



TERMS OF REFERENCE FOR CONSULSTANCY- BUSINESS MODEL DEVELOPMENT ON 3D PRINTING SERVICE DELIVERY IN RWANDA

Project: Inclusive Nutrition and Early Childhood Development (INECD/Gikuriro Kuri Bose)

Funding: United States Agency for International Development (USAID)

1. Context of activity

Federation Handicap International which operates under the name Humanity & Inclusion (HI), in consortium with the Catholic Relief Services (CRS) which is the Prime and other consortium members including: Umuhuza, Three Stones International and the University of Global Health Equity (UGHE), is implementing disability inclusion and rehabilitation/AT component under a five-year USAID funded program entitled “**Inclusive Nutrition and Early Childhood Development (INECD/ USAID GIKURIRO KURI BOSE)**”. The INECD program promotes nurturing and responsive care practices, especially in the areas of health, functioning, nutrition, and early childhood development (ECD) for caregivers and children.

Under this specific component, the project addresses social inclusion needs, child development gaps, physical rehabilitation and assistive technology (rehab/AT) needs focusing on improving accessibility, affordability, and availability of durable assistive products to the end-users in Rwanda. In this framework, the INECD program in collaboration with Regional Center of Excellence in Biomedical Engineering of the University of Rwanda (UR-CEBE), have recently introduced a new 3-D Printing technology aimed promoting access to good quality and affordable mobility assistive technology devices in Rwanda. This technology will bring prosthetic and orthotic services closer to the communities, hence reducing the need for the end-users to travel long distances or wait for a long period of time to do the prosthetic fittings.

It is against this background that the INECD program in collaboration with UR-CEBE, would like to hire a local or international consultant with a strong business management background that will develop a business model for the 3-D printing Project. This model will serve as a guiding tool for; defining operational roles and responsibilities of the involved stakeholders, determining the cost of production of the 3 D mobility technology devices vis-à-vis the conventional orthopaedic devices and return on investment, ultimate price of the finished product and cost-sharing between UR-CEBE which in this case will be considered as the service provider in charge of printing 3 D mobility devices (orthotic and prosthetic fittings) and its customers namely: CHUK, CHUB and Gahini hospital that will be responsible for the clients’ assessment, scanning, digital designing of prosthetic sockets using the 3-D printing





technology and sending the measurements to UR-CEBE production team for Printing. The business model will also contain strong mechanisms to ensure the sustainability of the 3 D printing program through optimization of returns on investment. The process of developing a business model should be completed in not more than 30 days from the date of signing the contract.

2.Tasks to be completed by the consultant:

- Assess the existing capabilities and resources of both UR/CEBE and the participating hospitals. This involves evaluating the hospitals' capacity to undertake 3D scanning and designing, as well as UR/CEBE's expertise and infrastructure for 3D printing.
- Identify both local, regional and international markets in which the 3D printing raw materials can be obtained
- Provide a realistic price of a 3D prosthetic and orthotic devices taking into consideration the cost of production and delivery of the item to the end-users
- Provide accurate cost calculation of the annual running cost of the 3 D printing lab
- Anticipate potential risks associated with the 3 D printing project and develop a risk mitigation plan
- Develop the standard operating procedures to guide cooperation framework between UR-CEBE which is the service provider and its clients (3 rehabilitation stakeholders) namely: CHUK, CHUB and Gahini hospital
- Provide a clear picture of the demand for prostheses and orthoses in Rwanda, as well as the competitive landscape.
- Assess relevant laws, regulations, and standards governing medical device manufacturing and healthcare services. Assess legal and regulatory requirements and incorporate them into the business model to mitigate risks and ensure compliance.
- Determine the costs associated with 3D scanning, designing, and printing of mobility assistive technology devices, as well as overhead expenses such as equipment maintenance, personnel training, and material costs. This analysis would inform the pricing structure and revenue-sharing model.
- Based on the findings from the market analysis and financial assessment, the consultant will develop a comprehensive business model outlining how UR/CEBE and hospitals will collaborate in the production of 3D devices and the realistic revenue that can be generated from the whole manufacturing process.
- Develop a cooperation framework with detailed roles and responsibilities of each party, cost allocation, pricing strategies, revenue-sharing mechanisms, and profit distribution and dispute resolution mechanisms.
- Establish a pricing structure for 3D prostheses, orthoses and other related devices reflecting on the shared costs and ensures a reasonable profit margin for both UR/CEBE and hospitals.
- Develop mechanisms for compensation related to the services rendered by each party.





- Propose the agreement-upon cost-sharing arrangement which shows a profit-sharing model where profits are split between the two parties based on their respective contributions to the manufacturing process.
- Compare and contrast the cost of production of the 3D printing mobility assistive technology devices such as: prosthesis, orthosis vis a vis the same devices produced using other technologies such as: lamination and Polypropylene

3. General objective:

- Develop a business model with clear information that will guide cooperation between UR-CEBE and various rehabilitation stakeholders including: CHUK, CHUB and Gahini hospital with the intention to enhance; the efficiency, quality, satisfaction of the end users and sustainability of the 3-D printing project.

