



KEMENTERIAN SAINS,
TEKNOLOGI DAN INOVASI
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION



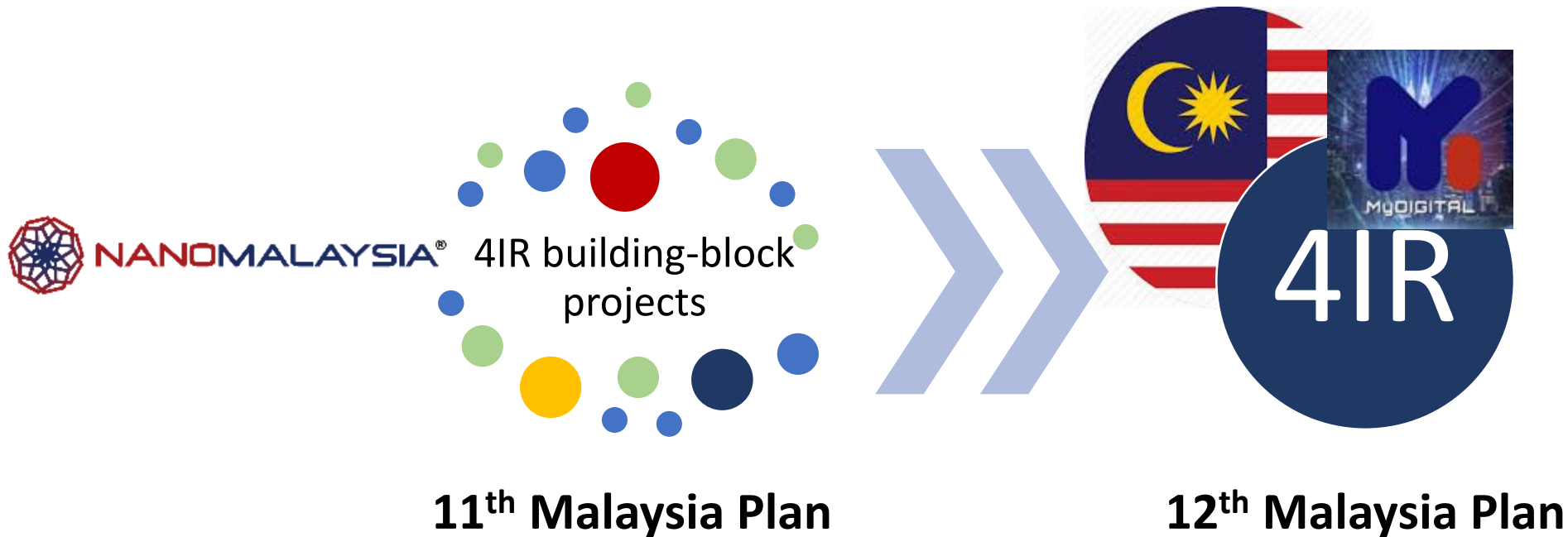
NANOMALAYSIA[®]

