

مركز أبوظبي للعلوم

Abu Dhabi Science Center (ADSC)

NAMES Conference 2014

Parallel Session D-1

*Getting Started:
Planning, Designing and Opening New
Science Centers*

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A strategic initiative by

لجنة أبوظبي
لتطوير التكنولوجيا
ABU DHABI TECHNOLOGY
DEVELOPMENT COMMITTEE



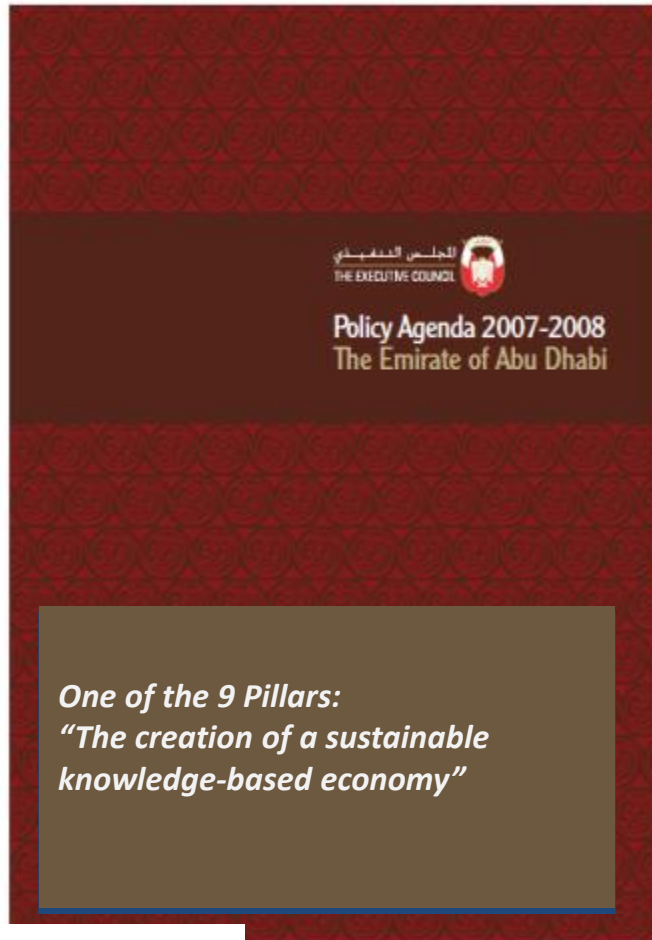
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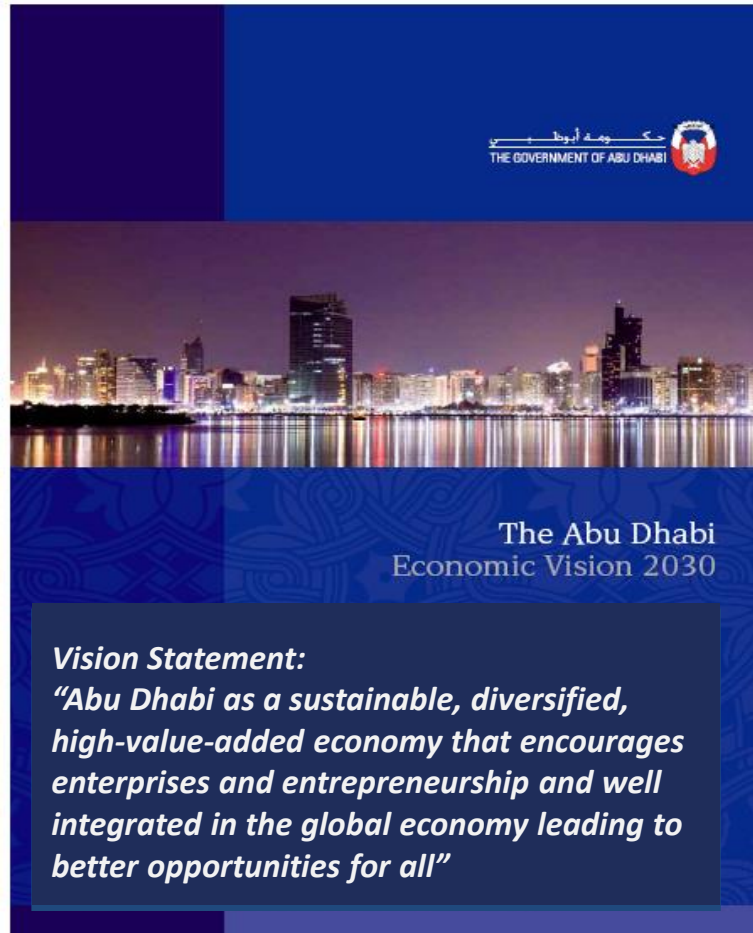


