with accompanying recommendations and opportunities for improvement. The report prepared will define the scope of activities, functions, management practices and locations assessed. The applicant shall not claim or otherwise imply that the report applies to other locations, product or activities not covered by the report;

5. The applicant agrees that the report will not be used until permission has been granted by the DOST IVB-MIMAROPA;
6. The applicant agrees that the receipt and acceptance or acknowledgment of the report ends the assessment stage; any technical assistance ensuing from the recommendations of the report will be viewed as a separate project.

UNDERTAKING

I agree to undertake and observe the above General Agreements as stipulated by the Department of Science and Technology Regional Office No. IV-B-MIMAROPA.

Elaine A. Diaz
ELAINE A. DIAZ

June 14, 2021
Date

Attachment A.

Enterprise Profile

Name of Enterprise Department of Education Occidental Mindoro Division Office

Production of Site/Location Mamburao, Occidental Mindoro

CDA Registration : NA Year Registered NA

Brief Background:

The current era is amid a significant transformation regarding the way products are produced thanks to the automation and digitization of manufacturing. From the first industrial revolution (mechanized production through steam engines) to the mass production and assembly lines using electricity in the second and computers and automation adopted in the third, the Industry 4.0 will further enhance our lives through technologies including smart connectivity, cloud computing, big data, machine learning and artificial intelligence. The society of Industry 4.0 is a world where intelligent robot arms will potentially be used in every aspect of our lives, including education, industry, business and daily life. Every revolution in industry will result in the revolution of education.

The Philippines ranks 50th among one hundred thirty one (131) economies in the Global Innovation Index 2020 (GII 2020). The Global Innovation Index ranks world economies according to their innovation capabilities. The report provides an annual ranking of the innovation capabilities and performance of different economies around the world. The global innovation index had been positively correlated with economic output. According to the GII 2020 report, the Philippines stood out in the areas of innovativeness of its business sector and the innovation outcomes produced by its investments, with the levels of outcomes that even surpassed some high-income economies. The country's innovation profile shows top 25 rankings for other indicators like market capitalization, research talent in business enterprises, and high-technology manufacturing. Compared to other economies in Southeast Asia, East Asia, and Oceania, the Philippines performed above average in the pillars of Business sophistication and Knowledge and technology. This overall performance earned the Philippines rank 11th among the 17 economies in the said region.

Occidental Mindoro's S&T ecosystem should ride this wave of educational technology. In the school setting, robots encourage problem-solving, creative thinking, and a healthy sense of competition that drives innovation from students.

But unfortunately, education seems to still lag behind and not nurture the kind of talents capable of solving the real and practical problems the industry is facing or will potentially deal with. The challenge in the future could not be the lack of employment, but the shortage of skilled talents that the new jobs will demand. It's time for education to keep up with the speed of technology development and take the responsibility to lay a solid foundation for tomorrow's workforce needed in Industry 4.0 and AI era.

So how can K-12 classrooms benefit from robotics? New pedagogies require new tools, and robots are turning out to be the engagement tool teachers have been looking for. Classrooms are dynamically impacted by the dual forces of technological evolution and student expectation. This is especially critical in K-12 environments as millennial age out of the school system and are

replaced by Generation Z. Student engagement is changing, driven by digital natives looking to combine organic social interaction with science, technology, engineering and math discovery. Cracking the K–12 connection code requires a new approach, one that combines active-learning pedagogy with robotics in the classroom to deliver an interactive, immersive learning experience. Stand-and-deliver discourse won't do it for Gen Z students. Access to social technologies combined with an increasing recognition of the need for unstructured play and flexible learning environments has prompted pedagogical shifts that help students engage, rather than simply observe. In practice, robots help bridge pedagogy and technology, offering physical manifestations of key educational concepts. To do this, the STEM teachers need to be capacitated first.

Educators on all levels — teachers, principals, and superintendents — know the value of learning science, technology, engineering and math (STEM) and focusing on technology in education. Robotics takes education technology to a new level, creating the next evolution in teaching. That's because introducing robotics to schools means making STEM skills and knowledge hands-on and fun, to prepare students for the future in a way that feels more like creativity and less like homework. Robotics requires all of the subjects of STEM, so it's a well-rounded approach to educational technology and learning.