SEPULUH TAHUN 2011-2021 TENTH ANNIVERSARY

Nanotechnology Solutions for COVID-19 and Healthcare Applications

23rd August 2021

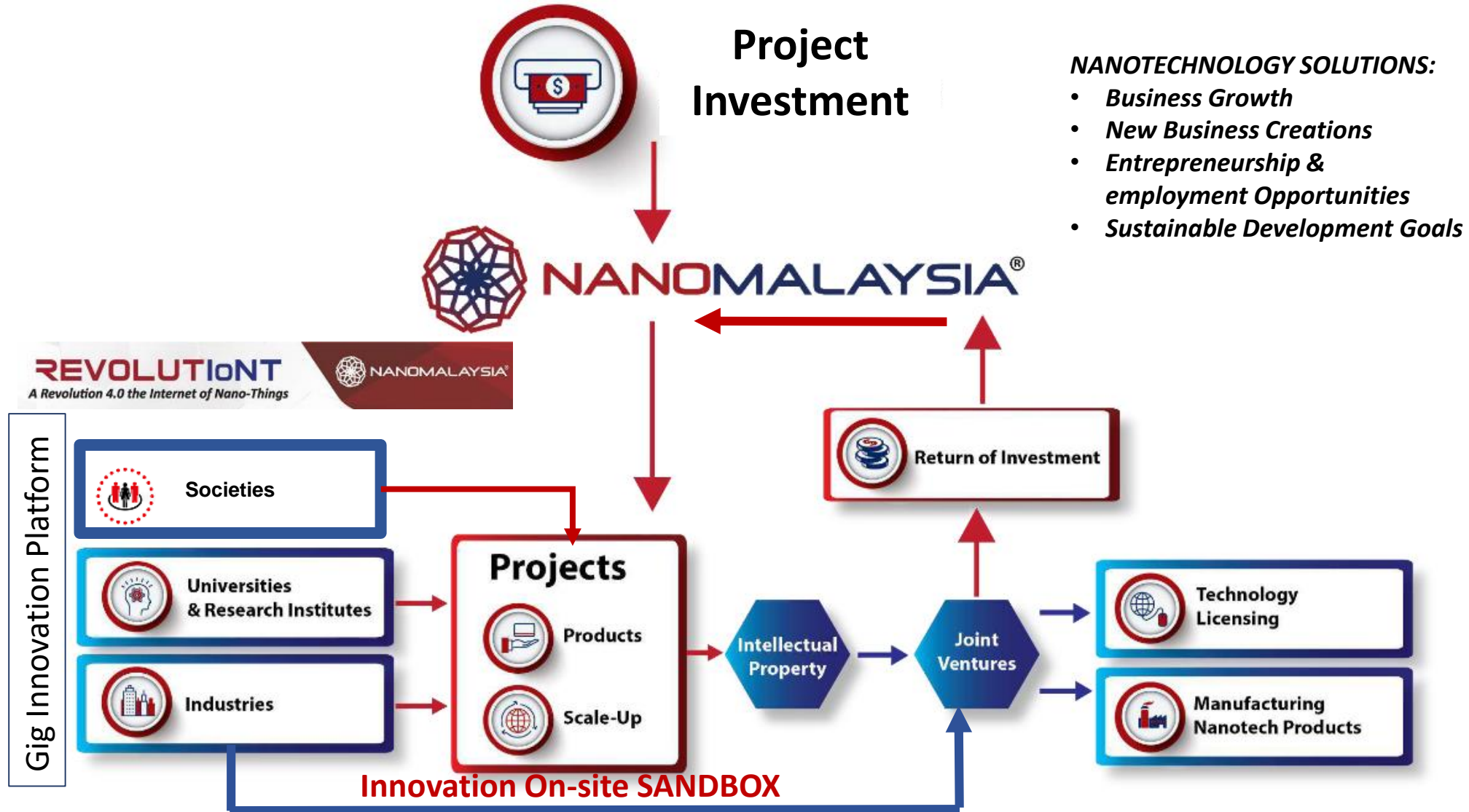
Advancing towards 4IR Post-COVID-19



NANOTECHNOLOGY as a primary mover for economic growth

- Localisation of value and supply chain
- Leveraging on domestic resources
- New high value labour intensive and high technology Ecosystem
- Business Growth and New Opportunities

NanoMalaysia's Venture Building Model



NANOTECHNOLOGY SOLUTIONS:

