澳 門 特 別 行 政 區
Região Administrativa Especial de Macau
科學技術發展基金
Fundo para o Desenvolvimento das Ciências e da Tecnologia

Funding Scheme for Scientific Research and Innovation – Demand-Driven Applications (2025 Edition)

I. Background

To foster the integration of academic research with enterprise needs, support enterprises in undertaking innovative research and development, and facilitate the transformation of scientific research outcomes, thereby increasing the overall research investment in Macao and accelerating the cultivation of emerging industries, the Science and Technology Development Fund (FDCT) has collected technological demands that are hindering the development of Macao technology enterprises that have obtained the "Certification for Technology Enterprises", as well as those in the Hengqin Cooperation Zone through the Economic Development Bureau of the Guangdong-Macao In-Depth Cooperation Zone in Hengqin. Leveraging the expertise of mainland specialists, a number of projects with the potential for near-term resolution and significant enhancement of enterprises' core competitiveness have been selected and refined. These projects are open to applications from research teams at higher education institutions in Macao. It is expected that the technological capabilities of Macao's higher education institutions (or in collaboration with institutions and enterprises from the Mainland and Macao) will help solve challenges in enterprise development.

II. Overall Objective

To promote research and development by research teams at higher education institutions in Macao in response to the technological needs of technology enterprises in Macao and Hengqin, to facilitate closer collaboration among industry, academia and research sectors, accelerate the transformation of research results, cultivate emerging industries, and advance the moderately diversified development of Macao's industries.

III. Technological Demand Areas

(I) Traditional Chinese Medicine and Health

<u>Direction 1: Research and Development of New Drugs with Identical Name and Formula Based on Bear Bile Capsule and Formulations Containing Bear Bile Powder</u>

1. Demand Entity: Golden Bear Pharmaceutical (Zhuhai Hengqin) Co., Ltd.

2. **Contact Person and Telephone:** Lao Hio Mui; Tel: 0086-13680369585; Email: yezifm@qq.com

3. **Details of Technological Demand:**

(1) Research on the quality standards for bear bile capsule products with identical name and formula.

(2) Evaluation of quality consistency, efficacy consistency and safety consistency for bear bile capsule products with identical name and formula.

(3) Based on the relevant policies under the Macao Law on Registration of Proprietary Chinese Medicines, jointly develop Chinese medicine preparations containing bear bile powder by replacing natural bear bile powder with transformed bear bile powder. A comprehensive study is required, including market demand analysis in the Guangdong-Hong Kong-Macao Greater Bay Area, policy direction of Chinese medicine development, and competitive patent landscape, to determine products with identical name and formula that are suitable for enterprise development and have market prospects.

(4) Conduct market research on the products and produce a research report, and complete the quality standards study.

4. **Key Technical Indicators:**

Obtain approval in Macao for bear bile capsule products with identical name and formula; apply for 1–2 additional formulations containing bear bile powder with identical name and formula. Achieve the following key indicators:

(1) Research report on the quality standards of bear bile capsule products with identical name and formula.

(2) Research summary report on the evaluation of quality consistency, efficacy consistency and safety consistency of bear bile capsule products with identical name and formula.

(3) Detailed research report on the market analysis of formulations containing bear bile powder with identical name and formula.

(4) Complete the quality standards research report.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must possess leading national or international scientific research levels and capabilities in the field of traditional Chinese medicine development, have appropriate laboratory

equipment and facilities, and possess experience in collaborative R&D with enterprises.

6. **Research Funding:** MOP1,500,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** The enterprise shall own the intellectual property generated in the early stages. The scientific and technological outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned, and the revenue distribution shall be determined through a separate agreement between the parties.

8. **R&D Duration:** 36 months.

Direction 2: Development of Traditional Chinese Medicine Products for Diarrhoea

1. **Demand Entity:** Zhuhai Hengqin Aoye Health Technology Co., Ltd.

2. **Contact Person and Telephone:** Ni Jing Yun; Tel:+0086 13926992641; Email: nicole.ni@ aoyhealth.com

3. **Details of Technological Demand:**

   Completion of the tasks required for preclinical research of a new drug, including but not limited to: research on extraction and formulation processes, quality standards research and stability testing, continuous production of three batches of stable and qualified pilot samples, pharmacodynamics and safety evaluation.

4. **Key Technical Indicators:**

   (1) Completion of pharmaceutical research and production of qualified pilot samples;

   (2) Completion of pharmacodynamics study;

   (3) Completion of safety evaluation;

   (4) Submission of application for clinical trial authorisation of the new drug and acceptance by relevant authority.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must possess leading national or international scientific research levels and capabilities in the relevant field, as well as certain engineering implementation capabilities, laboratory

equipment and facilities, and experience in collaborative R&D with enterprises. Joint applications with higher education institutions, R&D institutes and enterprises from both the Mainland and Macao are permitted.

6. **Research Funding:** MOP2,500,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** The enterprise shall own the intellectual property generated in the early stages. The scientific and technological outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned, and the revenue distribution shall be determined through a separate agreement between the parties.

8. **R&D Duration:** 36 months.

Direction 3: Development of a Uric Acid-Lowering Functional Food with Homology of Medicine and Food

1. **Demand Entity:** Zhuhai Hengqin Aorui Medical Technology Co., Ltd.

2. **Contact Person and Telephone:** Lei Kuok Hou; Tel: 008618901339987; Email: 495385005@qq.com

3. **Details of Technological Demand:**

This project uses traditional Chinese medicine materials with homology of medicine and food as raw materials. Through ultrafine grinding and enzymatic hydrolysis, bioactive small peptides will be obtained. Effective components will be screened, filtered and purified via nanofiltration technology. Specific components will be analysed using liquid chromatography–mass spectrometry. Low-temperature vacuum drying will be used to preserve the bioactivity of effective components. The final product will be a functional food complex for reducing high uric acid levels.

