

# The Green Era - delivering *Green Tech and Smart City Solutions*



Hong Kong 香港科技園  
Science & Technology Parks

*Making things happen*

**Mr Nicholas Brooke**

Chairman  
Hong Kong Science and  
Technology Parks  
Corporation

June 2013





Hong Kong 香港科技園  
Science & Technology Parks

*Making things happen*

# The GREEN Opportunities



## A glance at the world we live in ...

By 2050, the global population is expected to grow from 7 billion in 2011 to 9.3 billion; 70% of the world's population will live in cities

Global energy demand will grow by more than 1/3 by 2035, with China, India and the Middle East accounting for 60% of the increase

Rapid population growth and urbanisation are bringing in unprecedented demand for energy innovation and consumption, e.g. renewable energy, energy management, smart city planning, etc.



Global market for green technologies is set to grow to US\$396 billion over the next decade

Growth for the three "benchmark green technologies"  
-- wind, solar photovoltaic and biofuels will reach US\$386 billion by 2021

# Green Opportunities in China



Hong Kong 香港科技園  
Science & Technology Parks  
*Making things happen*

- Leads the world in renewable energy investment with spending of US\$52 billion (almost 1/5 of global total)
- By 2020, 15% of primary energy from non-fossil fuels
- Bring 2005 levels of carbon intensity down 40-45% by 2020
- Eco-city movement calls for refurbishment of 50% of residential buildings



# Green Opportunities in China



The 12<sup>th</sup> Five Year Plan (2011-2016) gives strong emphasis on energy and environment development

## Improve Building Energy Saving

All new buildings are mandated to achieve **65% energy savings** compared to the existing building stock

## More Mandatory Green Targets

**6 new mandatory green tech targets** are added to the existing plan, e.g. percentage of non-fossil fuel from primary energy consumption

## Energy and Environmental Taxes

New environmental tax plan which is likely to be levied on **CO<sup>2</sup> emissions** and **discharges of polluted water**, has been submitted to the State Council for review

## Policies for Innovation Stepped Up

Strategic Emerging Industries which include **new energy vehicles**, **energy efficiency** and **new energy (solar, wind and biomass)** are identified to help advance economic development.



# Green Opportunities in HK



One of the cities with lowest carbon footprint in public transportation in the world

Government's lead and support in Building Energy Management

Compact city making it the perfect platform to test out technologies for Smart City/ Digital City/Green City

# HKSAR Government

## Driving Green Development

- 10-year Blueprint for Sustainable Use of Resources in Hong Kong
  - Published by the HKSAR Government in May 2013
  - Outlined the action plan to reduce per capita waste disposal level of municipal solid waste by 40% in 10 years
- Set a carbon intensity reduction target of 50% - 60% by 2020 as compared with 2005 level
- Set aside US\$1.3 billion (HK\$10 billion) as subsidies to progressively phase out heavily polluting pre-Euro IV diesel commercial vehicles
- Dedicated efforts to promote electric vehicles, such as a pilot funding scheme to subsidise the testing of electric taxis, coaches and goods vehicles
- Earmarked US\$64 million (HK\$500 million) for waste electrical and electronic equipment processing facilities
- Proposed a US\$640 million (HK\$5 billion) funding to provide support for green projects initiated by the community to promote cultural change

# Green Opportunities in Hong Kong

## - Waste Management

- Hong Kong generates 6.4 million tons of waste every year and about 50% solid wastes ends up at landfills
- Government plans to spend at least HK\$31 billion on waste-handling infrastructure in the next seven year
- Government expects that by 2022, waste recycling, modern incineration and landfill disposal in Hong Kong will account for 55%, 23% and 22% of waste management respectively
- Technologies for waste management, separation, collection and incineration
- Sludge and organic waste treatment facilities
- Landfill gas and bio gas utilisation