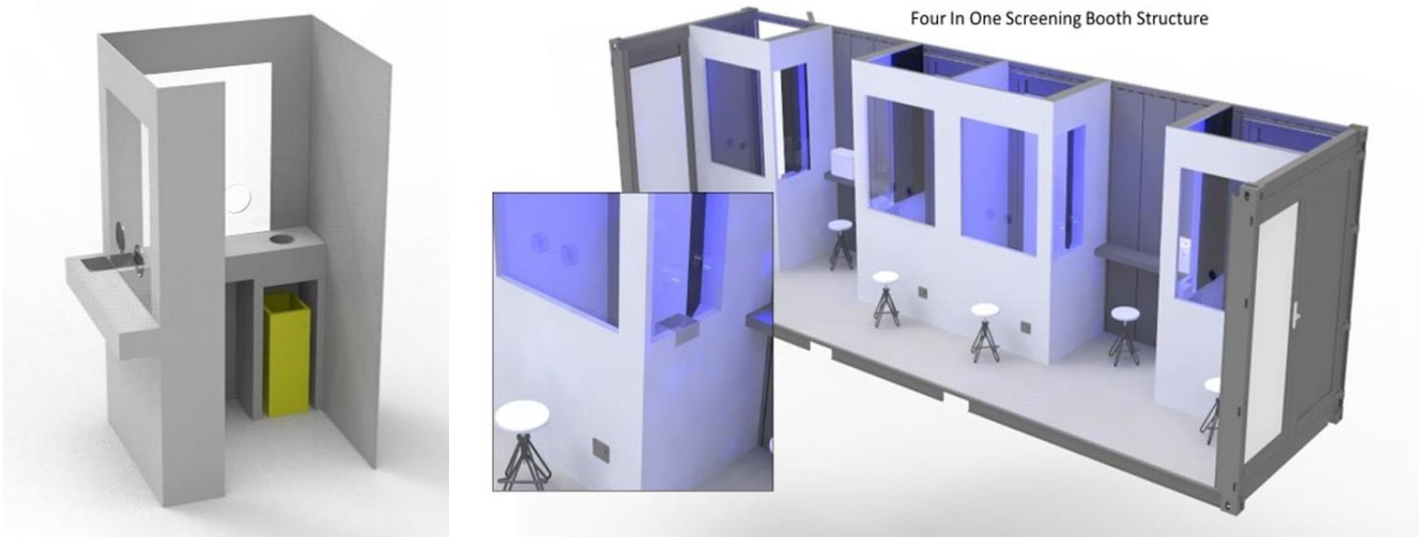
- *Business Growth*
- *New Business Creations*
- *Entrepreneurship & employment Opportunities*
- *Sustainable Development Goals*

POST-MOVEMENT CONTROL ORDER : Reviving the Economy – Movements of People



COVID-19 Mobile Screening Booths

Deployed in May 2020 during early stages of the pandemic to assist frontliners in conducting test and screening to reduce PPE usage and minimize contact between patient and healthcare professional.



