

# Triple Helix - Case Studies from the UAE

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# What is the Triple Helix?



**Education**

E-G-I Partnership  
for Innovation



**Government**

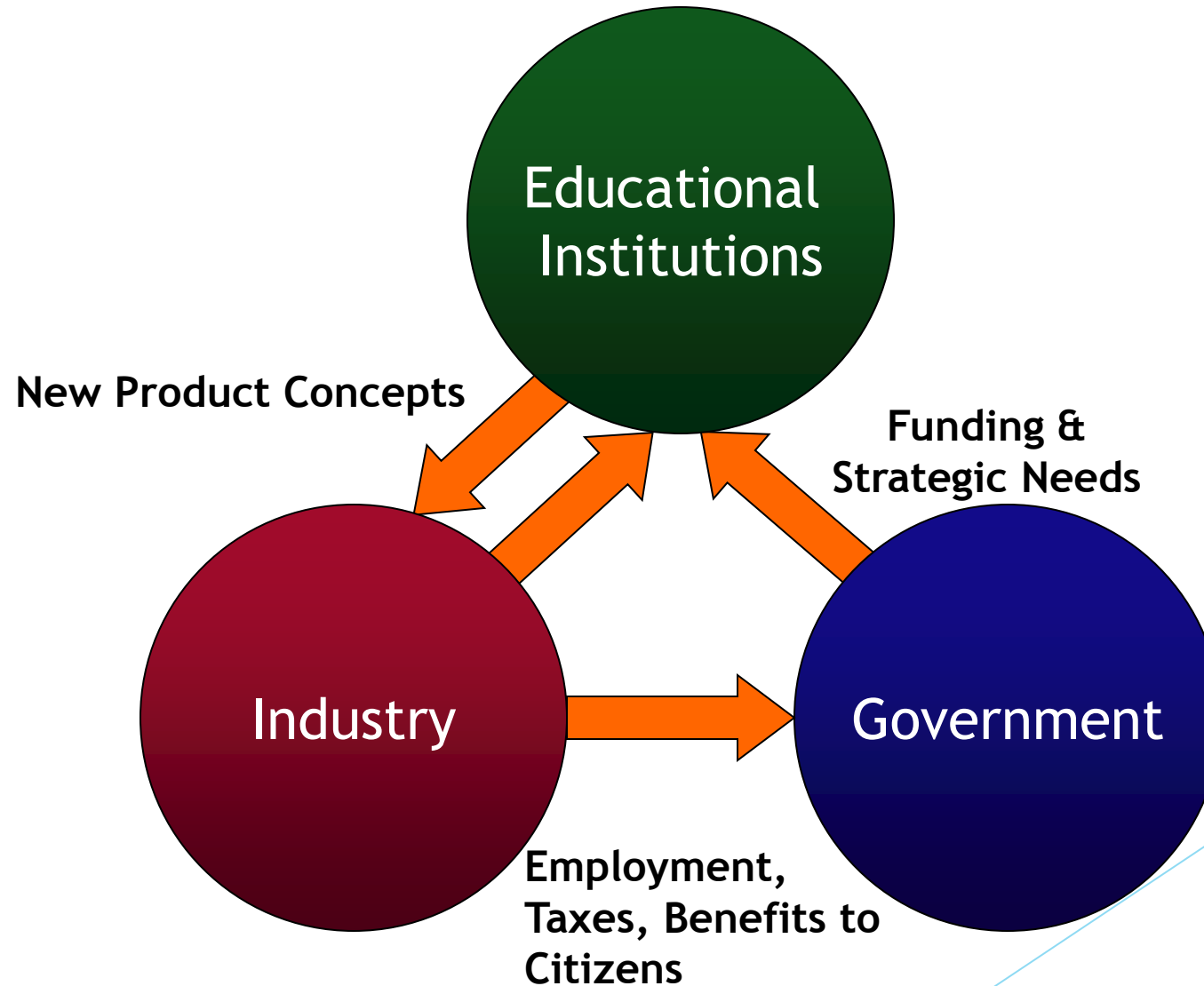
**Industry**



# Triple Helix Model

- ▶ The Triple Helix is a model that guide interactions between educational Institutions, industry and public sector to support invention, creativity and experimentation.
- ▶ Triple Helix collaboration leads to upgrading education that focuses on the needs of industry.

