



DATA DRIVEN INNOVATION Centre

DDI

PROGRESS REPORT JANUARY-JUNE 2020

1. INTRODUCTION

CREATES was selected as one of the four ACEs in Tanzania to win a competitive grant for establishing an incubation center in the region. The grant by IUCEA is worth 250,000 USD, which is meant as seed money for establishment of an Incubation Center at NM-AIST on *Data Driven Innovation (DDI) for food and Nutrition Security*. The DDI Centre, based at CREATES, aims at facilitating up-scaling of the innovations and startups into commercialized products and services. The DDI Centre will facilitate technical skills to incubatees, related to their specific innovations, mentorship, marketing, patenting, and product commercialization and promotion. The Incubation Centre will focus on four main thematic areas; Agriculture, Food and Nutrition Security, Biodiversity and the Environment, and Health, with ICT and entrepreneurship being the backbone drivers of these areas. The DDI centre is aimed at testing products in real life environments as it is working with commercially viable entities to launch companies and products into the national, regional, and international market.

DDI was established with the mission and spirit of driving young incubatees forward with their products. DDI's vision: *To transform rural livelihoods through the provision of innovative, practical, and replicable solutions to the challenges the agricultural sector is facing:*

- Robust data management system on agricultural practices and services, e.g. tracking farming and market trends
- Research into early warning systems for pest and disease attacks and epidemics
- Advisory services on climate smart farming, i.e., information on weather patterns and trends to adapt and mitigate climate change effects
- Design of applications / software needed to improve food and nutrition security in the region
- Data collection and monitoring of value-chains in the agricultural and food sector
- Novel and sustainable solutions and technologies for agricultural products, tapping on natural resources and avoiding pesticides, using natural formulas for best nutrition, using ICT technologies for provision of data, apps, information to researchers and the community at large

2. Project Progress January – June 2020

2.1 Call for Incubatees

The call for incubates in the DDI program was announced at the NM-AIST website www.nm-asit.ac.tz early in January, 2020, with the deadline of 20th January 2020. The project invited young innovators from the sub-Sahara Region who have ideas, prototypes, or products to become funded and nurtured via DDI to bring their innovations to the market. The innovators were required to fill in a detailed online application form and send it back to NM-AIST through the Deputy Vice Chancellor's Office (DV-ARI). The Call is attached to this report as Annex I.

2.2 Incubatees Interviews and Selection

The Data Driven Innovation (DDI) Incubation Centre enrolled its new incubatees after receiving 10 applications, which were assessed based on the various criteria that were set in the application form, and six finalists were selected as the first batch to be incubated. The selection committee consisted of different experts from Prof. Hulda Swai, Prof. Anna Treydte and Dr. Ernest Mbega from NM-AIST, Dr. Jacqueline Mkindi from TAHA, Mr. John Kyaruzi from SAGCOT-CTF, Mr. Mathew Ngwahi from Litenga Holding Company and Dr. Zaipuna Yona from Applied Engineering and Byte Work (T) Limited. The interview was conducted on 20/02/2020 at NM-AIST and was chaired by Dr. Kelvin Mtei, who represented the DVC-ARI. The following incubatees with their prototypes were selected as the first cohort for the DDI project.

Table 1: List of the six incubatees that were selected and their innovations

No	Incubate Name	Business Title	Innovation Stage	Target Beneficiaries
1	Angela Mkindi	Natural plant extracts for Storage, field pest management and promotion of legume growth	Prototype	Farmers, Agro-input dealers and consumers
2	Michael Nkotagu	A web-based application for plagiarism detection	Prototype	Students, Researchers and Academic institutions
3	Christina Charles	Omega-3 DHA Super-food: a natural nutritious super-food rich in bioactive omega-3 DHA and other essential nutrients for brain development and cognitive function	Prototype	Mothers, Children, Hospitals and community in general
4	Never Zekaya	VURUGA BIOPESTICIDE- Organic pesticide for control of several crop pests	Product under full registration	Farmers, Agro-inputs dealers and consumers
5	Jofrey Raymond	NutriApp: A Phone-Based Nutrition Intervention Tool for Fighting Malnutrition in SSA	Prototype	Mothers, Children, Hospitals and community in general
6	Shakila Mshana	Digital Farming	Prototype	Farmers



Interview session (left) and the group of panelists in front of the CREATES building (right).