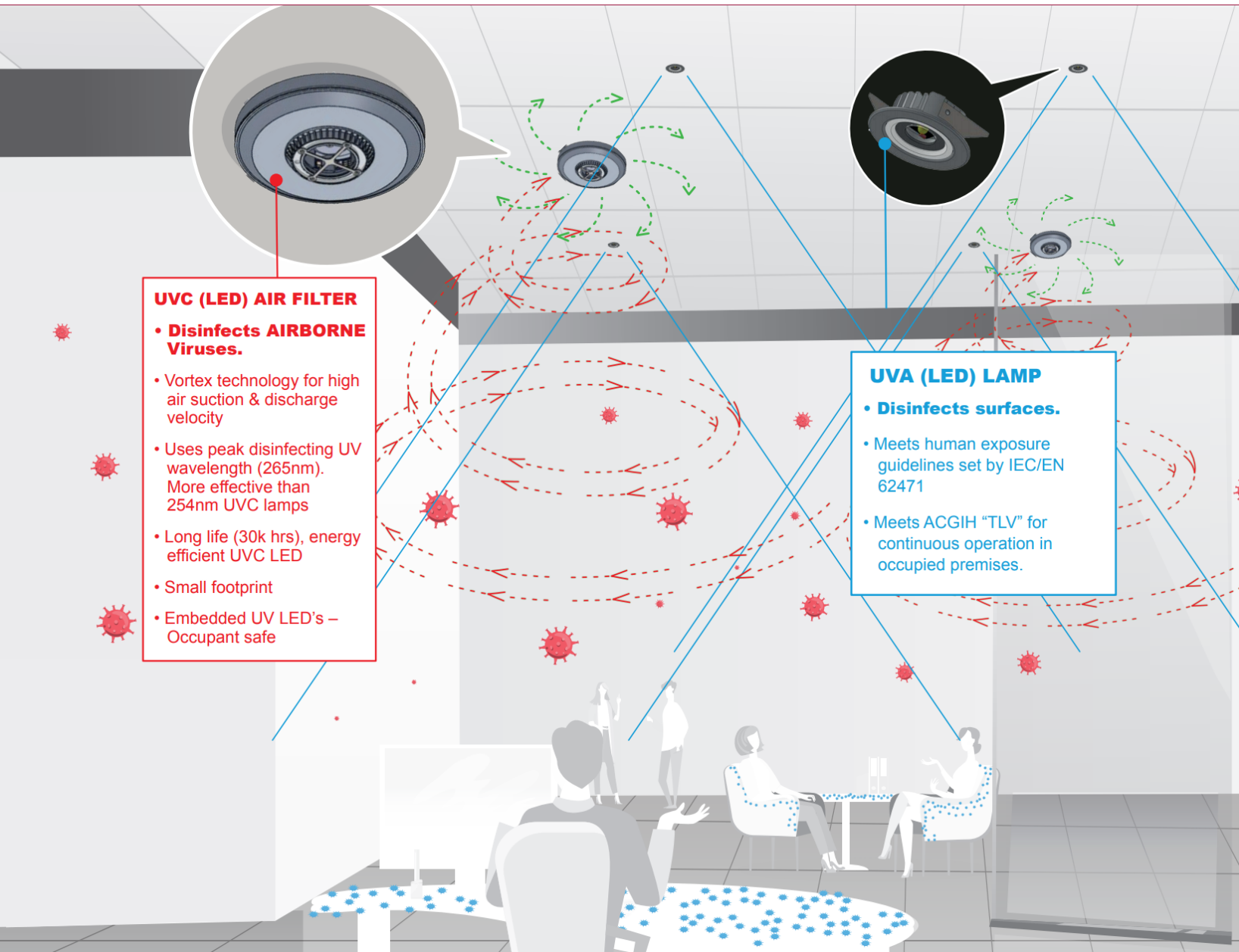
1. Key Features :

- UV-C decontamination
- +ve/-ve pressure protection
- UV-C purified ventilation
- Air conditioned for doctor's comfort
- Multiple Isolation protection from patients
- Intercom communication Automated misting sanitization



2. Customizable to cater hospital SOP
3. Mobile design for easy relocation
4. Multi purpose for future uses (screening of Haj pilgrims, MERS etc.)

Surface and Airborne Virus Inactivation with UV LED



Occupant SAFE, NON-CHEMICAL 24/7 CONTINUOUS SANITIZATION – Suited for high traffic occupied spaces (Hospitals, Restaurants, Malls, Waiting lounges, Buses, Trains, Academic centers, offices & etc.)

- **UV LED disinfectant system integrated with fused Nano Silica optics for localized disinfection via an air filtration and circulation system.**
- **Provide users with non-chemical and non-harmful disinfecting solution.**
- **Enables air disinfection mechanism that is capable to provide localized, clean air environment that is free from bacteria, viruses and pathogens.**
- **Patented LED thermal management system.**

Air Quality Solutions for Indoor Environments

Sterilization Solutions (coatings + filter) at Hospitals and Government Buildings

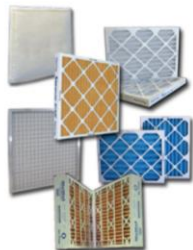
Solutions for Air Conditioning Systems



1 Replacing existing filters with Nano-Filters



2 Nano-Coating of existing evaporator/condenser coils



3 Installing Nano-Coated Filters at air outlets.



Solutions for Interior Coatings

4 Coatings for Walls and Surfaces



5 Coatings for Vehicle Interiors (Ambulance, Cars, etc)



Towards a Clean and Sterilised Indoor Environment

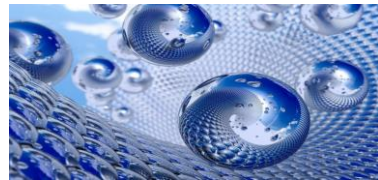
Improved Personal Protective Equipment (PPE)

1 Graphene Enhanced Nanotextile



- **Graphene material and hybrid derivatives** with metal and photocatalyst shows **good antimicrobial properties** and can be added to **masterbatch of fibers or fabrics** before extrusion
- Graphene provides **good heat dissipation** from the fabric, enabling cooling effects from PPEs.