# Green Opportunities in Hong Kong

## - Green Buildings

- Buildings account for 89 per cent of electricity consumption in Hong Kong and make a sizable contribution to GHG
- Government plan to reduce carbon emissions of between 19% to 33% by 2020
- New energy efficient buildings (and other clean technologies) in major government investment programs. Government is doubling investments in new infrastructure and property projects to HK\$70 billion per year
- Upgrading technologies for existing buildings, including cooling/heating, ventilation, insulation, lighting etc.
- New technologies for optimising energy and electricity usage in buildings
- Revamping the fuel-mix for electricity generation

# Green Opportunities in Hong Kong

## - Air Quality

- Air pollution causes by motor vehicles, emissions from shipping and harbour related activities, and industry across the border in southern China
- Government has allocated HK\$10 billion to broadly achieve new air quality objectives by 2020
- The Government aims to introduce mandatory retirement of 88,000 old diesel commercial vehicles, using HK\$10 billion to pay the owners 30% of their value, forcing new vehicles to comply with Euro V emission standards
- About 3,000 buses need to be replaced before 2017



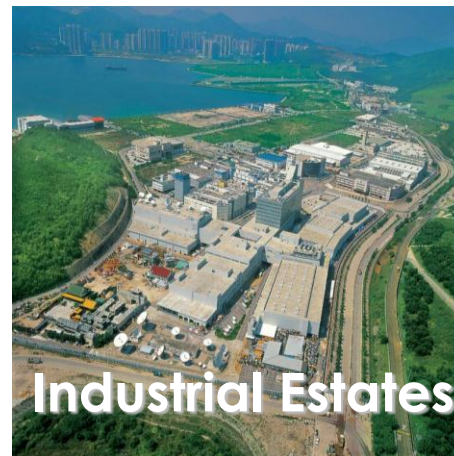
Hong Kong 香港科技園  
Science & Technology Parks

*Making things happen*

# Hong Kong Science Park *Making Things Happen*



# Hong Kong Science and Technology Parks Corporation



## **Our Vision**

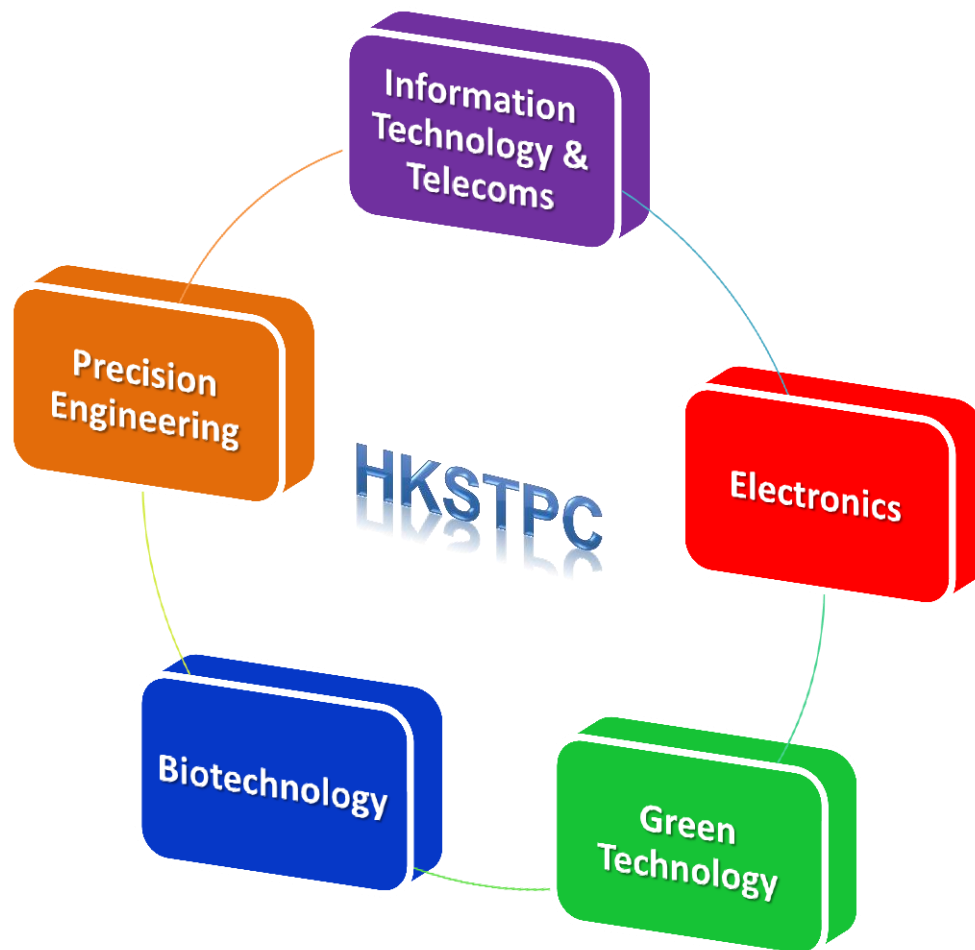
Transforming innovation and technological advancement into value creation that benefits Hong Kong, the Mainland – and the world