4. **Key Technical Indicators:**

(1) Develop a new formula with independent intellectual property rights for uric acid reduction using sunflower receptacle as the main ingredient;

(2) Complete pharmacodynamics studies in accordance with Macao health food requirements;

(3) Complete extraction and formulation process studies in accordance with Macao health food requirements;

(4) Submit applications for 2–3 health food products in Macao and obtain acceptance.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must possess leading national or international scientific research levels and capabilities in the field of functional foods based on traditional Chinese medicine, as well as certain engineering implementation capabilities, laboratory equipment and facilities, and experience in collaborative R&D with enterprises.

6. **Research Funding:** MOP2,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** The enterprise shall own the intellectual property generated in the early stages. The scientific and technological outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned, and the revenue distribution shall be determined through a separate agreement between the parties.

8. **R&D Duration:** 24 months.

Direction 4: Key Technological Research and Application for Preclinical Study of Class 1.1 Innovative Traditional Chinese Medicine SY617

1. **Demand Entity:** Jia Heng (Zhuhai Hengqin) Pharmaceutical Technology Co., Ltd.

2. **Contact Person and Telephone:** Chan Seng U; Tel: 0086-13160681099; Email: yanfachenchengyu@fusenpharma.com

3. **Details of Technological Demand:**

SY617 is derived from a traditional clinical formula with a 40-year history from the Affiliated Hospital of Chengdu University of Traditional Chinese Medicine. It functions to dispel wind and detoxify, clear epidemic toxins and eliminate dampness, and is intended for the treatment of wind-heat dampness syndrome in influenza. However, preclinical research on SY617 is yet to be completed. Firstly, as a complex formulation composed of 17 ingredients, the pharmacologically active substances remain unclear, and there is a lack of suitable quality marker compounds, which adversely affects industrialisation processes such as process scale-up, quality standard establishment, and production process validation. Secondly, the preparation process and evaluation method for the SY617 placebo still need improvement to avoid unblinding in clinical trials. Furthermore, although antiviral activity has been demonstrated in H3N2-infected rats, the

pharmacological mechanisms and targets of efficacy remain to be elucidated. Therefore, this project aims to identify the chemical composition of SY617 systematically, elucidate the pharmacologically active substances, identify appropriate quality marker compounds, clarify the anti-influenza mechanism of the compound formulation, and develop a suitable placebo preparation process and evaluation method, thereby providing a technological basis for SY617 to enter confirmatory clinical trials.

4. Key Technical Indicators:

(1) Conduct full component analysis of the principal ingredient *Zhuye Chaihu* and complete research on pharmacologically active substances and enhancement of quality standards;

(2) Conduct systematic research on the quality of two-thirds of the prescription ingredients and produce a research report;

(3) Complete the pharmaceutical research section in accordance with clinical trial authorisation requirements;

(4) Develop the preparation process and evaluation method for the SY617 placebo;

(5) Apply for two invention patents and enter the substantive examination stage.

5. Eligibility Requirements for Applicants: Applicants must be higher education institutions in Macao offering degree programmes in Traditional Chinese Medicine. They must possess leading national or international scientific research levels and capabilities in the fields of pharmacologically active substances and quality research of Chinese medicine, as well as certain engineering implementation capabilities, laboratory equipment and facilities, and experience in collaborative R&D with enterprises.

6. Research Funding: MOP1,500,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. Intellectual Property and Benefit Ownership: The scientific and technological outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement between the parties.

8. R&D Duration: 24 months.

Direction 5: Quality Standard Enhancement Study on Wind-Heat Cold Granules and Wind-Cold Cold Granules

1. **Demand Entity:** Bailing Yuxiu (Zhuhai) Pharmaceutical Co., Ltd.

2. **Contact Person and Telephone:** Chan Wan Kam; Tel: (domestic dialing: +0851 international dialling: +86851) 15508515351; Email: 2410023629@qq.com

3. **Details of Technological Demand:**

   Wind-Heat Cold Granules and Wind-Cold Cold Granules are marketed products of Guizhou Bailing. The current quality control standards for both products only include general appearance and basic tests, lacking physicochemical identification and content determination methods. As this project intends to register the two products in Macao as "Drugs with Identical Name and Formula" in accordance with the relevant requirements of the Macao Special Administrative Region, it is necessary to carry out analysis of the prescribed chemical components, screen active ingredients as measurable indicators, and establish rational methods for content determination and physicochemical identification for both the formulations and intermediates. Relevant studies shall be completed and compiled into comprehensive registration documents to apply for registration of the two products as "Drugs with Identical Name and Formula" in Macao and obtain acceptance approval.

4. **Key Technical Indicators:**

   (1) Prepare the "Quality Standards (Draft) for Intermediates/Formulations" and its drafting explanation in accordance with the relevant approval requirements;

   (2) Complete the transfer of analytical methods to the receiving party and prepare the method transfer plan and report;

   (3) Complete a full set of formulation stability tests in accordance with the relevant approval requirements, and produce a summary report;

   (4) Organise the research data into comprehensive registration documents and submit applications for registration of the two "Drugs with Identical Name and Formula" and obtain acceptance;

   (5) Apply for 1–3 patents and publish 1–3 research papers.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must possess leading national or international scientific research levels and capabilities in the relevant fields, as well as research and development experience in pharmaceutical quality standards, engineering implementation capability, appropriate laboratory

equipment and facilities, and experience in collaborative R&D with enterprises. The laboratory must be equipped with the facilities necessary for method development required by this project. Joint applications with higher education institutions, R&D institutions and enterprises from the Mainland and Macao are permitted.