# Diagram of How it Works



# Benefits to Industry

- ▶ Expand long term and risky research activities to experts in the field
- ▶ Obtain proprietary technology through licensing agreements
- ▶ Leverage funding through matching grant projects
- ▶ Collaborating research labs are source of new recruits

# Benefits to Educational Institutions

- ▶ Excellent source of funding with industry and government sharing the load
- ▶ Funding allows for critical mass of personnel and in general more efficient research
- ▶ Training of highly qualified personnel in industrial related research good for job placements
- ▶ Helps remove stigma of “ivied walls”
- ▶ Research generally based on strategic needs and has long range benefit to the community

# Benefits to Government

- ▶ New industries and new products can lead to higher employment
- ▶ Financial benefit from taxes and duties
- ▶ Helps support strategic R&D initiatives
- ▶ Many products have impact on Canadians in providing a better live style

# Triple Helix - Innovations in the solar energy sector in the UAE

[www.masdar.ae](http://www.masdar.ae)

**Based on the paper:**  
**Challenges to Developing Technological Innovation Systems**  
**Energy in Abu Dhabi**

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# Abu Dhabi's aspiration

Abu Dhabi's aspiration is to:

- ▶ diversify its economy and transition towards a knowledge-based economy.
- ▶ focus on creating an environment conducive to innovation and entrepreneurship