2.3 Roadmap

After the selection process, the incubatees were informed and the orientation meeting was held on 14th March, 2020. Incubatees were oriented about the program, the vision and requirements as well as on how to draw up their road map for the next period of six months. The road map also included their proposed budget for their respective projects. Each incubatee was assigned an individual mentor for him/her to work with to strengthen their ideas and innovation techniques as well as to provide them with a strong network in academia, industry and society (end – users). Mentors were carefully selected and matched according to their expertise and field of operation.

Table 2: List of incubatees and their matched mentors

First Name	Last Name	Main mentor	Additional mentors
Angela	Mkindi	Anna Treydte (NM-AIST)	Phil Stevenson, Jacqueline Mkindi, Eliamani Laltaika
Michael	Nkotagu	Sabine Moebs (DHBW)	Yonah Zaipuna
Chrstina	Charles	Hulda Swai (NM-AIST)	Festo Kavishe, Marie Mayes
Never	Zekaya	Mathew Ngwahi (Litenga)	Jacqueline Mkindi (TAHA)
Jofrey	Raymond	Askwar Hilonga	Jerman Rose, Morris Agaba
Shakila	Mshana	John Kyaruzi (SAGCOT)	Michael Anderson, Marie Mayes

2.4 Training

The selected incubates, in collaboration with their mentors, managed to identify infrastructure, soft skills, and industry connections needed for incubates to get more knowledge and propel their innovations. In March 2020, the incubatees attended a four-days business and entrepreneurship course in Moshi, in the frame of the Exact4U and Foot2Africa program, and they were also able to visit various industrial partners, such as BONITE Bottlers, as part of the training to learn more of business and entrepreneur skills (Programme attached as ANNEX II). Further, the incubatees have met several times with their mentors and have increased their networks and team to guarantee a good start for their innovations. Regular meetings with the DDI management team also ensured good communication. Meetings were partly done online via zoom and skype due to Corona (COVID – 19) restrictions.



Incubatees visiting industrial partners and attending a hands-on business-oriented workshop training in Moshi.

2.5 Office space

The DDI centre managed to secure six cubes as office space at the NM-AIST incubation centre on campus in Tengeru. The office space provides a stimulating atmosphere and guarantees closeness to the research and academic environment. The office further provides access to internet, library resources as well as all necessary infrastructure. The offices will be used by incubatees for the period that they will be incubated under DDI.

2.6 Establishment of the container design factory

The DDI centre is acquiring and establishing container-designed factories for product development and establishing prototypes/spin offs at NM-AIST. The procurement process to purchase three containers for the initial establishment is in its final stages. The team from NM-AIST went to Dar es Salaam to inspect the containers in April 2020. (Post inspection report attached as Annex IV) Also, the request for land space on the NM-AIST campus to put up the containers has already been submitted to the Planning and Finance Office (PFA) and granted. At the moment, the container poles are built ready to put up the containers once they arrive.



Inspected containers ready to be transported to NM-AIST

2.7 Formalization of incubates into the NM-AIST Intellectual Property Management System (IPMS)

The DDI management team had a meeting with the NM-AIST Intellectual Property (IP) Manager, Mr. Swai, and the NM-AIST Lawyer, Mr. Shoo, on how we can collaborate and mainstream documents and contracts so that DDI can provide a role model on how to handle IP in the future. During the meeting, it was realized that the DDI center MUST follow the NM-AIST Intellectual Property Management System requirements before the DDI management moves on with other activities. Due to the urgency of this matter, the project facilitated a three days' workshop at the TCDC (DANISH center) in Usa River to develop application forms, Non-Disclosure Agreement (NDA), Proposal formats and a consortium agreement. As a follow-up, the DDI management is now planning to have a three days meeting session with incubatees from 13-15 July 2020 to go through the process and come up with a document package ready for the Intellectual Property Committee (IPC) at NM-AIST to approve. Once the IPC approves the incubates, they will be formalized at NM-AIST.