6. **Research Funding:** MOP600,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** The enterprise shall own the intellectual property generated in the early stages. The scientific and technological outcomes and resulting intellectual property jointly completed by both parties, and the revenue distribution, shall be determined through a separate agreement.

8. **R&D Duration:** 36 months.

(II) Biomedicine

Direction 1: R&D of an Integrated Traditional Chinese Medicine Diagnosis and Prescription Recommendation System Based on Clinical Four Diagnostic Methods and Large Language Models

1. **Demand Entity:** Zhuhai Quanxintong Technology Co., Ltd.

2. **Contact Person and Telephone:** Lau Chi Kau; Tel: +86-19168691046; Email: lzg_1986@126.com

3. **Details of Technological Demand:**

To promote the accessibility of traditional Chinese medicine (TCM) services at the community level, and to address the shortage of grassroots medical personnel and the limited level of intelligent diagnosis in TCM, it is necessary to develop a smart TCM robot system equipped with integrated TCM diagnosis and prescription recommendation capabilities. The system shall be based on clinical four diagnostic methods and large language models. The project must overcome two core technical challenges:
① Develop data collection and processing methods for multimodal TCM four-diagnostic clinical evidence-based research and construct a syndrome differentiation model integrating the four diagnostic methods;
② Integrate clinical data from both TCM and Western medicine, overcome the challenge of multi-source heterogeneous data fusion, and construct a TCM diagnosis large language model and Chinese medicine recommendation system.

4. **Key Technical Indicators:**

(1) Develop multimodal data collection standards for the four TCM diagnostic methods—tongue, pulse, face, and inquiry—based on evidence-based medicine and large language models, and establish two industry standards;

(2) Develop a comprehensive assessment system based on the four diagnostic methods covering 200 types of syndromes;

(3) Integrate TCM and Western clinical cases to achieve syndrome diagnosis and prescription recommendation with a syndrome differentiation accuracy rate exceeding 80% using a TCM large language model;

(4) Obtain multi-centre clinical trial reports;

(5) Officially submit an application for registration of a Class II or above medical device.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must possess experience in AI-based TCM research and access to high-quality clinical data from both TCM and Western medicine, with nationally or internationally leading research capabilities in the field of AI and TCM integration. They must also have certain engineering implementation capabilities, laboratory equipment and facilities, and experience in collaborative R&D with enterprises. Joint applications with higher education institutions, R&D institutions and enterprises from the Mainland and Macao are permitted.

6. **Research Funding:** MOP5,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned by that party. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned, and the revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 36 months.

Direction 2: Research on Intelligent Fusion-Guided Technology of CT and Ultrasound Imaging during Percutaneous Intervention for Liver Cancer

1. **Demand Entity:** Zhuhai Hengle Medical Technology Co., Ltd.

2. **Contact Person and Telephone:** Iao Kam Chao; Tel: 0086-15920828661; Email: jinzhou.qiu@hanglok-tech.cn

3. **Details of Technological Demand:**

   To address the issue of intelligent fusion guidance between CT and ultrasound imaging during percutaneous interventional procedures for liver cancer, the two imaging modalities must be integrated to provide multi-dimensional information fusion, thereby improving the precision and efficiency of interventional treatment and achieving better therapeutic outcomes. The key technologies to be tackled include abdominal ultrasound image enhancement and flexible registration between CT and ultrasound imaging. The registration technology must be integrated with percutaneous interventional surgical robots.

4. **Key Technical Indicators:**

   (1) Enhanced abdominal ultrasound imaging must be able to identify tumours with a diameter of no less than 1 cm;

   (2) Initial CT-ultrasound image registration for the liver must be completed within ≤10 seconds, with registration accuracy error ≤2 mm;

   (3) Real-time flexible registration of CT images during respiration must achieve a registration accuracy error ≤2 mm, with a single registration time ≤100 milliseconds.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must have nationally or internationally leading research capabilities in the relevant fields, extensive practical experience, and experience in the commercialisation of medical products (internationally registered products preferred). The team must have experience in collaborative medical AI projects with enterprises in Macao. Joint applications with higher education institutions, R&D institutions and enterprises from the Mainland and Macao are permitted.

6. **Research Funding:** MOP1,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned by that party.

Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The enterprise shall have a royalty-free right to use the jointly owned intellectual property.

8. **R&D Duration:** 30 months.

Direction 3: R&D of Fluorescent Diagnostic Reagents for Staging of Chronic Kidney Disease Based on Microfluidic Chips

1. **Demand Entity:** Zhuhai DQFR Biotechnology Co., Ltd.

2. **Contact Person and Telephone:** Tong Cheong; Tel: +86-15344880544; Email: xiang.tang@digifluidic.com

3. **Details of Technological Demand:**

To achieve high-precision, high-sensitivity and user-friendly diagnostic staging for chronic kidney disease (CKD), especially for early-stage diagnosis, a biomarker-based diagnostic reagent suitable for point-of-care testing (POCT) scenarios must be developed. The technological requirements focus on three aspects:

(1) Screening of biomarkers and development of a convenient and accurate method for estimating GFR;

(2) Development of highly sensitive fluorescent detection reagents based on microfluidic chips to address the challenge of quantifying low-concentration biomarkers;

(3) Enabling rapid detection for home and multi-scenario applications.

4. **Key Technical Indicators:**

(1) Screen 1–3 blood and urine biomarkers to differentiate CKD stages, with a correlation of over 90% compared to gold standard testing methods;

(2) Develop 2 types of fluorescent detection reagent kits compatible with microfluidic chips; detection sensitivity ≥70%, specificity ≥70%; improve detection limits by 10% compared to existing biomarker methods;

(3) Achieve compatible detection of blood and urine on the same platform applicable in multiple scenarios; complete testing process within 30 minutes.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao with relevant research experience. They

must have leading national or international research capabilities, as well as engineering implementation capacity. Laboratories must be equipped for microscopic imaging and capable of measuring fluorescence lifetime and fluorescence spectra.