4. Specific objectives:

- Develop a business model with precise information on sustainability mechanisms, the cost of production, return on investment cost-sharing and the price of mobility assistive devices that will be produced using 3D printing technology
- Develop a standard operating procedure and collaboration frameworks between UR-CEBE that in in this case be considered as the service provider and 3 relevant stakeholders: CHUB, CHUK, and Gahini hospital that will be considered as the clients

5.Expected deliverables:

- ✓ An inception report will be shared on **25th November 2024**
- ✓ A clear and contextualized business model canvas describing the Frontstage and backstage models describing each element as to:
 1. customer/User segment
 2. Customer relationships
 3. Channels
 4. Value Proposition
 5. Key Activities
 - 6, Key Resources
 7. Key partners
 8. Cost structure
 9. Revenue stream

It should contain a detailed information on; sustainability mechanisms, the cost of production, cost-sharing, pricing structure, return on investment and cooperation framework between UR-CEBE and its 3 customers namely: CHUB, CHUK and Gahini hospital. The final version will be shared on: **14th January 2025**





6. Methodology

- In collaboration with the INECD program, the UR-CEBE will organize 3 consultative meetings that will converge relevant stakeholders namely: RBC, MoH, NCPD, CHUK, CHUB, Gahini hospital, RSSB, CHAI, NUDOR, HVP GATAGARA, RMS, BUFMARA, HI and 3 Rehabilitation associations: RPTO, RWOTA and RSPO. The first 2-day consultative meeting will be aimed at gathering relevant information that will enable the consultant to develop a business model. The second consultative meeting will be aimed at reviewing the drafted business model and provide inputs while the third consultative meeting will be intended to validate the business model. In this process, the INECD program will provide logistics support such as: meals, refreshments and transport fees for the participants.
- A participatory approach will be used to allow the participants share their views and opinions with the intention to generate adequate information that will guide the consultant in developing the business model.

7. Implementation:

Tentative plan:

- The activity will be implemented at UR-CEBE on the following tentative dates:
- Present an Inception report: **25th November 2024**
- First consultative meeting: **27th – 28th November 2024**
- Drafting a business model: **2 weeks (29th November - 11th December 2024)**
- Second consultative meeting to present the 1st draft of the business model: **12th – 13th December 2024**
- Finalize the business model: **14 December 2024 to 6th January 2025.**
- Third consultative workshop to validate a business model: **8th January 2024**
- Submission of the final version of the business model on **14th January 2025**

8. Expertise required:

Qualification/Experience of the consultant

- A Master's degree in Finance, systems design, health economics, healthcare management, Advanced Statistical Analysis, prosthetics and orthotics.
- Minimum of 5 years of relevant experience in developing business models for the 3D printing projects





- Familiarity with Rwanda's national healthcare system including the supply chain for the rehabilitation materials and different technologies for producing assistive devices most especially the 3 D printing technology
- Extensive experience working with diverse stakeholders, including government agencies, NGOs, and healthcare facilities.
- Strong analytical and problem-solving skills, with the ability to develop innovative and sustainable solutions to complex challenges.
- Demonstrable expertise in financial modelling, income sharing arrangements, and partnership development
- A strong experience in carrying out research studies, data analysis and financial modelling.
- Excellent Communication and English writing skills
- Demonstrate excellent interpersonal skills in interacting with stakeholders and partners in health care, specifically in the rehabilitation sector.
- Ability to work in a multi-professional synergy
- Should master English as primary teaching language (French as an asset)

9. The submission should include:

- Financial proposal in FRW (for local consultants) or USD for international consultants. This should include all applicable tax) WHT 15% for non-Rwandan residents or VAT 18% for Rwandan residents
- For international consultant, indicate if the flight, visa, accommodation and transportation is included within the proposal
- Technical proposal with Activities Timeframe to meet the requirements
- Evidence of the previous similar or related work done related to business model development for the 3D printing technology (not mandatory but an added advantage)
- Curriculum vitae (CV) and relevant éducation certificates
- Names and contact information of three references
- Company Profile / Individual Freelance Worker CV
- Documents proving registration and any other documents certifying to the regularity of the company or his/her activity
- Proof of personal health/hospital insurance
- Identification documents (Passport/ID)
- RDB registration with Tax Identification Number (if applicable)
- Valid RSSB clearance certificate for Rwandan residents
- Bank details (Account name, account number and Bank name)
- Valid Tax clearance certificate for Rwandan residents
- Clear and precise payment condition





10. Application procedures

All interested international and National consultants with the required expertise and experience in developing a business model, are allowed to apply for this job.

Applications should be submitted **by Thursday 8 of November 2024** to dao@rwanda.hi.org, indicating in the subject of the e-mail: **Business Model Development on 3D Printing Service Delivery in Rwanda**

Only those candidates in who meet all qualifications and experience will be contacted for further consideration.

HI is committed to preventing any type of unwanted behaviour at work including sexual harassment, exploitation and abuse, lack of integrity and financial misconduct; and committed to promoting the welfare of boys, girls, men and women with and without disabilities with whom HI engages.

HI expects all staff and partners to share this commitment through our code of conduct and other Institutional policies such as the PSEAH and Child Protection Policy.

Women with disabilities are highly encouraged to apply.

A committee will review the submission and oral interview will be organized for shortlisted candidates.

To do so these candidates **must be available for an online interview the 14 of November 2024.**