3. COVID-19

As an addition to react to a novel challenge, the current pandemic of coronavirus (COVID-19) caused by a severe acute respiratory syndrome and a novel coronavirus 2 (SARS-CoV-2), NM-AIST through the DDI center also seeks to address the issue through computational drug repurposing design. This is a method that had also been used to discover chloroquine. This approach is the fastest mean of identifying approved drugs for other diseases to treat a new disease. Daniel Shadrack, as an expert in computer aided drug design at NM-AIST, will take the role of leading the research to identify some of our natural products and other FDA approved drugs for a potential COVID-19 treatment. Daniel Shadrack is a NM-AIST PhD student, sponsored by the Centre of Excellence, CREATES, and supervised by Prof. Hulda Swai. The DDI center supported Daniel with USD 3,000 for this activity. Also, NM-AIST signed an MOU with three universities, namely the university of Dar es Salaam, Kenyatta University, and St. John University to collaborate on this research.

4. Promotion of VURUGA product in Simiyu Region

The DDI center is particularly proud to also developed a demo plot at Nyakabindi Nanenane grounds in Simiyu that will be used to showcase the benefit of using the bio-pesticide developed by our incubatee Never Zekaya, a PhD student from NM-AIST. The Vuruga product represents a pest control tool for maize, tomatoes and cotton during this year's Nane Nane event, which is going to be conducted at national level in Simiyu . The DDI management team has been in Simiyu for the preparation purpose and has met with the Regional leadership to explore commercialization of the bio pesticide. VURUGA product was also among the NM-AIST product displayed during the Parliamentary Committee visit at NM-AIST in April 2020.



Minister for Education receiving some Vuruga information from the DDI incubatee, Never Zekaya, when the Parliamentary Committee visited NM-AIST.



Cotton and Maize plots planted in Simiyu as demo plots ready for the Nane Nane promotion

5. Monitoring and further progress

The incubatees are being closely monitored by mentors and the DDI centre management. They have to report regularly to the DDI staff and fill out a monitoring form that assesses their progress in terms of infrastructure and skills acquired as well as their challenges and what went particularly well. The students are regularly reporting online and in person to the DDI management and the mentors will also regularly updated and assessed for their satisfaction with the DDI centre progress. (Monitoring Form is attached as ANNEX III)

6. CHALLENGES

- Delays in procurement process have been the major challenge during the past six months
- Formalisation of incubatees into the NM-AIST IPMO system, as the system was developed after the project had already recruited the incubates.

7. Future plans

The DDI centre is hoping to start the production chain in July, 2020, when hopefully containers have been installed and incubatees have settled in. A further meeting with all mentors (virtually or in person) is planned for the beginning of August, 2020. A website is being established and will be further furnished with incubatee news as well as achievement, network that DDI is providing, and information for donors and stakeholders. Further, sustainable funding possibilities will be searched for each incubatee's project, with the help of the individual mentors, to guarantee a long-term success of the incubatee's spin-off products.

ANNEX I



**Center for Research, Agricultural advancement, Teaching Excellence and
Sustainability (CREATES)
and**

**The Nelson Mandela African Institution of Science and Technology (NM-AIST).
P.O. Box 447, Arusha**

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www.creates-nm-aist.ac.tz | creates@nm-aist.ac.tz

Call for participation in the Data Driven Innovation (DDI) Incubation Centre

Background

The Data Driven Innovation (DDI) Incubation Centre is a newly established Incubation Centre in the Sub Saharan Africa (SSA) Region. The Centre is hosted by the Nelson Mandela African Institution of Science and Technology (NM-AIST) based in Arusha Tanzania through the African Centre for Research, Agricultural Advancement, Teaching Excellence and Sustainability (CREATES) which is based at NM-AIST. The DDI Incubation Centre is one of the four Regional Incubators started and supported by the Inter Universities Council for East Africa (IUCEA) with grants from the World Bank. The Incubation Centre focuses on 4 main thematic areas; Agriculture, Food and Nutrition Security, Biodiversity and the Environment, and Health with ICT and entrepreneurship being the

backbone drivers of these areas. The centre is aimed at testing products in real life environments as it is working with commercially viable entities to launch companies and products into the national, regional and international market.