## **Our Mission**

We provide facilities, services and a dynamic environment that enable companies to nurture ideas, innovate and develop; propelling Hong Kong towards a world-class hub for selected technologies



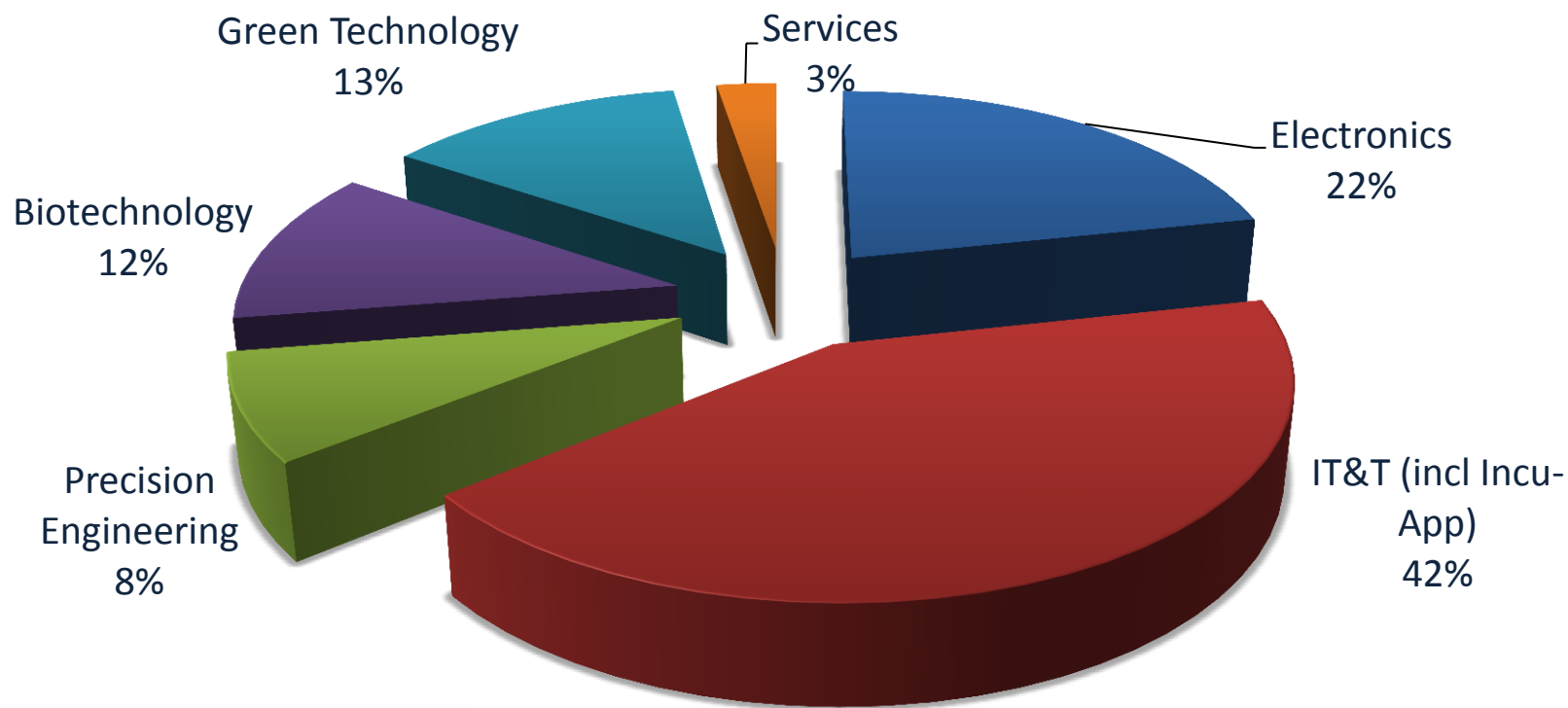
# Creating Clustering Synergy



# World-class Niche Technologies



# Cluster Distribution



Partner companies	303
Incubatees	122
<b>Total</b>	<b>425</b>





Hong Kong 香港科技園  
Science & Technology Parks

*Making things happen*

# A Comprehensive Package of hard and software



# Hong Kong Science Park



## Phase 1 & 2:

- 96% occupied
- 425 tech companies (8% comes from the U.S)
- Annual turnover of US\$17 billion (HK\$134 billion)
- Working Population: 9,700 persons (68% engineers/ scientists)

# Hong Kong Science Park

## Phase 3:

- 6 Buildings on 6.24 ha of Land
- Gross Floor Area: 105,000 sq m  
(Increasing total stock by 47%)
- Development Cost :  
US\$628M (HK\$4,878 M)
- Completion by batches  
from early 2014 – 2016
- Capable of hosting an extra  
of 150 tech companies