6. **Research Funding:** MOP2,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned by that party. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 36 months.

Direction 4: R&D of Fibre-Based Eco-Friendly Decorative Materials Derived from Traditional Chinese Medicine Residues

1. **Demand Entity:** Shengwu (Zhuhai) Technology Co., Ltd.

2. **Contact Person and Telephone:** Ip Iok Leng.; Tel: 86-18826024499; Email: info@zenceobject.com

3. **Details of Technological Demand:**

   This project aims to process fibres derived from traditional Chinese medicine (TCM) residues into eco-friendly decorative materials for use in interior surface decoration and other applications. It is necessary to develop technologies for fibre extraction, green modification and forming, in order to address the challenges of insufficient toughness, high moisture absorption, and difficulty in processing TCM residue fibres. The technical requirements include: high-efficiency fibre separation processes and compatibility optimisation with adhesives to ensure that the materials are both aesthetically pleasing and practical, while meeting relevant production standards and environmental protection requirements.

4. **Key Technical Indicators:**

   (1) Establish one preparation process based on green modification technology;

   (2) Fibre strength must meet the requirements of *Medium Density Fibreboard* (GB/T 11718-2021): tensile strength ≥20 MPa;

(3) Moisture absorption rate must comply with Test Methods of the Physical and Chemical Properties of Wood-Based Panels and Finishing Products (GB/T 17657-2022): ≤10%;

(4) Formaldehyde emission must comply with Indoor Decorating and Refurbishing Materials—Limit of Formaldehyde Emission of Wood-Based Panels and Finishing Products (GB 18580-2017): ≤0.1 mg/m³;

(5) Processing temperature must comply with Terminology for Wood-Based Panels and Their Surface Decoration (GB/T 18259-2018): forming temperature controlled between 100–200°C;

(6) Fire resistance must meet Class B1 flame-retardant standard under Classification for Burning Behaviour of Building Materials and Products (GB 8624-2012);

(7) Draft one group standard for the preparation of composite materials from TCM plant fibres.

(8) Apply for no fewer than 2 national invention patents.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao with nationally or internationally leading research capabilities in biomass and environmental functional material R&D. Applicants must also possess engineering implementation capabilities, laboratory equipment and facilities, and experience in collaborative R&D with enterprises to leverage complementary strengths.

6. **Research Funding:** MOP1,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned by that party. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 36 months.

Direction 5: R&D of Biomaterials for Enrichment, Purification and Oral Delivery of Small Nucleic Acid Drugs

1. **Demand Entity:** Ruina (Zhuhai Hengqin) Biotechnology Co., Ltd.

2. **Contact Person and Telephone: Chou Hoi Ut; Tel: (86)18063875597; Email: 790211392@qq.com**

3. **Details of Technological Demand:**

   (1) Develop new biomaterials for specific enrichment and purification of small nucleic acid molecules. Applicable to methods such as centrifugal spin columns, magnetic beads, solid-phase extraction (SPE) columns, high-performance or ultra-high-performance liquid chromatography columns, to improve enrichment efficiency, ensure operational safety, and reduce R&D costs;

   (2) Develop biomaterials suitable for oral delivery of siRNA to overcome physiological barriers such as the gastrointestinal environment and enable oral administration, especially for the treatment of gastrointestinal diseases (tumours).

4. **Key Technical Indicators:**

   (1) Phenol and chloroform content must be 0 during enrichment and purification processes;

   (2) Enrich at least 10 ng/mg of small nucleic acids <20 nt in tissue or 10 ng/100 μL in blood samples;

   (3) Encapsulation efficiency of biomaterials for siRNA molecules ≥95%;

   (4) Retention of ≥5% of siRNA prototype drug after passing through the animal gastrointestinal environment;

   (5) Tumour inhibition rate in animals after oral administration for solid tumours such as lung, liver or breast cancer ≥50%;

   (6) Publish 2–4 academic papers and apply for/obtain 2–4 national invention patents.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao with nationally or internationally leading research capabilities in the field of small nucleic acid drug research, possessing mature platforms and translational experience, and supported by a professional R&D team to ensure smooth project implementation and attainment of expected outcomes.

6. **Research Funding:** MOP4,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned by that party. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 36 months.

(III) **Digital Technology**

Direction 1: Application Research on Ubiquitous Sensing-Based Seamless Indoor and Outdoor Positioning in Macao

1. **Demand Entity:** Macao Newland Wanbo Technology Co., Ltd.

2. **Contact Person and Telephone:** Lo Kai Mon; Tel: 00853-65635457; Email: misty.luo@newland.com.cn

3. **Details of Technological Demand:**

Targeting high-precision positioning applications in Macao, this project integrates multi-source data from intelligent terminals, including GNSS, Wi-Fi, geomagnetism, etc., to develop seamless indoor and outdoor positioning and generative path planning technologies. It aims to address unstable positioning caused by urban canyon multipath effects and the absence of GNSS signals indoors, thereby achieving full-scenario metre-level positioning and overcoming the difficulty of positioning due to the dense distribution of urban landmarks and buildings in Macao. The project will also lay the foundation for building a next-generation intelligent recommendation system.