The creation of a Knowledge-based Economy is a key objective of Abu Dhabi

Abu Dhabi Policy Agenda



Abu Dhabi Economic Vision 2030



Technology Development Committee (TDC) was established to support the development of Science, Technology & Innovation in Abu Dhabi

Focus areas of TDC Mandate

- 1. Custody of the Abu Dhabi STI Policy**
- 2. Execution of key strategic initiatives in different areas of human capital, industry development, and laws and regulation**
- 3. Development and coordination of the 5-year plan among the multiple stakeholders**

Source: Executive Council Decree issued April 2009

Executive Council Decree establishing TDC



Workforce development in sectors requiring science and technology skills is one of TDC's roles relative to the Vision

In line with the **Abu Dhabi Economic Vision 2030**, the Abu Dhabi Science, Technology and Innovation (STI) Vision aims to build a sustainable and diversified economy that is well integrated into the global ecosystem.

To realize this vision, the Abu Dhabi Government has given priority to a number of Science and Technology areas and has already committed and will further commit significant investments to industries within these areas.

The first set of areas is focused on economic advancement - strengthening existing industries and developing new STI industries for growth and diversification



Oil/Gas Services

- Geophysical analyses
- Drilling & well services
- Production services



Semiconductor

- Wafer Fab



Aerospace

- Composite structures
- MRO
- Aircraft assembly



Clean Tech

- Solar power
- Carbon capture and storage



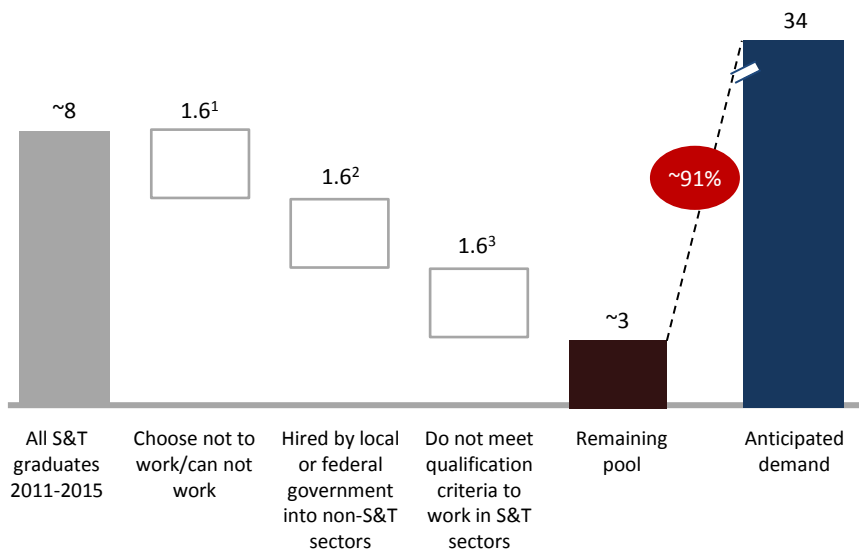
ICT

- Telecommunications
- Mobile satellites
- IT Services
- Arabic digital content

Informal science education initiatives are a key focus area of TDC to help address Abu Dhabi's critical human capital gap

The number of available graduates with relevant S&T degrees will not be sufficient to meet market demands

Numbers in 000's



- 1) 20% of graduates become inactive and drop out of the workforce
 - 2) ~33-50% of graduates are hired by government organizations – Assumed 20%
 - 3) ATIC interviews with potential employees revealed quality issues with graduates – assumed 20% not qualified to work in S&T sector
- Source: Abu Dhabi Census 2005; UAEU; ADEV 2030; ADEC Higher Education Team Analysis; ADEC; HC Team analysis

Youth engagement in informal science education influences their choice to pursue STI careers



US National Science Foundation survey suggests that the majority of American scientists credit a visit to a science center or participation at a science festival as critical influencing factors inspiring their early interest in science and later decision to pursue science related career.