The DDI Incubator intends to offer young innovators/inventors (henceforth referred to as innovators) and entrepreneurs a wide range of business development services including but not limited to; business idea analysis and diagnostics, mentorship, product/prototypes development and registration services, work station provisions, specialised trainings, market access, pitching and networking activities, among others. Generally the Centre promotes innovators and entrepreneurs offering potential ideas, prototypes and products facilities and equipment access at NM-AIST including its *Param-Kilimanjaro -High-Performance Computing (HPC)* facility with a robust ICT Platform – A Data Hub – that host a vast amount of authenticated Data on different attributes of farming: farm and farmers - including soil, plant, water, animals, extension services, land use and off-takers and suppliers.

Call for Expression of Interest

NM-AIST hereby invites expressions of interest from potential young innovators from the SSA Region who have ideas, prototypes or products to apply for participating in the DDI incubation programme. The application process is divided into three steps; the first step is registration by filling in the application form which can be accessed at the NM-AIST website www.nm-aist.ac.tz and CREATES website www.create-nm-aist.ac.tz . The applications will be screened and selected candidates will compete by preparing and submitting a business plan followed by an oral presentation.

Eligibility Criteria

Following are the criteria for funding:

- Applicant must be a youth aged between 18-35 years.
- Applicant must be from the sub-Saharan Africa region.
- The business idea must be innovative and should either encompass ICT as a product or use ICT as an enabler in addressing food and nutrition security challenges across the region.
- The business idea or innovation must be environmentally and financially sustainable (i.e., it can be implemented beyond program funding).
- The business or idea should have growth potential, a solid revenue model and a strong customer focus (demand-driven).
- The proposed project idea must comply with Tanzanian legal and regulatory requirements.
- If successful, the applicant must use the funds to implement the intended idea or scale-up a current project within 8 months.

How to Apply

Interested applicants are requested to download and fill the application form available on the NM-AIST and CREATES websites: www.nm-aist.ac.tz or www.create-nm-aist.ac.tz . The period for submission is 21 days from the date of this advertisement and therefore the application will be closed on 20.../01.... 2020. No applications submitted after the deadline will be allowed to enter into the competition.

How to submit the application

The filled application form and professional certificates should be sent by either e-mail or via postal address and should be addressed to:

**Deputy Vice Chancellor,
Academic, Research and Innovations
The Nelson Mandela African Institution of Science and Technology,
P.O. Box 447,
ARUSHA, TANZANIA.
E-mail: dvc-admin@nm-aist.ac.tz**

Only shortlisted candidates will be contacted through their addresses/telephone/e-mails. ***Female*** youths are strongly encouraged to apply.

For more information, please visit the NM-AIST website: www.nm-aist.ac.tz and CREATES Websites: www.create-nm-aist.ac.tz



DATA DRIVEN INNOVATION INCUBATION CENTRE (DDI-Incubation Centre)

INCUBATION APPLICATION FORM

***This form should filled by an individual or applicant who wishes to participate in the incubation and should be submitted to the respective office via the address indicated in the call advert*

a) About the applicant

Full Name:	
Contact phone:	
Email address:	
Postal address:	
Country:	
Position held:	
Company / farm / institution:	
Sex:	
Age:	
Highest Education Level:	

Area of Specialization:	
Name of Institute/ University of highest degree?	