4. **Key Technical Indicators:**

(1) With intelligent terminals as the platform, achieve an indoor-outdoor relative trajectory error (RTE) < 3 metres and step detection accuracy (SDR) > 96%;

(2) Positioning update frequency > 10 Hz and response time ≤ 1 second;

(3) In the million-level path data, the response time of similar queries is less than 1ms, and the recall rate is greater than 0.9. The accuracy of path generation is Rouge-1 > 0.7 and Rouge-L > 0.5.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They should have a research foundation in smart city IoT, urban big data and smart technologies, GNSS (e.g., BeiDou) positioning, and ubiquitous sensing technologies. Applicants must have advanced research capabilities, practical experience, laboratory equipment and facilities. Joint applications with higher education institutions, R&D institutions and enterprises from the Mainland and Macao capable of product commercialisation are encouraged.

6. **Research Funding:** MOP2,500,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 1:1.

7. **Intellectual Property and Benefit Ownership:** Belongs to the enterprise or shall be determined according to the cooperation development agreement.

8. **R&D Duration:** 24 months.

Direction 2: Research on Automatic Generation Technology of Malicious Traffic Monitoring Rules Based on Large Models

1. **Demand Entity:** VisTech Co., Ltd.

2. **Contact Person and Telephone**: Ieong Chok Ian; Tel: +853 6233 8817; Email: victor.ieong@vastcomtech.com

3. **Details of Technological Demand:**

   To address the challenge of traditional intrusion detection systems being unable to cope with novel multi-stage attacks, this project introduces artificial intelligence and large language model (LLM) technologies to enable the automatic generation of monitoring rules for malicious traffic. The system will be integrated into the full life cycle of cybersecurity offence and defence, thereby addressing threat identification across all stages and generating a large model for security rule generation, with the goal of building a reliable intelligent intrusion detection system.

4. **Key Technical Indicators:**

   (1) Utilise open-source large models with parameter sizes ranging from 10B to 30B, with inference speed of 50 tokens/s;

   (2) Generation delay for a single regular malicious traffic rule ≤ 10 seconds; valid rule generation rate ≥ 70%;

   (3) Time required to generate security rules based on the latest disclosed security incidents or vulnerability information ≤ 24 hours;

(4) Using rules generated by the large model, achieve malicious traffic detection rate ≥ 85%, detection accuracy ≥ 85%, false positive rate ≤ 3%, and F-Score (harmonic mean of precision and recall) ≥ 80%.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must possess a solid research foundation and leading position in the fields of cybersecurity, AI algorithms, and LLM security.

6. **Research Funding:** MOP2,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 1:1.

7. **Intellectual Property and Benefit Ownership:** Intellectual property and benefits generated during the R&D process shall be determined through negotiation between the parties.

8. **R&D Duration:** 36 months.

Direction 3: Data Exchange Technology between Heterogeneous Blockchains

1. **Demand Entity:** Wango Information Technology Co., Ltd.

2. **Contact Person and Telephone:** Wong Kam; Tel: +86 19168881506 / +853 68881506; Email: jevin@infomacro.com

3. **Details of Technological Demand:**

Develop a cross-chain communication protocol applicable to both homogeneous and heterogeneous blockchains, and establish a one-stop cross-chain access system, including SDKs, management consoles, smart contract deployment, and operation and maintenance tools. Construct a cross-chain identity management system based on decentralised identity (DID), and research mechanisms for direct and external verification of cross-chain transactions. Implement a cross-chain smart contract invocation protocol, integrate privacy computing technologies into cross-chain scenarios to enhance data transaction privacy and security, and establish a comprehensive cross-chain security assurance mechanism, including contingency plans, incentive and penalty mechanisms, and security incident monitoring and response. The technical roadmap must comply with the legal, market and technological developments of the Guangdong-Hong Kong-Macao Greater Bay Area.

4. **Key Technical Indicators:**

(1) Support at least FISCO BCOS, Hyperledger Fabric, Xinghuo Chain Network, Oracle, and integrate at least two types of privacy computing technologies;

(2) Implement at least three layers of security verification mechanisms, with identity authentication and authorisation delay per request ≤ 2 seconds;

(3) Strong consistency transaction response time ≤ 2 seconds, eventual consistency transaction completion time ≤ 5 seconds, success rate ≥ 99.9%. Cross-chain operation initiation time ≤ 10 seconds;

(4) Cross-chain data refresh rate ≤ 1 minute, alert response time ≤ 30 seconds;

(5) Single cross-chain transaction processing time ≤ 5 seconds, concurrent processing capability of cross-chain transactions up to 100 transactions per second (tps);

(6) Support more than five mainstream operating systems, including Windows, macOS, Linux, Kylin, and Kunpeng.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must possess blockchain R&D capabilities and be able to research a framework enabling interoperability between heterogeneous blockchains. Joint applications with higher education institutions, R&D institutions and enterprises from the Mainland and Macao are encouraged.

6. **Research Funding:** MOP3,500,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 1:1.

7. **Intellectual Property and Benefit Ownership:** Belongs to the enterprise or shall be determined according to the cooperation development agreement.

8. **R&D Duration:** 36 months.

<u>Direction 4: Chinese-Cantonese-English-Portuguese Multilingual Hybrid Speech Recognition System</u>

1. **Demand Entity:** Unicon Computer Systems (Macau) One-Person Limited Company

2. **Contact Person and Telephone:** Tian Di; Tel: 853 62362360, and 86-13902448012; Email: tiandi@yykj.com

3. **Details of Technological Demand:**

Given the complex linguistic environment in Macao, where hybrid usage of Chinese, Cantonese, English, and Portuguese is common in daily communication, there is a need to develop a privately deployable local hybrid speech recognition engine system. The system shall automatically detect languages and convert speech into content comprising text, words, slang, idiomatic expressions, characters and punctuation. It shall support real-time speech input and audio file input modes, and be applicable to scenarios such as customer service and conferencing systems. The system shall be scalable to support additional languages or more diverse recognition scenarios, and provide API access for integration.