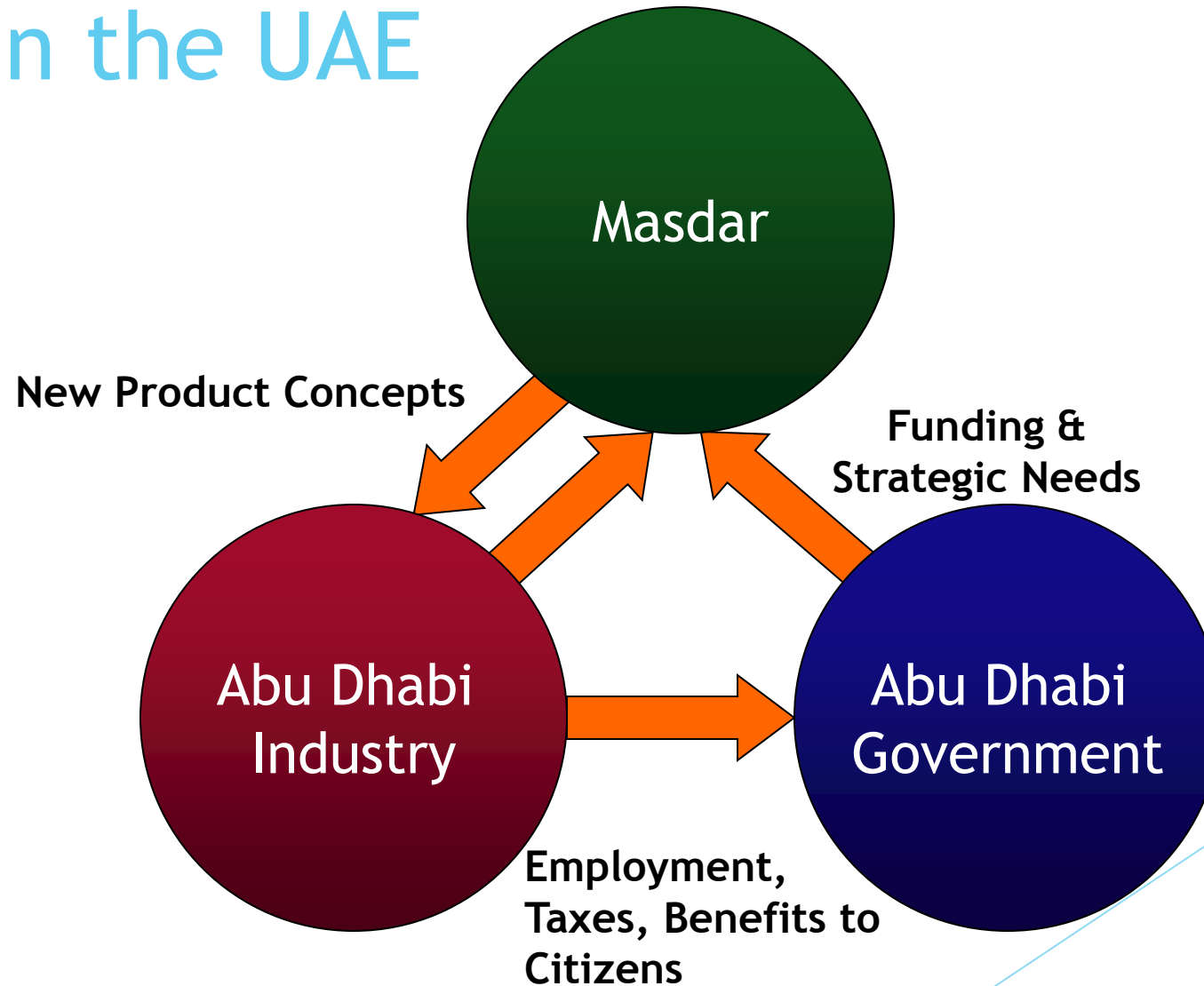
# The Abu Dhabi context

- ▶ Abu Dhabi is the largest emirate geographically, and its waters contain the majority of the UAE's oil and gas deposits
- ▶ driven by Peak Oil concerns, economic diversification has been shown to be critical for future regional development
- ▶ have the highest level of per capita CO2 emissions and water use in the world
- ▶ high solar insolation and large uninhabited desert areas, as well as high energy demand, make solar energy a potential niche for diversifying energy generation
- ▶ conventional energy is highly subsidized, making solar energy economically unattractive both for potential users as well as for investors

# The Masdar Initiative

- ▶ launched in 2006. With a \$US 22 billion budget
- ▶ the project is driven by Abu Dhabi Future Energy Company, a subsidiary of the Mubadala Investment Company.
- ▶ Involves the development of Masdar City, a carbon-neutral residential, work community and industrial and R&D cluster
- ▶ Set-up of a graduate research university, Masdar Institute, in collaboration with Massachusetts Institute of Technology

# Innovations in the solar energy sector in the UAE



# Masdar Vision and Mission

## Vision

- ▶ To make Abu Dhabi the preeminent source of renewable energy knowledge, development, implementation and the world's benchmark for sustainable development.

## Mission

- ▶ To advance renewable energy and sustainable technologies through education, research and development, investment, commercialization and adoption.

# Masdar Objectives

- ▶ To be profitable
- ▶ To build the reputation of Abu Dhabi and Masdar as a global player in sustainable and renewable energy
- ▶ Foster the development of a diversified knowledge-based economy in Abu Dhabi
- ▶ To reduce the carbon footprint of Abu Dhabi

# How Masdar Works

- ▶ Plays the role of a first mover in setting up the innovation system and in making the first steps towards creating linkages between the innovation system and the local economy.
- ▶ Drives the process of transformation, attracts foreign investors and companies, creates demand by investing in pilot projects, and aims to invest in R&D and in developing the solar industry value chain.
- ▶ Explores applications of technologies such as photovoltaic, geothermal and carbon capture and storage technologies in the UAE

# Masdar Landmark Projects

- ▶ A 10MW solar photovoltaic (PV) plant meant to power the first phase of Masdar City development. Currently this is the largest solar photovoltaic plant in the Middle East. In addition
- ▶ a 10kW beam-down pilot plant has been built in collaboration with Tokyo Institute of Technology in 2009, currently operated by Masdar Institute
- ▶ a 100 MW solar concentrated power plant supplies the national electricity grid. This is the world's largest concentrator photovoltaic power station



# Masdar Landmark Projects

- ▶ developed one of the largest field studies of solar panel technologies. Some 22 manufacturers had been involved in the study, for monitoring how different technologies endure the effects of heat, humidity and sand, over 18 months.
- ▶ Masdar Institute is the only education and research institution in the region with a curriculum focused on renewable energy technologies and sustainable development.
- ▶ Masdar develops programs focused on sustainability, renewable energy, and environmental awareness in UAE schools