This project is an initiative to enhance the teaching-learning environment in STEM, particularly on the practical and experiential side of science, technology, and engineering.

The schools identified by DepEd has the following number of students under the STEM strand per school who will benefit from the project: San Jose National High School (385 students), Sablayan National Comprehensive High School (225 students), Occidental Mindoro National High School (329 students), Magsaysay National High School (193 students), Sta. Cruz National High School (195 students), Rizal National High School (131 students). Thus, the number of students who will benefit from the project totaled to one thousand four hundred and fifty-eight (1,458) students.

Year enterprise was established: NA

Initial capitalization: NA

- Type of Organization:
- Single Proprietorship
 - Cooperative/Association
 - Partnership
 - LGU
 - Profit
 - Non-Profit

Enterprise Registration No: NA Year Registered : NA

Classification according to capital

Present
Capitalization _____

Micro (less than 1.5 M)

Small (1.5 – 15 M)

Medium (15- 100 M)

Classification according to employment (number of employees)

Micro (1-9)

Small (10-99)

Medium (100-199)

Number of Employees:

Direct Workers _____ NA

Production _____

Non-production _____

Indirect/Contract Workers _____

Total _____

Business Activity:

Food processing (please specify specific sector) _____

Furniture (please specify specific sector) _____

Natural fibers, gifts and home decors and fashion accessories
(please specify specific sector)

Metal and engineering (please specify specific sector) _____

Aquatic and marine resources (please specify specific sector)

Horticulture/Agriculture (please specify specific sector)

Others, please specify _____ Education

1. Specific product or service the enterprise offers its customers:

NA

2. Reason why assistance is being sought:

To help public schools in the province in reinforcing the students understanding on scientific concept on their subjects.

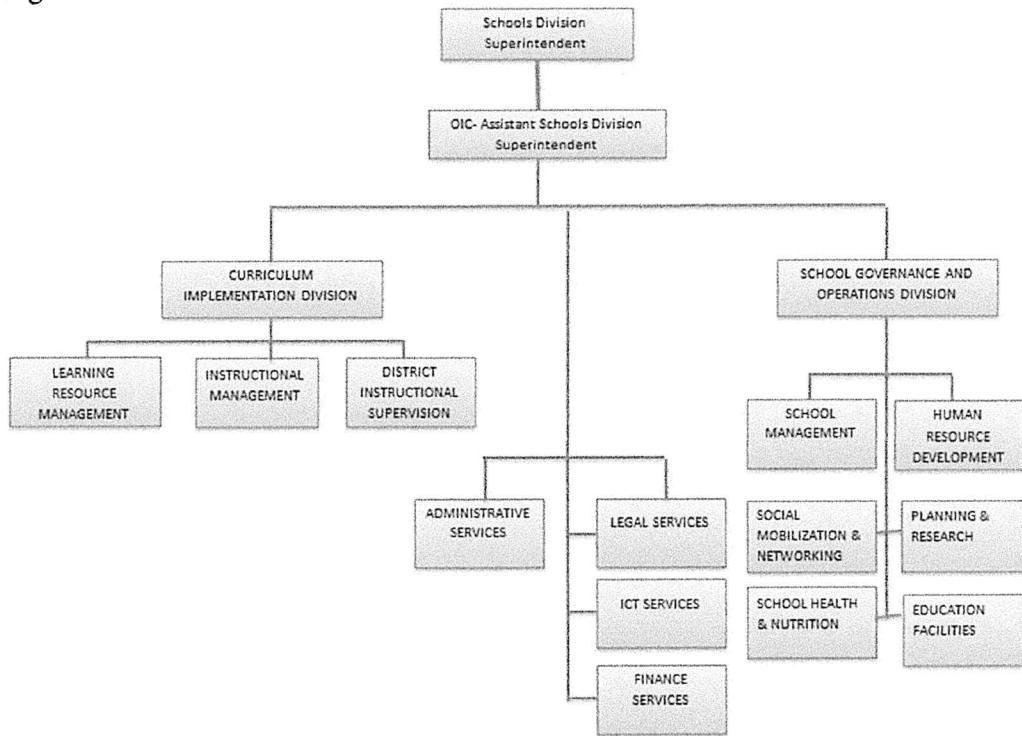
3. Have you consulted any other individual/organization/Agency on any assistance?