4. **Key Technical Indicators:** The recognition engine system shall meet the following technical specifications:

   (1) In speech input scenarios, the hybrid engine must be capable of automatic language recognition in mixed Chinese-Cantonese-English-Portuguese settings such as meetings. The general speech-to-text recognition accuracy shall be ≥90%, and for specific business sectors such as finance, the recognition accuracy shall be improved to over 92%;

   (2) In multi-speaker conference scenarios where Chinese, Cantonese, English, and Portuguese are spoken interchangeably, the system shall automatically distinguish languages, with a speaker differentiation accuracy of ≥85%;

   (3) Transcription capacity per CPU core ≥2; QPS (queries per second) ≥50.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They shall possess nationally or internationally leading research capabilities in the relevant fields, as well as engineering implementation capacity, laboratory facilities, and experience in collaborative R&D with enterprises. Joint applications with higher education institutions, R&D institutions and enterprises from the Mainland and Macao are encouraged.

6. **Research Funding:** MOP3,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 1:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 24 months.

Direction 5: Web3-Based Retail Payment System

1. **Demand Entity:** Zhuhai Yuxin Yicheng Technology Co., Ltd.

2. **Contact Person and Telephone:** Owen; Tel: 86-15889872629; Email: ouwa@yusys.com.cn

3. **Details of Technological Demand:**

   Based on typical retail application scenarios, this project aims to research a Web3-based retail payment system. It will evaluate mainstream public chains (such as Ethereum Layer 2, Solana, etc.) in terms of payment latency, TPS (transactions per second), transaction costs, and system stability. The system shall support core functionalities such as payment, refund, reconciliation, and summary reporting in a Web3 environment.

4. **Key Technical Indicators:**

   (1) Complete payment performance validation using no fewer than five mainstream Web3 wallets under concurrent conditions of 20 transactions, and provide analysis data on payment latency, TPS, and transaction costs;

   (2) Develop prototype integrations for two retail scenarios—food & beverage and convenience stores—supporting Web3 payment functionality;

   (3) Achieve integration between Web3 payment and merchant ERP systems, supporting functionalities including payment, refund, reconciliation, summary reporting, currency limits, and exception handling.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They must possess leading research capabilities in Web3 and financial technology, as well as engineering implementation capacity, laboratory equipment and facilities, and experience in collaborative R&D with enterprises. Joint applications with higher education institutions and R&D institutions from the Mainland are permitted.

6. **Research Funding:** MOP2,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned or otherwise negotiated. The revenue distribution shall be determined through a separate agreement between the parties.

8. **R&D Duration:** 12 months.

Direction 6: Research on Trusted Space Technology for Cross-Border Data Exchange between Guangdong and Macao

1. **Demand Entity:** Zhuhai Huafa Digital Intelligence Technology Co., Ltd.

2. **Contact Person and Telephone:** Cheng Meng; Tel: 86-15937481079; Email: luming1@huafagroup.com

3. **Details of Technological Demand:**

   This project aims to build a trusted cross-border data space between Guangdong and Macao, with coordinated construction efforts in Hengqin, Zhuhai and Macao. The project will establish interactive data models for cross-border healthcare and biomedicine, clearly define data sources and output channels, and develop a trusted platform equipped with identity authentication, data asset storage, encrypted transmission, compliance filing, and audit supervision functionalities. It shall ensure data security, compliance, and privacy protection throughout the cross-border transmission process and explore practical applications of cross-border data exchange between Guangdong and Macao.

4. **Key Technical Indicators:**

   (1) Client Access End: Develop functions for identity authentication and encrypted data storage and transmission; authentication time shall be within 1 minute, support concurrent access by over 100 clients, with authentication success rate reaching 99.9%;

   (2) Service Platform: Establish data compliance auditing and filing, data development and modelling functions, and provide data processing capability for personal information of over 1 million individuals;

   (3) Data Usage: Set up different data usage scenarios using privacy computing and data sandbox services; develop a blockchain platform with data access, traceability, and tamper-proof functionalities.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They shall possess leading research capabilities in the fields of privacy protection, blockchain, and cross-border

identity authentication, and have existing R&D input in Hengqin. Applicants must also have engineering implementation capacity and experience in collaborative R&D with enterprises. Joint applications with higher education institutions, R&D institutions, and enterprises from the Mainland and Macao are encouraged.

6. **Research Funding:** MOP4,500,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 36 months.

Direction 7: SATCE Intelligent Air Traffic Control and Flight Simulation System

1. **Demand Entity:** China Southern Airlines Technology (Guangdong Hengqin) Co., Ltd.

2. **Contact Person and Telephone:** Lee Si Si; Tel: +86-15199066769; Email: lisisi@csair.com

3. **Details of Technological Demand:**

   To address aviation safety risks caused by language barriers and insufficient training in aviation communications, this project aims to develop an intelligent air traffic control (ATC) system with speech interaction based on natural language processing and neural networks. The system shall simulate a dynamic multi-accent ATC environment and support Chinese and multi-accent English aeronautical communication, with built-in pilot identity recognition functions. It shall be compatible with high-level full-motion simulators and establish a training platform based on cloud-edge collaboration that supports concurrent usage by multiple simulator terminals. The system will offer high-fidelity air traffic control training scenarios to strengthen pilots' communication capabilities under complex route conditions, in alignment with the Evidence-Based Training (EBT) standards of the Civil Aviation Administration of China (CAAC).

4. **Key Technical Indicators:**

(1) With cabin audio pickup ≥15 dB, the voice recognition accuracy rate for Chinese air-ground communications shall be ≥97%;

(2) With cabin audio pickup ≥15 dB, the intent parsing accuracy of ATC instructions shall be ≥90%;

(3) Support for standard bilingual Chinese-English communication and at least eight non-standard English accents (Japanese, French, German, Saudi Arabian, Russian, Korean, Indian, and Filipino);

(4) Development of ≥20 digital bases for airports and airspace (including 10 domestic airports, 5 international airports, and 5 airspace areas);

(5) Support simultaneous training for ≥6 simulator terminals, with system response latency ≤200 milliseconds.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao with internationally leading research capabilities in artificial intelligence, mobile computing, cloud-edge computing, speech processing, and aviation simulation, and with experience in engineering implementation and access to relevant laboratory equipment.