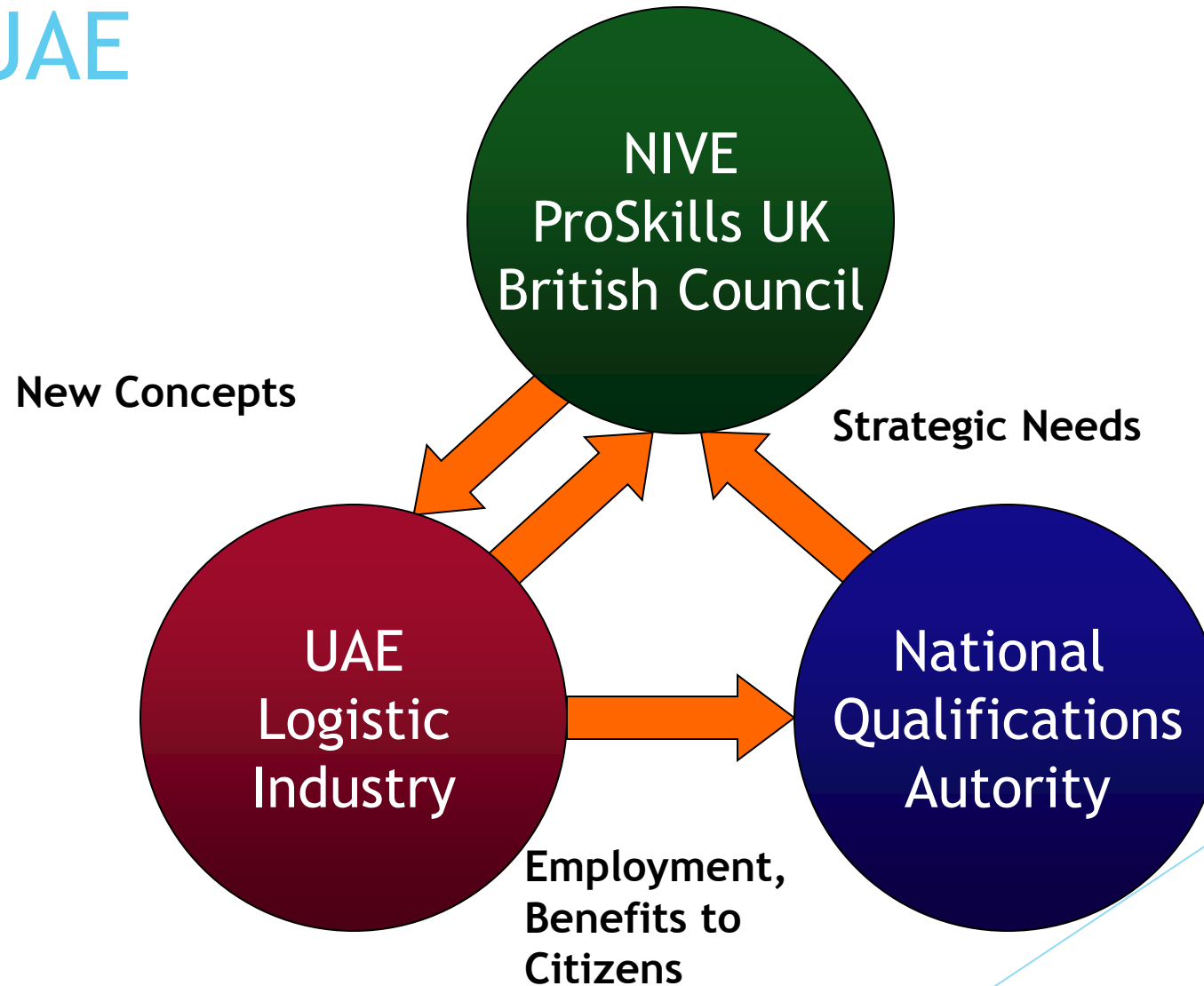
# Institutional challenges

- ▶ A major challenge for solar energy deployment emerges from the low electricity tariffs .This places electricity from solar energy at a high cost disadvantage compared to conventional energy sources. Without sufficient incentives, there is limited interest from users and investors in alternative energy sources.
- ▶ The government has made the only institutional commitment to achieve 7% of renewable energy target for 2020 for Abu Dhabi