# Hong Kong Science Park Phase 3 Bird's Eye View



# Main Event and Amenity Area Open Space Design Facilitating Gathering and Exchange



R&D Office

Multipurpose  
Hall

Retail

Green  
Plaza

Green  
Deck

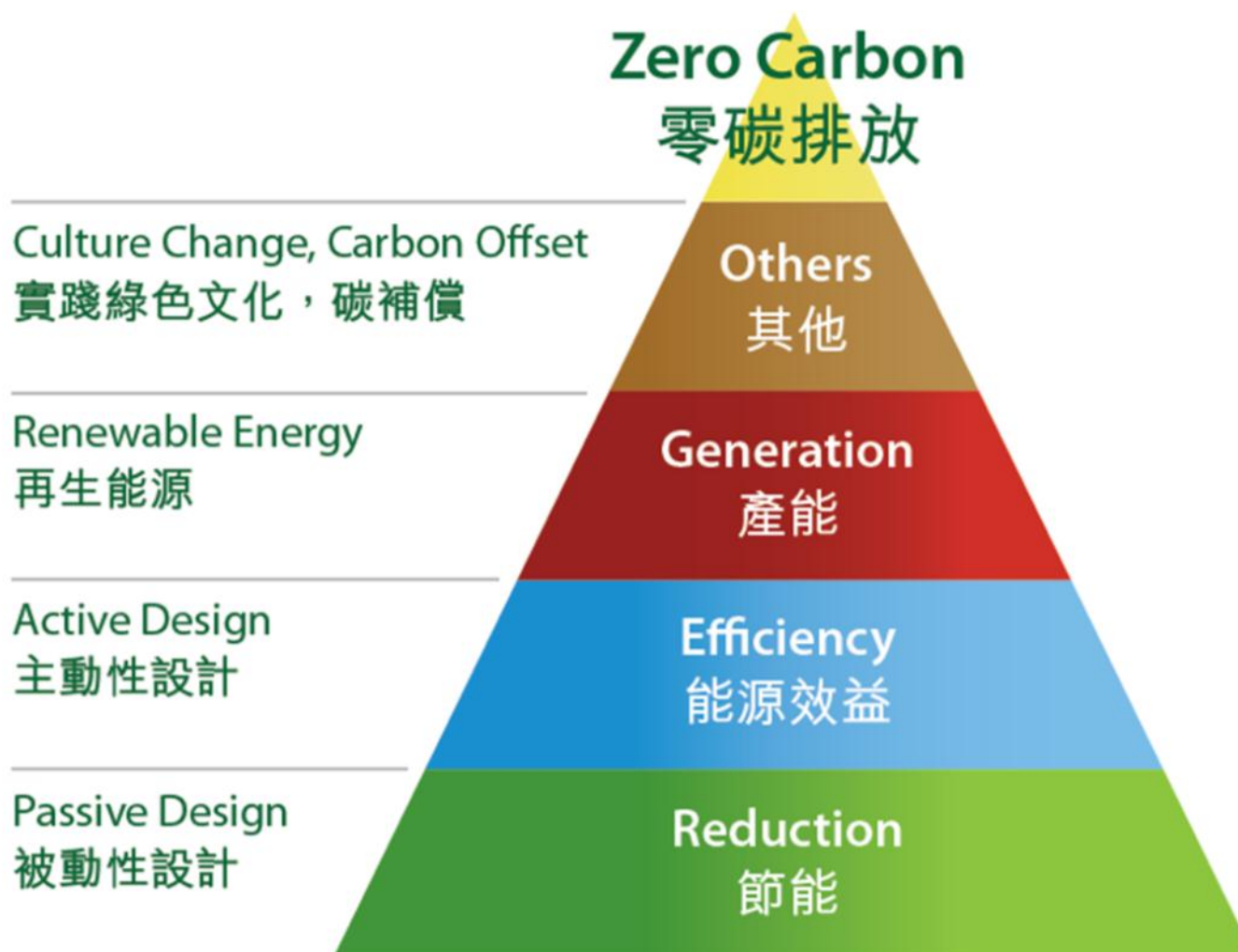