b) Business/ innovation details

Title of your Business/Technology proposal for Incubation:	
Is this technology/Business your own? Or obtained from other sources?	Own ____yes ____no Other sources ____yes ____no
Are you applying with a group? If yes, provide other collaborator names and their intended contributions	
What stage of development for your innovation/business	1.Conceptual Stage _____ 2.Prototype _____ 3.Existing in the market_____
Brief Description of the Product/Services/Technology business you plan to incubate in DDI (<i>Note the idea should be on either application of ICT or</i>	

<i>development of ICT based technology and service to address Food and Nutrition Security) – max 500 words</i>	
Brief description of the support and other technological inputs you need from DDI to perfect and commercialize your idea or innovation (support can be access to infrastructure, equipment, training, mentoring and other professional services)	
Indicate how your innovation might benefit from access to DDI's human and physical resources.	
Do you have a market for your products / services? Yes_____ No_____	If yes, list who are your costumers/users
Please give names and addresses of up to three referees who are acquainted with your career profession/ achievement.	

Any other detail which would help in evaluating your application	
Budget requirements / start-up capital / seed money?	

Data Driven Innovation (DDI) Incubation Screening & Selection Criteria

The following are Criteria for screening and selection of incubatees;

I. Business Focus & Location:

- Business ideas that are technology-based, systems application development, the internet of things based, and other emerging technologies (Artificial Intelligence, software and applications, Virtual / augmented reality, Blockchain) use of ICT to produce goods or services, innovative software applications, hardware design, manufacturing and assemblage.

II. Idea and Stage of Development:

- The proposed startup or innovation should be in the idea stage or prototype and it should originate from the applicant(s) and - if it is already existing as a business's/innovation - it should be less than a year old. OR
- The applicant should be undertaking pre-business research or testing a business idea, such as: (1) working on a product prototyping; (2) be in the process of establishing a new business for a ready-to-market product or service; or (3) re-establishing, re-branding or re-positioning an existing business.
- The business or idea must be an original idea of the applicant(s)

III. Growth Potential & Opportunity:

- The business should have growth potential, a revenue model and customer focus.

- The business should also provide investable opportunity – an opportunity for which finance can be sought, or have adequate financing already in place.
- The business should have a viable market opportunity.

IV. **Innovation & Social Impact:**

- The business should be an innovative business idea, product or services that promise to address challenges in food and nutrition security.
- It should provide an idea on knowledge transfer, skills, and technologies to the users and customers.
- It will contribute to employment creation.
- It should not have a detrimental environmental or social impact.

Generally, the screening and selection Criteria can be categorized into three main categories;

- *“Is it real?” explores both market potential and the feasibility of developing the product or service.*
- *“Can it win?” considers whether the innovations and the company can be competitive in the market.*
- *“Is it worth doing?” examines the profit potential and whether the innovation makes strategic sense in the long term sustainability.*

Incubatees Selection Process

The DDI Incubator Management team, researchers and other selection committee members will be responsible for reviewing applications, screening and selecting the new incubatees. The following selection process will be followed;

- **Initial Review.** DDI Incubator Management team and experts will conduct an initial screening of each applicant, ensuring the application is complete, verifying credentials including the professional certificates, evaluating the venture which was submitted via the application form and contacting references. The top applications will move on to the next stage of the Selection Process.
- **Submit business plans/proposals:** The selected applicants will be required to submit a brief business plan of their venture. The plans will be evaluated based on both technological and business-based feasibilities. The selection committee will evaluate the applicant’s business plans/ideas based on a standard evaluation tool and checklist.
- **Screening Calls.** The semi-finalist applicants will have a 5-minute screening call with a member of the incubator team to answer any questions about their application, venture, and ability to commit to the program.

- **Pitching /oral presentations.** Top finalist applicants will be given 5 minutes to deliver a virtual pitch and 5 minutes to answers questions from members of the Selection Committee via Zoom video conferencing or face to face interviews on November 19, 2020. Pitching or oral presentation will give the DDI Incubator Management team and the Selections Committee a chance to interact with finalists and to learn more about each venture.
- **Final Selection.** After pitching members of the Selection Committee will select ventures for inclusion in the DDI Incubator program. Selected incubatees will be notified of their selection.