# Triple Helix - International Partnership to Support Skills Development in the UAE

British Council Skill Partnership Project:  
NIVE & ProSkills UK Partnership

# Innovations to Support Skills Development in the UAE



# Skill for Employability - B.C. Partnership Project

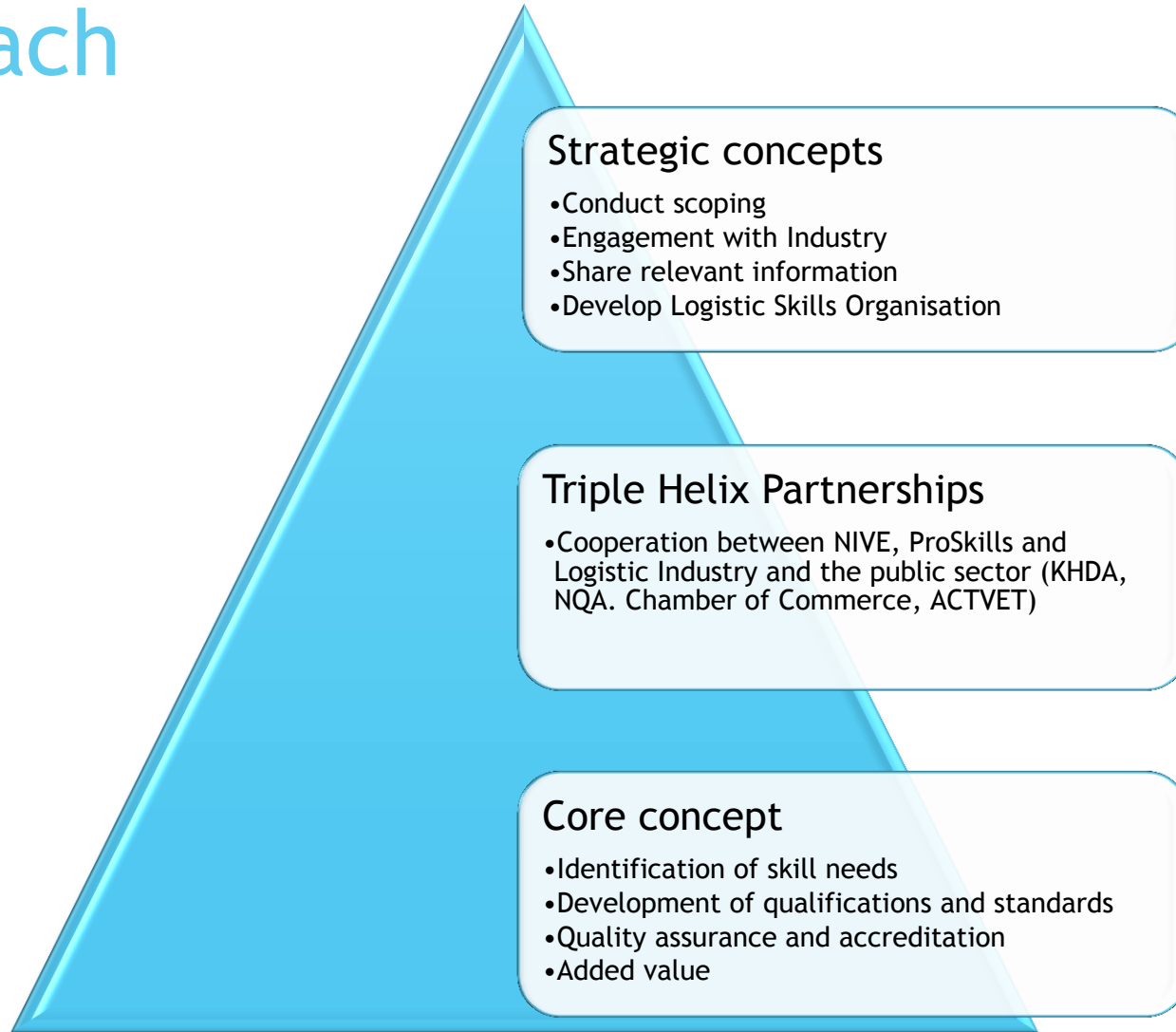
Skills for Employability is a British Council program that is designed to:

- ▶ Address the challenges of Globalisation and the demand for skills in a global economy
- ▶ Establish industry-driven curriculum models in key sectors of the economy.
- ▶ Equip young people with the technical and generic skills that employers require.

# NIVE - ProSkills Partnership to develop Logistic Skills Council in the UAE

- ▶ Provides a common platform for government, industry and educational institutions to identify skills needed for the sector and develop sustainable partnerships through a Skills Council in Logistics.
- ▶ Leads to a new approach to skills development and quality assurance in VET in the UAE.
- ▶ Provides a platform to work with industry partners/employers to develop qualifications and standards for the sector or a self-assessment framework with the engagement of employers.
- ▶ Tackles the key question of accrediting/recognising the existing skills of migrant workers in the UAE, exploring methods of mapping qualifications and achievements.

# NIVE - ProSkills Partnership Project: Approach



# NIVE - ProSkills Partnership Project: Implementation

- ▶ Conduct scoping and engagement with industry during the preparation of the report containing key recommendations for the establishment of the Logistic Skills Organisation.
- ▶ Implement the agreed actions and review the outcomes through robust impact research.
- ▶ Share relevant information, processes and documents necessary and provide support in establishing and maintaining a functioning Logistic Skills Organisation (governance, business planning, budgets etc).
- ▶ Produce a final report detailing the lessons learnt, impact created and the recommendations for rolling out Sector Skills Organisations in other sectors across the UAE.



# Scoping: Initial Key Findings

- ▶ Limited or no careers guidance
- ▶ Education system not providing industry ready skills
- ▶ Training provision limited in scope and range
- ▶ No skills standards present
- ▶ Industry based qualifications non-existent
- ▶ Employers develop and deliver own training and skills

# Next Steps

- Conduct a full Labour Market Survey of employers and stakeholders
- Organise and deliver a conference for industry to disseminate findings
- Develop strategic implementation plan based on need
- Set Up Sector Skills Body

# Project Timeline