# Hong Kong Science Park Phase 3 Objectives





# Roadmap to Zero Carbon Target







Hong Kong 香港科技園  
Science & Technology Parks

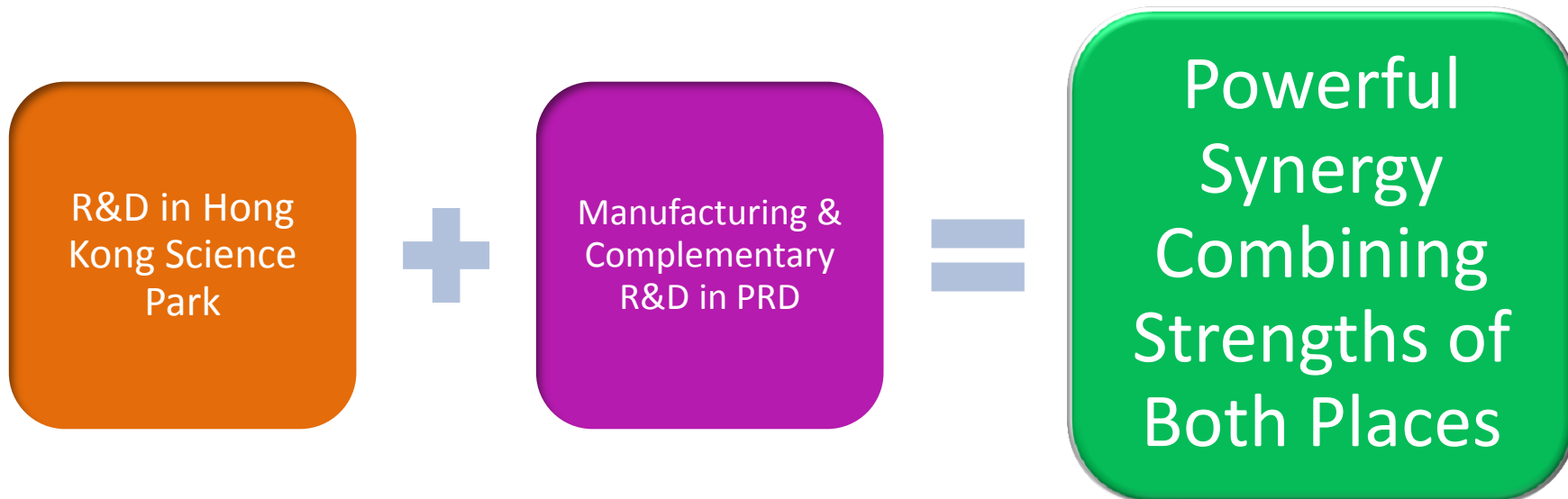
*Making things happen*

# Hong Kong Science Park *Gateway to the China Market*

# The Unique HK/PRD Model

Hong Kong Science Park:

A unique place for technology companies to benefit from the “Hong Kong/Pearl River Delta (PRD)” business model



# Hong Kong/PRD Model

## Example (1) – DuPont Apollo Ltd

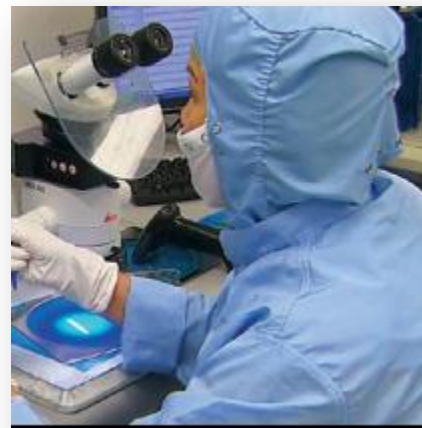
- Industry leader in the thin-film photovoltaic technology
- A full value chain in Hong Kong and Shenzhen:
  - First-of-its-kind Global Thin Film Photovoltaic R&D Centre at Hong Kong Science Park
  - Manufacturing capabilities in Shenzhen to support the downstream development and manufacturing of solar energy products



# Hong Kong/PRD Model

## Example (2) – Cree

- Wholly owned by Cree Inc., Cree Hong Kong Limited, based in Hong Kong Science Park, is a market-leading innovator of lighting-class LEDs, LED lighting, and semiconductor solutions for wireless and power applications.
- Applied R&D and new product development in Science Park; manufacturing and QA Centre set up in Huizhou, China



# Hong Kong/PRD Model

## Example (3) – One Earth Designs

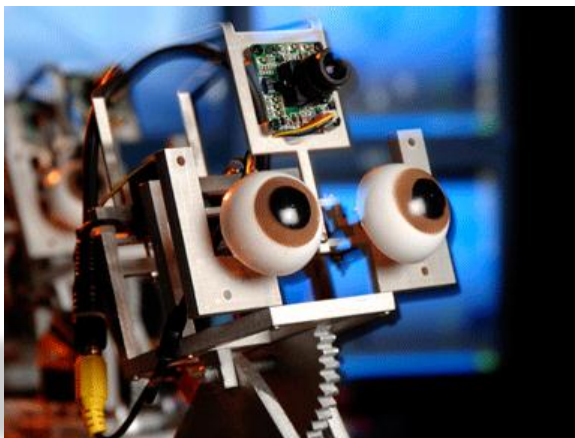
- Current incubatee of HKSTPC's Incubation Programme – R&D in Hong Kong Science Park, manufacturing in PRD
- CEO comes from MIT (Computers and Electrical Engineering); Co-founder worked in the U.S before, developing remediation programmes for contaminated soil and water
- Specialises in developing technology solutions for people in rural communities/ developing countries who lack access to clean and affordable energy
- Its solar cooker, Solsource, won the **Grand Award at the 41st International Exhibition of Inventions of Geneva 2013**



# Hong Kong/PRD Model

## Example (4) – Intuitive Automata

- A graduate from HKSTPC's Incu-Tech Programme; R&D in Hong Kong Science Park; Manufacturing in PRD
- Founder comes from MIT Media Lab, specialising in human-robot interaction research.
- The company's first product is a robot weight-loss coach, which is targeting the U.S home health care industry





Hong Kong 香港科技園  
Science & Technology Parks  
*Making things happen*



**YOU could  
be next!**



The Women's Health Company



# Testing the Water

- Use HKSTPC as a soft landing to explore the nature and scale of the Hong Kong/China opportunity
- HKSTPC can help identify partners
- HKSTPC can assist with market openings
- HKSTPC can help you understand the cultural and regulatory context
- HKSTPC has no agenda other than to encourage introduction and commercialisation of latest technological developments

**ABOVE ALL – COME AND SPEND TIME WITH US TO ASSESS  
WHAT MIGHT BE ACHIEVABLE**



**Thank you**