ANNEX II: TRAINING PROGRAM-MOSHI

Programme

EXAKT4YOU Innovation Workshop & African Grand Challenge Uhuru Hostel, Kilimanjaro Road, Moshi, Tanzania

Date:	14 -21 March 2020
Place:	Uhuru Hostel, Kilimanjaro Road, Moshi

Monday 9 March	Arrival of all participants at Patmos Hostel, Moshi by 16:00h
Tuesday 10 Mar. 2020	Industry visit
Wed-Sat 11-14 March	Foot2Afrika Summer School, week 2 & industry visits
Sunday 15 Mar. 2020	Breakfast and informal meet & greet Field trip Intercultural training
Monday 16 Mar. 2020	Opening with Welcome Speeches, Keynote Topic briefings, team setup
Tuesday 17 Mar. 2020	All day: teams work on their challenge
Wednesday 18 Mar. 2020	All day: teams work on their challenge
Thursday 19 Mar. 2020	All day: teams work on their challenge
Friday 20 Mar. 2020	Presentation and exhibition (open to public) Conference of Judges Award Ceremony (open to public) and BBQ reception
Saturday 21 Mar. 2020	Departure of all participants

ANNEX III: INCUBATES PROGRESS MONITORING FORM

DDI PROJECT

INCUBATEES MONITORING TOOL

1. PERSONAL INFORMATION: Mentee

Surname:.....

Other names:.....

Email address:.....

Phone #:.....

2. Reporting Duration Month 1:.....

3. Today's date:

4. What have you achieved in this first month, i.e., since the start of your mentoring program?
i.e., mention soft skills, infrastructure, scientific skills, networking, industrial partner visit

5. What did you discuss with your mentor for the next month?
6. What has worked well so far?
7. What challenges have you faced and what might be the cause?
8. What can you do to help deal with the challenge?
9. What step have you reached so far within your set goals of the purpose road map

10. Do you have any major highlights from the last few months that you would like to share with us(prize, awards ,promotions, professionalism recognition, publication, acceptance to a conference, etc.)?

11. How much of your budget have you used in this month and for what?

12. Have you added a new mentor / supervisor / team member to your team?

PI- DDI PROJECT:.....

SIGNATURE:.....

Date:.....

MENTOR'S NAME:.....

ANNEX IV- DDI CONTAINERS POST INSPECTION REPORT

NELSON MANDELA AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY (NM-AIST)

Office of the Estate & Asset Management Department

Mobile Phone: +255 713521295
Fax: +255 272970016
E-mail: dismas.buhatwa@nm-aist.ac.tz



Tengeru
P.O. Box 447
Arusha, TANZANIA
Web: www.nm-aist.ac.tz

Date: 26/05/2020

INTERNAL MEMO

POST QUALIFICATION EXAMINATION REPORT FOR (NUT SHELL) CONTAINNERS

Kindly refer to the heading above.

The post qualification examination for Containers conducted by Mr.Dismas Buhantwa-Principal Mechanical Technician and Mr.Kaanankira Mbise –Creates Accountant from 20-21.05.2020 in Dar-es-salaam at ALMAR containers limited yard. The containers inspected as per specifications and user requirements, we realized that the containers are in good condition even though they are not brand new, the team identified three containers as per specifications and requirements which will be transferred to NM-AIST for the intended use after finalizing the procurement procedures. Pictures which show the part numbers are attached herewith for future reference.

Furthermore attached herewith are the documents like Business License, certificate of Incorporation, Certificate of Registration and certificate of registration for Value Added Tax (VAT)as the important documents evidencing the existence of the Company and some copies of the invoices which the company had supplied recently includes their numbers for reference.

RECOMMENDATION

The team recommends that, next time the user should do prior inspection of the goods to meet the right needs of the user and be a part of the supply since most of the supplier has the capacity of delivering the container which has been modified already.

NB: In the market there are few new containers, and if you require new container will cost more than 10,000USD before modifying.

I submit.