3 Hybrid NanoCoatings



- **Anti Virus, Anti Fungal, Anti Bacteria properties shown by hybrid nano Ag/TiO₂ for at least 6 months)**
- **Antibacterial Test Done** (not limited to *Staphylococcus aureus*, *Listeria monocytogenes*, *Streptococcus sp.*, *Lactococcus garvieae*, *Escherichia coli*, *Klebsiella pneumoniae*, etc.)
- **Antifungus Test Done** (not limited to *Aspergillus niger* ATCC 9642, *Penicillium pinophilum* ATCC 11797, *Chaetomium*, etc.)

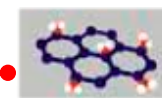


2 Antibacterial and Antiviral Face Mask



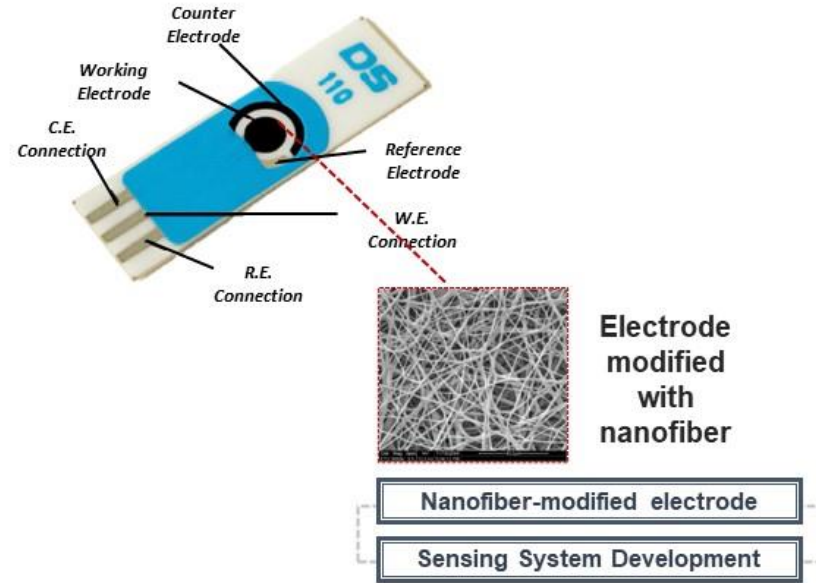
- **Antibacterial; sterilized 99.9%** towards potential harmful bacteria and viral
- SGS Laboratory Services – **Certified Sterilized bacteria 99.9%** (Report No: RF/2008/81094A)
- SGS Laboratory Services – **Certified non-toxic and free from banned substance** (Report No: LPCI/18447/08)

4 Graphene Infused Gloves



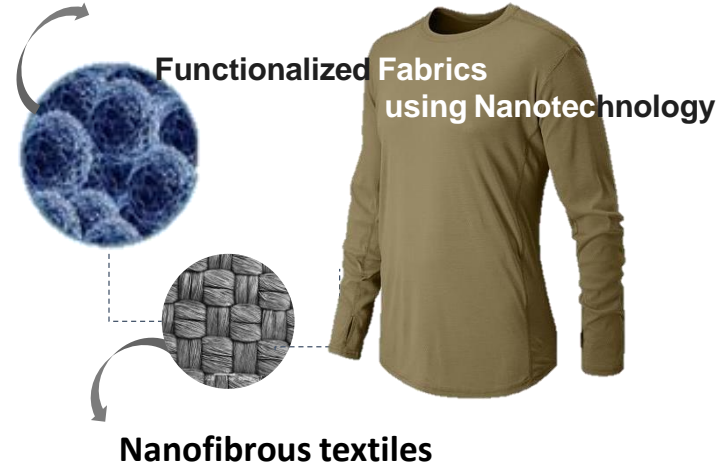
- **Anti-bacterial & Anti-Viral properties**
- **Decreased fatigue and Improved comfort** for end-users
- Increased tensile strength, elongation
- Providing biodegradability & sustainability



Nanosensor Platform



- **Features:** Non-invasive and sensitive sensor, capable of detecting subnanogram levels in real time.
- Detection platform with viable trials for various diseases such as TB, dengue, etc
- Clinical trials for TB detection in progress.

