Programme for Research-Development-Innovative for
Space Technology and Advance Research – STAR

Project perspective for STARWALKER sustainable continuation

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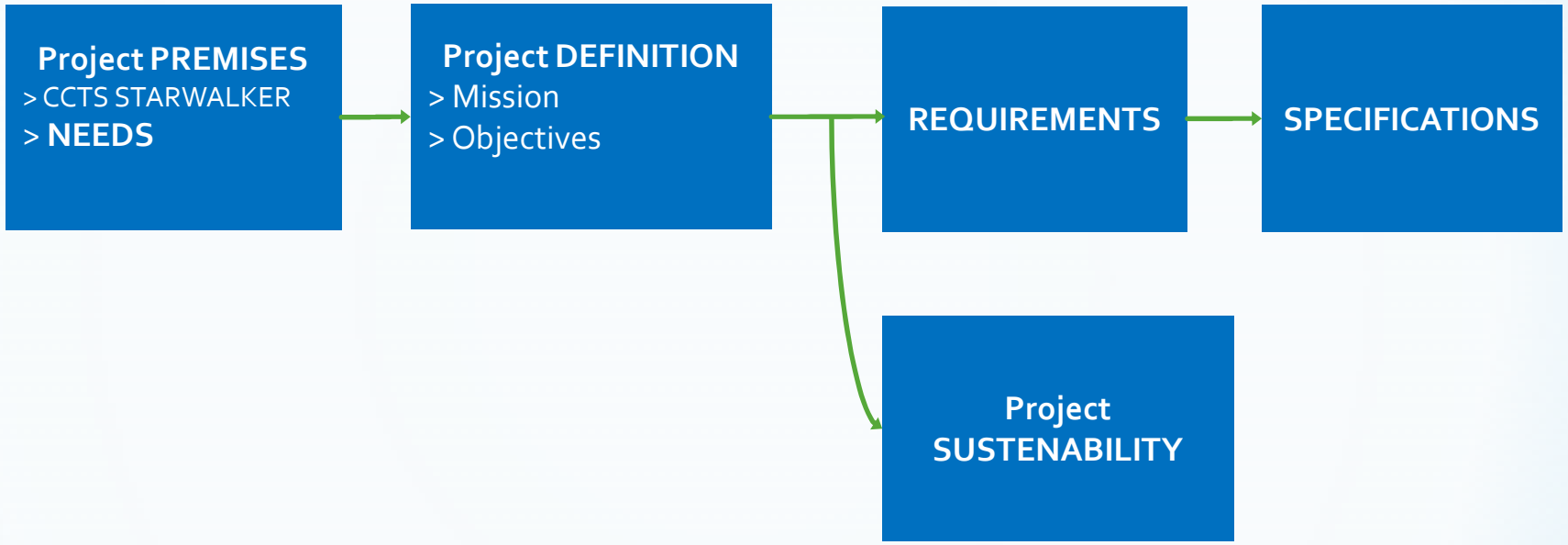
Presentation structure



Current Needs

Need 1. Need for stable operational physical location suitable for the envisaged activities and facilities

Need 2. Need for extending/consolidation of new technologies/functional facilities

Need 3. Need for extending and ensuring adequate human resource (interdisciplinary permanent personnel and collaborators within research and industry)

Mission:

Mission: Starwalker Centre of Competence development into a Countermeasure Centre of Excelence for supporting Human Spaceflights in order to provide scientific, methdologic and technologic solutions to/according European Space Agency – ESA, and also to society for terrestrial applications

Targeting groups:

- Countermeasure space community with interest in supporting long-term manned space flight;
- entities with demanding professions (military, firefighters, special forces, divers etc.) with interest in increasing human performance;
- sport community interest in increasing human performance;
- medical community on preventing the emergence of diseases and health recovery and employment; etc.

Financing: *European Structural and Investment Funds, other national funds*

Current Objectives

- **Objective 1:** Consolidating / developing facility for experiments and applications of Human Performance evaluation / training / recovery in the benefit of Human Spaceflight and society.
- **Objective 2:** Creating advanced facility for particular work frame in order to deliver new types of Human Performance experiments and applications
- **Objective 3:** Ensuring the continuing development of the operational working environment towards ESA
- **Objective 4:** Creating recreational facilities for stimulating scientific creativity

Objective 1 – Requirements - Specs

Requirements	Specs
1. FACILITY OF FUNCTIONAL INVESTIGATION	• Biomechanics equipment for real time movement analysis; • Equipment for Multisensorial and cerebral activity analysis; • Equipment for biochemical investigations • Equipment for developing applications based on Artificial Intelligence; • Etc.
2. FACILITY OF BEHAVIORAL AND SPACE PSYCHOLOGY	• Video acquisition and analysis systems: visual, Infrared, Radar; • Audio signal acquisition and analysis systems; • Behavioural analysis systems; • Emotional analysis systems; • Rapid prototyping of interactive applications for psychological tests • Equipment for developing applications based on Artificial Intelligence; • Etc.
3. FACILITY OF MECHANIC AND ELECTRONIC FAST PROTOTYPING	• Specific Hardware and software systems; • Etc.

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Objective 2 – Requirements - Specs

Requirements	Specs
1. IMMERSION POOL analog to microgravity	• Neutral buoyancy option • Glass walls; • External cranes; • Interior/exterior (image) acquisition and analysis systems; • Current simulation engines; • Illumination, thermal control and filtering systems; • Etc.
2. CLOSED HABITAT analog to isolated, confined environment	• Habitat bounding several modules (including hygienic module); • Sound-proof module (ideal anechoic room); • Faraday Shield (Faraday cage); • Interior/exterior (image) acquisition and analysis systems; • Thermal control and air filtration; • Hyper/hypobaric options; • Etc.
3. FACILITY OF CONCCURENT DESIGN	• Specific Hardware and software systems; • Etc.

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Objective 3 – Requirements - Specs

Requirements	Specs
1. Certified human resource in SYSTEMS ENGINEERING methodology	• Continuing development of human resource for ESA standards; • Etc.
2. SYSTEMS ENGINEERING framework implementation	• working environment promotion based on ESA standards, methodology and terminology; • Open space, reconfigurable, enabling interdisciplinary workshops • Etc.

Objective 4 – Requirements - Specs

Requirements	Specs
1. Recreational facilities for stimulating scientific creativity	• Individual/team sport facilities • Etc.

Conclusions

- ✓ **Project Sustainability:**

  [1]. national / international R&D countermeasures to support long-term space flight manned;

  [2]. solution supplier to/according ESA

  [3]. training service activities

- ✓ **Increased competitivity**
- ✓ **Paving the way to new R&D opportunities**

Thank You!

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