6. **Research Funding:** MOP2,500,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 24 months.

Direction 8: R&D of Lightweight Large Models for Intelligent Robots

1. **Demand Entity:** Zhuhai Eeasy Technology Co., Ltd.

2. **Contact Person and Telephone:** Zhang Xiao Hin; Tel: 13726259841; Email: xiaoqin.zhang@amicro.com.cn

3. **Details of Technological Demand:**

This project targets the household robotics field and aims to develop lightweight large models suitable for embedded deployment, addressing the requirements of real-time performance and low power consumption. The

project involves optimising models for embedded deployment using pruning, quantisation, and other techniques; establishing a multi-modal security framework; and developing comprehensive protection mechanisms covering data security, model security, inference security, and privacy protection. Applications include household robots, intelligent rehabilitation robots, companion robots, smart home assistants, and robotic pets.

4. Key Technical Indicators:

(1) On hardware with 30 TOPS and 32 GB memory, the model inference latency shall be ≤50 ms;

(2) After pruning, the model size shall be reduced by at least 40%, with memory usage reduced to within 30% of the original, with no significant performance degradation;

(3) Accuracy in identifying sensitive information, harmful content filtering recall rate, and compliance rate of intelligent agent behaviour constraints shall all exceed 99%;

(4) Compared with mainstream large models on standard test sets, the performance of the text model shall improve by 10%, word accuracy rate of the speech model by 5%, and Top-1 accuracy of the visual model by 10%;

(5) Embedded application demonstration: collaborate with the enterprise to implement deployment of pruned large models on chip and optimisation through TVM.

5. Eligibility Requirements for Applicants: Applicants must be higher education institutions in Macao. They shall possess nationally or internationally leading research capabilities in digital technology, especially in artificial intelligence and information security. Applicants must also have strong technical expertise and practical experience in large model optimisation, multi-modal intelligent system development, and AI safety and protection.

6. Research Funding: MOP5,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. Intellectual Property and Benefit Ownership: Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. R&D Duration: 36 months.

Direction 9: Development and Application of Multimodal AI Models in Comprehensive Traffic Scenarios

1. Demand Entity: Zhuhai Da Hengqin Technology Development Co., Ltd.

2. Contact Person and Telephone: Yu Hong Ao; Tel: 0086-19907483605, and 0756-2990234; Email: yuht@dhqtech.com

3. Details of Technological Demand:

To address traffic congestion issues in cross-border travel between Hengqin and Macao, this project aims to develop accurate real-time traffic prediction models and dynamic route planning tools, as well as intelligent emergency decision support systems. The project will aggregate multi-source heterogeneous data and enhance spatiotemporal data feature analysis capabilities to support public transport route and capacity planning, infrastructure maintenance, and optimisation decision-making. It will facilitate integrated cross-border mobility between Hengqin and Macao and provide customised traffic solutions for large-scale event scenarios.

4. Key Technical Indicators:

(1) Develop multimodal data fusion algorithms based on a distributed storage architecture, supporting access to data types including images, videos, text, and voice, with a data processing concurrency of 100,000 records per minute;

(2) Build AI model-based reasoning and prediction algorithms: establish a simulation platform capable of traffic flow prediction accuracy ≥95% in scenarios such as accidents and peak congestion, reduce average vehicle travel time by ≥15%, and shorten vehicle queuing time at border checkpoints during peak periods by 10%;

(3) Model performance: applicable to over 100,000 traffic simulation particles at the scale of small to medium-sized cities. On a computing platform provided by the enterprise (130 EOPS), simulation runtime shall not exceed 5 minutes.

5. Eligibility Requirements for Applicants: Applicants must be higher education institutions in Macao. They must have successful application cases and practical experience in the field of smart transportation and intelligent connected vehicles. Applicants should have established solid cooperative relationships with transportation departments and enterprises in Hengqin and be able to access necessary resources and support. They must have a sound research foundation, possess an intelligent connected

vehicle simulation platform, and have established a general large model for smart city infrastructure.

6. **Research Funding:** MOP1,100,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Intellectual property shall be jointly owned by both parties. The revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 36 months.

(IV) **Integrated Circuits**

<u>Direction 1</u>: <u>RISC-V Automatic Vectorisation Compilation Technology</u>

1. **Demand Entity:** Guangdong LeapFive Technology Co., Ltd.

2. **Contact Person and Telephone:** Hao Kit Keng; Tel: 0086-18825044943; Email: joanna.hao@leapfive.com

3. **Details of Technological Demand:**

With the advancement of AI, RISC-V is gradually expanding from low-end fields such as microcontrollers (MCUs) and the Internet of Things (IoT) to high-performance computing applications, and is expected to become a foundational computing architecture in the AI era. This transition places higher demands on the utilisation and performance of RISC-V processors (e.g., Specint2017 and Unixbench benchmark scores). Enhancing compilation technology is key to unlocking greater performance from RISC-V processors, with automatic vectorisation through compilers emerging as a focal point in RISC-V compilation optimisation.

4. **Key Technical Indicators:**

(1) Based on computational scenarios, achieve an average performance improvement of over 30% in benchmarks for high-performance RISC-V processors. Specific goals include:

- Post-optimisation, Specint2017 rate-1 score to be improved by over 30% on average, equivalent to scores converted from HAPS benchmarks or actual CPU benchmarks;

- Post-optimisation, Unixbench integer single-thread scores to be improved by over 30% on average, equivalent to scores converted from HAPS benchmarks or actual CPU benchmarks;

- Verified by the PLCT Laboratory of the Institute of Software, Chinese Academy of Sciences, with formal test report issued.