Functional Textile



- 
Antibacterial / odour resistance properties
Insect repellent properties
- 
Garment and fabric protection with enhanced protective attributes to clothing.
 - Hygienic clothing



Kids Wear



Sports Attire

Nanocomposite Healing Gel

Empty Fruit Bunch (Waste)



➔
Waste to Wealth

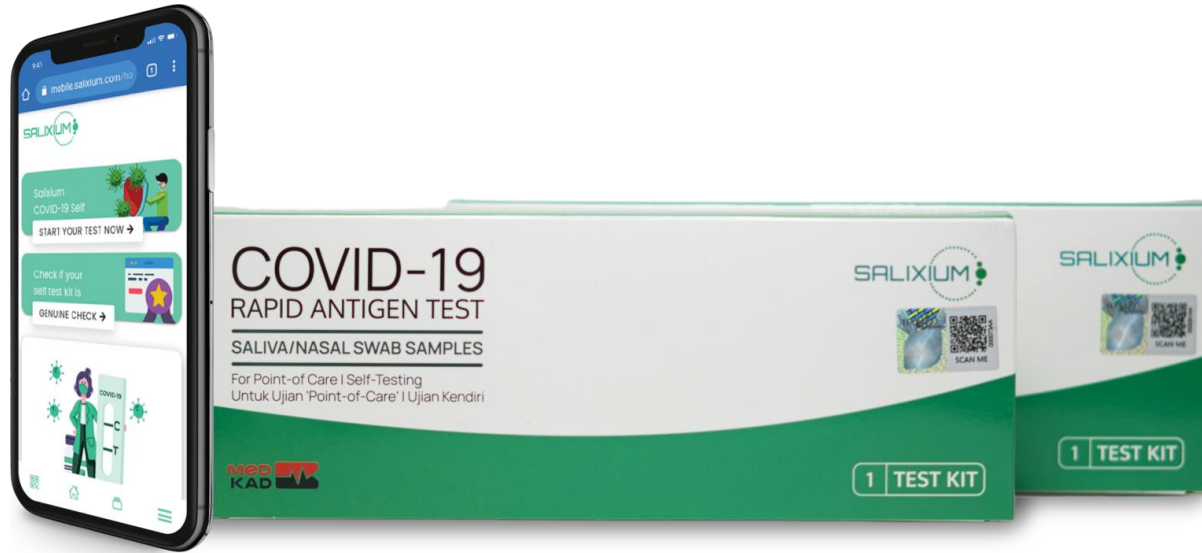
Cellulose Nano Crystal (CNC)



Incorporation of biomass nanomaterials into a biopolymer based healing gel to;

- Shorten wound healing duration,
- Reduce scarring,
- Prevent keloids; and
- With antibacterial properties.

Malaysia's First (Self-Use) RTK-Ag



Uses immunochromatography technology to detect the presence of the SARS-CoV-2 antigen in human saliva and anterior nasal swab specimens.