Studies on early planning for careers in science found that a child's excitement about science expressed between the ages of 6 and 11 years old is the **single most reliable** predictor of future career selection in STEM.

Ti, R.H., Liu, C. Q., Maltese, A.V., & Fan, X. (2006, May 26). Planning early for careers in science. *Science*, 312, 1143-1144.

TDC defined an actionable strategy for Abu Dhabi and implements initiatives in two focus areas

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- TDC synthesized objectives and priorities for the development of Science, Technology and Innovation (STI) in Abu Dhabi in the STI Policy and STI 5 year Plan – developed involving all the key stakeholders in the system
- Out of the identified priorities, TDC started hands-on efforts in 2 specific areas

1 Science & Technology Promotion

“Popularize science”, in order to foster world-class talents with the right skills and attitude

Initiatives:



**Abu Dhabi
Science
Center**



**Abu Dhabi
Science
Festival**



**Lema?
School
Outreach**



**Innovator
event**



2 Enterprise Development & Innovation

Create an end-to-end innovation support ecosystem to support the growth of enterprises in technology-driven sectors

Initiatives:



**Intellectual Property
Program Technology Transfer Makers' Facility**



The Abu Dhabi Science Center will open in 2016



- 6,500m² facility featuring 7 interactive galleries and more than 200 hands-on exhibits.
- Conceived in partnership with the ExplORatorium, partners on the ADSC Master Plan.
- Galleries and exhibits designed with Northern Light.
- Located on the Masdar City campus adjacent to MIST.
- Featuring a robust program of informal science education activities from big science shows to cutting-edge space exploration simulations in a 12m domed planetarium.
- Approved by Executive Council March 2013.

ADSC will be located in MASDAR CITY, Abu Dhabi's Hub for Science, Technology and Innovation



International Renewable Energy Agency (IRENA) HQ



Masdar Institute Campus



Siemens Middle East HQ



ADSC will feature 7 interactive themed galleries plus outdoor exhibits and science classrooms



Welcome Hall

Central double height entry to ADSC with access to all galleries and amenities
~4 Exhibits
Big Science Stage



Outdoor Exhibits & Main Plaza

Main Plaza
~4 large-scale Exhibits
including Water play area



Land, Sea & Sky

Geology, the Environment and Weather Patterns
~25 Exhibits
Explainer's Hub and Majilis



Sensing Your World

Light & Vision, Hearing & Sound and the Human Body
~47 Exhibits
Explainer's Hub and Majilis



Natural Resources Gallery

Oil and Gas Formation, Exploration and Extraction
~42 Exhibits + Explainer's Hub + 2 interactive labs

Sponsored by



Making

Engineering, Technology, Electricity & Magnetism
Making Studio w/
Tinkering activities
~28 Exhibits

Sponsored by



Science in Motion

Mechanics, Aerodynamics and Building
~37 Exhibits



Education Spaces

Classrooms (3)
Teacher Learning Center (1)



The Universe & Planetarium

Astronomy, the Moon and Sun
~22 Exhibits
70+ seat 12M domed planetarium

Sponsored by



Education Programs

Field Trips, Workshops, Camps and Classes serving School Groups and Families

200+ exhibits have been designed and tendered for fabrication

Samples from ADSC Tender Package

OUTDOOR EXHIBITS

- Water Play (laminar flow, Archimedes screw)
- Listening Vessels (sound and physics)
- Birds of Prey (wind energy)



ASTRONOMY EXHIBITS

- Sun Dial (building feature)
- Crater Maker (lunar craters)
- Phases of the Moon (lunar and sun cycles)



NATURAL PHENOMENA EXHIBITS

- Aeolian Landscape (wind/sand/landscapes)
- Ripple Tank (water/waves)
- Vortex & Tornado (water and wind power)



PHYSICAL SCIENCE EXHIBITS

- Giant Slinky (compression waves)
- Soap Film Painting (bubble interactive)
- Echo Tube (sound waves)