Yes, from what company/ agency

Please specify the type of assistance sought

No, why not
No available Module in other Agency

Organizational Structure



4. The Agency plan for the next 5 years?

To roll out the distribution of the Robotic kits to other public schools all over the province of Occidental Mindoro for the students to also have chance to better understanding of science concepts through the use of the kit.

5. Next 10 years?

DepEd Occidental Mindoro Division Office will use the momentum of the application of robotics will then proceed to the application of advanced robotics.

BENCHMARK INFORMATION

- Production and Supply Chain

➤ Raw Material

Operating Cost Components	Source	Unit Cost	Value Used/Year
N/A			

➤ Production/services

Product	Annual Production Volume	Unit Selling Price (PhP)	Annual Cost of Production (Php)
N/A			

➤ Production/Service Equipment

Type of Equipment	Specification	Capacity
None		

➤ Problems and Concerns

- Lack of trainings
- Lack of Experimental Module

➤ Production Waste Management System

None

➤ Production Plan

Training is needed for the equipment maintenance for the equipment's

➤ Production Lay-Out

NA

➤ Process Flow

NA

➤ Inventory System

No Current Inventory System

➤ Maintenance Program

No specific schedules or programs about maintenance

➤ CGMP/HACCP Activities

NA

➤ Supplies/Purchasing System

NA

➤ Marketing Plan

NA

➤ Market Outlets and Number

NA

➤ Promotional Strategies

NA

➤ Market Competition

NA

Packaging

○ Nutrition Evaluation	N/A
○ Bar Code	N/A
○ Product Label	N/A
○ Expiry Date	N/A

▪ Finance

➤ Cash Flow or other related documents

NA

➤ Source(s) of capital/credit

The fund from National Budget

➤ Accounting System

None

▪ Human Resources

➤ Hiring and Criteria

Criteria by DepEd

➤ Incentives to Employees

None

➤ Training and Development

None

➤ Safety Measures Practiced

None

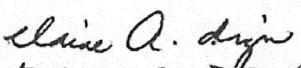
➤ Other Employee Welfare

None

➤ Other Concerns

DepEd Occidental Mindoro hopes that the DOST-MIMAROPA through PSTC Occidental Mindoro will assist in making project proposal for Technology assistance.

Prepared by:



ELAINE A. DIZON
ELAINE A. DIZON
Education Program Supervisor (Science)

Validated by:



ROSLIE G. PABLO
Project Assistant I

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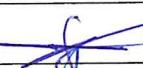
TECHNOLOGY NEEDS ASSESSMENT (TNA) REPORT

ASSOCIATION:	Department of Education Occidental Mindoro Division
ADDRESS:	Brgy. Payompon, Mamburao, Occidental Mindoro

SCOPE OF ASSESSMENT*

The TNA covered the following areas:

1. Strategic Direction
 - a. Vision and mission
 - b. Plans and Objectives
 - c. Strategic alliances and current agreement
2. Management Aspect
 - a. Human resource management
 - b. Purchasing
 - c. Work environment
 - d. Corporate social responsibility
 - e. Occupational health and safety management
3. Technical Aspect
 - a. Operational and outsourcing practices
 - production system
 - production planning and control
 - production lay-out
 - work improvement
 - equipment management and maintenance
 - quality assurance system
 - outsourcing practices
 - b. Product and Process Performance and Improvement
 - reengineering and Research and Development
 - Procedures for continuous improvement
 - Product Quality standards
 - c. Environmental Management System
 - Waste management
4. Marketing Aspect
 - a. Marketing plan
 - b. Market outlets and number