Salixium has a sensitivity of 91.23% and a specificity of 100%

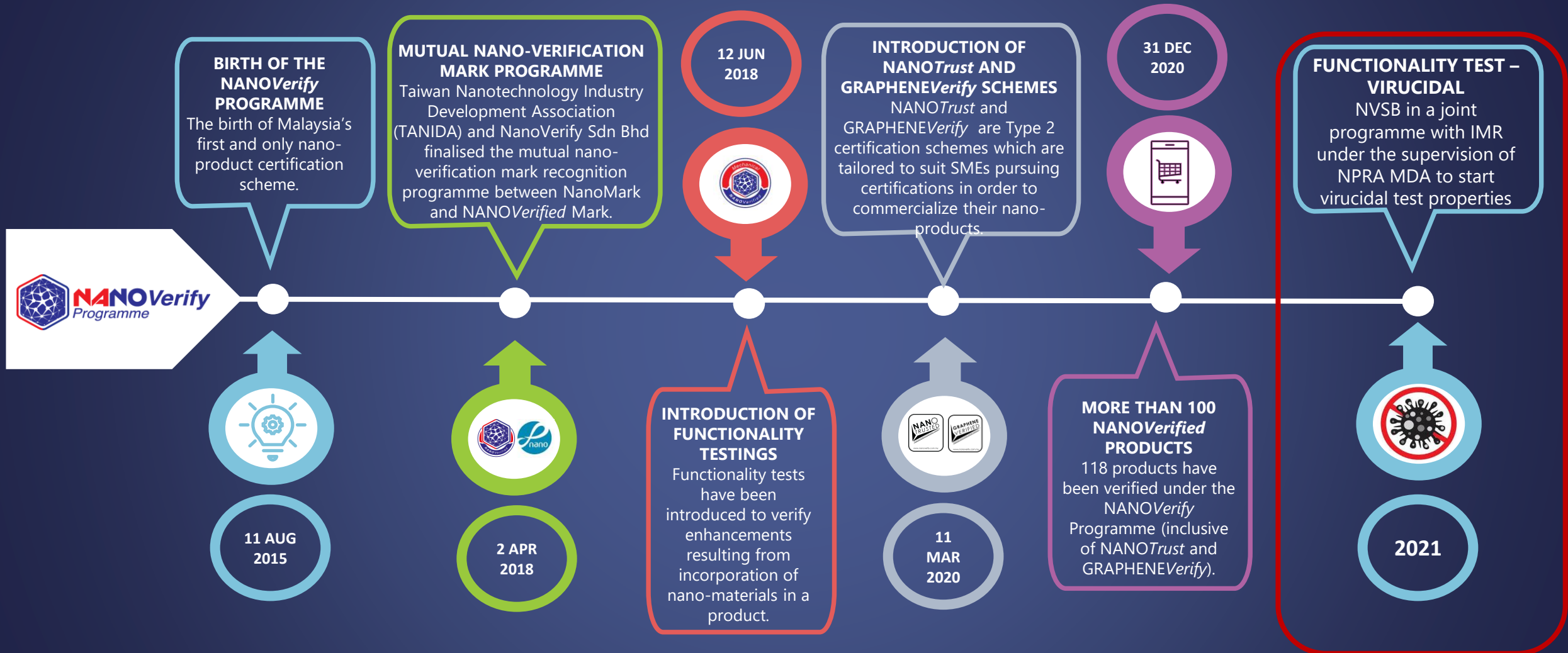
Developed by **MeDKAD** at **Tech Park Malaysia**. Malaysia's first COVID-19 test kit for self-use. Test results within 15 with a report through the App.

Self-collected saliva swab or nasal swab alone may miss certain detection of viral load. Combining both nasal and saliva swab samples have advantage to increase detection rate

Every test result is automatically synchronize with MySejahtera app (COVID-19) for further reporting to the Ministry of Health

NANOVerify Programme – Testing of New Nanotechnology Products Targeted for COVID-19 Applications

1. Development of functionality testing protocol on anti-viral properties specifically against COVID-19, to supplement the existing NANOVerify Programme in collaboration with agencies under the Ministry of Health (MoH) such as National Pharmaceutical Regulatory Agency (NPRA) and Institute for Medical Research (IMR).
2. To increase awareness amongst consumers and industry on the importance of nanotechnology certification.





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Thank You

NanoMalaysia Berhad

Reg. No.: 201101027130 (955265-P)

(A Company Limited By Guarantee under the Ministry of Science, Technology and Innovation)





A-2-3, Level 2, 157 Hampshire Place Office
No. 1, Jalan Mayang Sari
50450 Kuala Lumpur
Malaysia

Telephone : +603 2166 8849

Fax : +603 2181 8849

Email : info@nanomalaysia.com.my

Website : www.nanomalaysia.com.my

    : NanoMalaysia Berhad