(2) Obtain acceptance of two invention patent applications;

(3) Submit three sets of technical documentation related to the project, including a commercially usable compiler, a complete test report, and a technical white paper.

5. **Eligibility Requirements for Applicants:** Applicants must be higher education institutions in Macao. They shall possess leading national or international research capabilities in relevant fields, as well as engineering implementation capability, laboratory equipment and facilities, and experience in collaborative R&D with enterprises. Joint applications with higher education institutions, R&D institutions and enterprises from the Mainland and Macao are encouraged.

6. **Research Funding:** MOP700,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. **Intellectual Property and Benefit Ownership:** Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. **R&D Duration:** 12 months.

Direction 2: ADC Technology for Next-Generation Image Stabilisation Chips

1. **Demand Entity:** Guangdong ChipSave Technology Co., Ltd.

2. **Contact Person and Telephone:** Choi Wai U; Tel: 0756-2288662, and 0086-18927264312; Email: Vivian@sifirsttech.com

3. **Details of Technological Demand:**

Ultra-high-definition video and image acquisition is a core demand in fields such as AI, automotive electronics, and smartphones. In recent years, significant advancements have been made in image stabilisation and closed-loop compensation technologies. These technologies span high-precision, low-power analogue drivers, analog-to-digital converter (ADC) circuit design, and magnetic sensors. However, domestic technology in this area remains in a catch-up phase, with the market still dominated by

international companies.
The demand entity has already developed and pilot-produced a new generation of Optical Image Stabilisation (OIS) products and now plans to carry out R&D on OIS and Application Processor Optical Image Stabilisation (APOIS) technologies based on Tunnel Magneto-Resistance (TMR) magnetic sensing integration. A key component is the development of high-precision, low-power, and low-noise ADC IP dedicated to image stabilisation chips.

4. Key Technical Indicators:

(1) Deliver a silicon-verified ADC IP soft core, including design architecture, schematic diagram, circuit diagram, layout, GDSII file, pre- and post-simulation reports, and a design report;

(2) The delivered IP shall achieve technology readiness level (TRL) 8;

(3) Provide a third-party test report; the overall performance reaches the international TI/ADI mid-end Σ-Δ ADC IP level; in particular, the static performance is better than the consumer standard (within 3mA), the sampling rate is 32kSPS (4MHz clock), the dynamic performance SNDR>80dB, and the static performance meets DNL<±1LSB, reaching the international top level..

5. Eligibility Requirements for Applicants: Applicants must be higher education institutions in Macao. They shall possess nationally or internationally leading research capabilities in relevant fields, as well as engineering implementation capabilities, laboratory equipment and facilities, and experience in collaborative R&D with enterprises. Joint applications with higher education institutions, R&D institutions and enterprises from the Mainland and Macao are encouraged.

6. Research Funding: MOP3,000,000 to be applied from the Science and Technology Development Fund. Upon approval, the enterprise shall provide a matching contribution at a ratio of at least 2:1.

7. Intellectual Property and Benefit Ownership: Scientific and technological outcomes and resulting intellectual property independently completed by each party shall be independently owned. Outcomes and resulting intellectual property jointly completed by both parties shall be jointly owned. The revenue distribution shall be determined through a separate agreement.

8. R&D Duration: 24 months.

IV. Participating Experts in Programme Development

1. Traditional Chinese Medicine and Health

- Su Weiwei – Professor, School of Life Sciences, Sun Yat-sen University
- Cheng Yongxian – Dean and Professor, School of Pharmacy, Shenzhen University
- Hu Dan – Professor, School of Pharmacy, Jinan University
- Huang Xiaodan – Chief Engineer, Guangzhou Wanglaoji Pharmaceutical Co., Ltd., Senior Engineer
- Su Jianyu – Professor, School of Food Science and Engineering, South China University of Technology

2. Biomedicine

- Xin Xuegang – Executive Vice Dean, Institute of Life Sciences; Vice Dean, School of Medicine, South China University of Technology; Professor
- Li Qingxin – Director and Professor, Environmental and Health Research Centre, Institute of Biomedicine and Medical Engineering, Guangdong Academy of Sciences
- Yang Sihua – Vice Dean and Professor, School of Optoelectronic Science and Engineering, South China Normal University
- Zhang Yu – Vice Dean and Professor, School of Biomedical Engineering, Southern Medical University
- Xu Jing – Director and Professor, Clinical Medical Research Centre, Southern University of Science and Technology Hospital

3. Digital Technology

- Yao Qinghe – Professor, School of Aeronautics and Astronautics, Sun Yat-sen University
- Chen Peng – Researcher, Institute of Software Engineering, Chinese Academy of Sciences (Beijing)
- Liu Yi – Chairman and Researcher, Shenzhen BKRising Technology Co., Ltd.
- Zhou Shouqin – General Manager and Senior Engineer, CIMC Intelligent Technology Co., Ltd.

- Zhou Yimin – Researcher, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences

4. **Integrated Circuits**

- Xiong Xiaoming – Dean, National Modern Industry College of IC Design, Guangdong University of Technology
- Li Bin – Vice Dean and Professor, School of Microelectronics, South China University of Technology
- Tang Jinqi – Deputy General Manager and Senior Engineer, Guangzhou Ankai Microelectronics Co., Ltd.
- Wang Tianping – CTO and Senior Engineer, Guangdong Gowin Semiconductor Technology Co., Ltd.
- Xu Jianming – Vice Dean and Professor, School of Integrated Circuits, Sun Yat-sen University