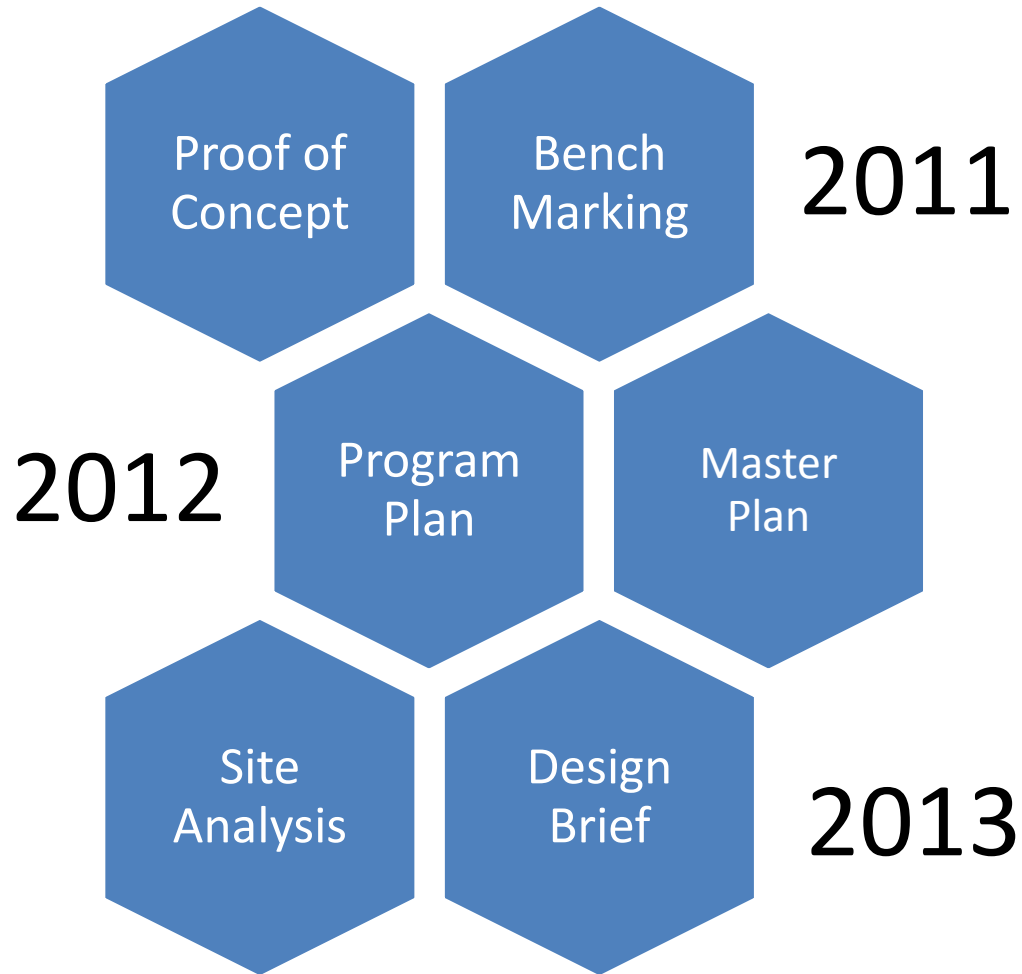
The Abu Dhabi Science Center was announced to the public in June 2014



High-Level Project Timeline: Midway through the process



Beginning the Journey



Mid-way through the Journey



Lessons Learned

- **Program Brief** that clearly states your VISION – what you want and why you want it
- Avoid an iconic building/ "starchitect" – design the galleries first and then force the architect to develop a building that works for the exhibits and visitors
- **A Clear Brief** on building design
- **Peer review** of the building design before the end of the design phase
- **Education programs** developed early & clearly linked to galleries and exhibit plans
- Experienced **Science Center professionals** with concrete experience running and operating centers during the design phase
- **Small team** - approval links small and quick
- Appointment of Owner's Rep with deep local experience particularly in authority approvals
- Cut losses early as needed – keep only the strongest members with the relevant experience
- Deep engagement with critical stake holders (Board)
- **Strong PM** to lead the team & ensure that all team members stick to deadlines

Thank you