Reported by Vincent Labindao Signature  Date 07/05/2021
 Name of TNA Team Leader

Attested by Jerry B. Mercado Signature  Date 07/13/2021
 Name of ARD

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- c. Promotional strategies
 - d. Market competitors
 - e. Packaging
5. Finance
- a. Cash flow and other related documents
 - b. Sources of capital
 - c. Accounting system

* Scope of TNA is based on Technology Assessment Plan (TAP)

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 Name of TNA Team Leader

Attested by Jerry B. Mercado Signature  Date 07/13/2021
 Name of ARD

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SUMMARY OF ASSESSMENT

BACKGROUND

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METHODOLOGY

The technology needs assessment (TNA) was conducted through an ocular visit. Interview with the assigned Officer of the project was done to get information on how the operation will go as well as the plans and requests of the institution. TNA leader also had his assessment and observations regarding the issues and future direction of the proposed project.

Summary of Findings

1. Strategic Direction

a. Vision and mission

Vision

We dream of Filipinos who passionately love their country and whose values and competencies enable them to realize their full potential and contribute meaningfully to building the nation.

As a learner-centered public institution, the Department of Education continuously improves itself to better serve its stakeholders.

Mission

To protect and promote the right of every Filipino to quality, equitable, culture-based, and complete basic education where:

Students learn in a child-friendly, gender-sensitive, safe, and motivating environment.

Teachers facilitate learning and constantly nurture every learner. Administrators and staff, as stewards of the institution, ensure an enabling and supportive environment for effective learning to happen.

Family, community, and other stakeholders are actively engaged and share responsibility for developing life-long learners.

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b. Plans and Objectives

The institution aims to scale-up science education and research in public high schools in Occidental Mindoro through robotics.

c. Strategic alliances and current agreements

The institution has no specific strategic alliances or agreements related to this project.

2. Management Aspect

a. Human resources

There are at least 7 teachers in each identified beneficiary school to be involved in the utilization and maintenance of the kits.

b. Purchasing

NA

c. Work Environment

NA

d. Business Ethics and Social Responsibility

NA

e. Occupational Health and Safety Management

Practices safety measures during the utilization of the robotic kits.

3. Technical Aspect

a. Operational and Outsourcing Practices

Production system

NA

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Production Planning and Control

NA

Production Layout

NA

Work Study/Improvement

Not yet practiced/ implemented.

Equipment Management and Maintenance

Robotic kits maintenance will be practiced after use by the assigned personnel in every school.

Quality Assurance System

No planned warranty system.

Outsourcing Practices

This practice will be done once necessity has been determined. Outsourcing will take into place as on as scarcity on labour and material requirements arise.

b. Product and Process Performance and Improvement**Re-engineering and Research and Development**

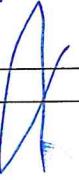
Not practiced

Performance Measures and Results – Process

Not practiced

Performance Measures and Results – Product

Not practiced

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Procedures for Continuous Improvement

The institution always looks for ways to improve methods of teaching especially in the STEM strand

Product Quality Standards

The product quality standards are always observed

c. Environmental Management System

Waste Management

Waste disposal should be observed properly

4. Marketing Aspect

a. Marketing Plan

NA

b. Market Outlets

NA

c. Promotional Activities

NA

d. Market Competitors

NA

5. Finance

a. Cash Flow and other related documents.

NA

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b. Source of capital/credit

From the subsidy of the national budget

c. Accounting System

The institution employs its own account

CONCLUSIONS

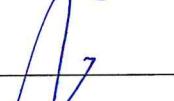
Based on the interview and ocular inspection the TNA team concludes the following:

1. This project will help to strengthen the momentum of the S&T ecosystem in Occidental Mindoro.
2. Identified public school beneficiaries by DepEd Occidental Mindoro will enhance the teaching-learning environment in STEM, particularly on the practical and experiential side of science, technology, and engineering.

RECOMMENDATIONS

The following are recommended by the TNA team:

1. DOST MIMAROPA should extend assistance to the DepEd Occidental Mindoro to provide S&T equipment by providing technology intervention such as robotic kits.
2. DOST MIMAROPA should assist the institution in the conduct of training on Operation, Troubleshooting, and Maintenance of Robotic kits.

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