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Advanced technology investment company (ATIC): a destination global champion

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ADVANCED TECHNOLOGY INVESTMENT COMPANY (ATIC): A Destination Global Champion

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ADVANCED TECHNOLOGY INVESTMENT COMPANY (ATIC): SPEARHEADING A DESTINATION TRANSFORMATION AS A GLOBAL CHAMPION

Ibrahim Ajami, looked out of the plane window as it descended into the Abu Dhabi International airport. He was on a trip around the world Abu Dhabi– Germany – New York – Singapore - Abu Dhabi. As the early morning sun hit HQ, the unique round shaped building on the edge of Yas Island, Abu Dhabi and the windows lit up for a moment with the rich colors of a fiery sun, Ibrahim contemplated the progress Advanced Technology Investment Company (ATIC) had made in its short three year of existence since 2008 with him in charge as the Chief Executive Officer (CEO). From a company of 2 individuals they had grown to almost 100 employees. They were managing assets valued at over US\$ 40 billion with revenues of US\$3.5 billion with over 12,000 employees spread over 8 manufacturing plants and sites in 4 countries [VERIFY]. The bigger challenge for ATIC as a flagship destination champion organization was to find ways to quickly kick-start the transformation in line with the Abu Dhabi Vision 2030¹ in a healthy and meaningful way. Secondly as ATIC increased its reach globally in terms of acquisitions and customers, they needed to find ways to integrate potentially orthogonal cultures to create a cohesive Multi-National Company (MNC). The biggest challenge according to Ibrahim is “*How can ATIC play a role in positioning the UAE, particularly Abu Dhabi in the Middle East as a strong contender for technology innovation and high technology manufacturing.*”

Advance Technology Investment Company

ATIC – A strong beginning

ATIC is a wholly-owned subsidiary of Mubadala Development Company² (Mubadala). Mubadala was started by the Government of Abu Dhabi in 2002 with a mandate to facilitate the diversification of Abu Dhabi’s economy and transform the city into a knowledge based global economy. In 2008, Mubadala played a key role in launching ATIC as an element of Abu Dhabi’s long-term strategy to diversify its economy through investments in high-technology sectors. By February 16 2011, ATIC had become a wholly owned business of Mubadala. ATIC

¹ Abu Dhabi 2030

² Mubadala is a catalyst for the Emirate’s economic diversification, managing long-term, capital-intensive investments that deliver strong financial returns and tangible social benefits to the region. In 2010, Mubadala audited year-end financial results showed •Year-On-Year Revenue increase by 22% year-on-year from AED 13.1bn to AED 16bn •Credit ratings in the region at Aa3/AA/AA by Moody’s, Fitch and S&P. For more information see <http://www.mubadala.com/>. What is unique about Mubadala is that it looks at all its investments through a financial lens.

looks at its investments through the same rigor that Mubadala does – making sure all investments have to deliver financial and operational discipline. ATIC had a clear and single purpose at its inception: *“To deliver superior financial returns to their shareholder by responsibly and sustainably investing in, and building, leading technology companies around the world.”* Though the initial focus was on the semiconductor industry, ATIC's future scope was to become global, focusing on leading technology companies and centers in Europe, the United States of America (USA) and Asia. There were a whole host of challenges – How do you create a leading technology company (like GLOBALFOUNDRIES)³ that was formed by the separation of assets (like AMD⁴) and now involved an integration of assets (like Chartered)? This integration involved different organizational cultures, management styles and histories⁵ of companies; different geographic locations (Germany, Singapore, USA and Abu Dhabi) and their national cultures. More importantly they needed to compete and win in a sector dominated by strong players.

No stranger to the Overcoming the Insurmountable

The velocity of high stake investments may seem frightening to some but 36 year old Ibrahim was comfortable in this role. Prior to becoming the CEO of ATIC, he worked in Mubadala as the Associate Director of the Acquisitions Unit. During his four years of tenure there, he was instrumental in several significant and high profile acquisitions like Pearl Energy (Singapore), Carlyle Investment (USA); Related Real Estate Company (New York, USA). Among the many sectors identified for diversification was the high technology semi-conductor industry with which Ibrahim was familiar with having worked in Silicon Valley, most notably with Packard Bell/NEC. Some positive aspects of this industry were firstly from manpower point of view – it would be high wage, high expertise, high productivity and high technology. Secondly it was not a labour intensive industry since there was a high degree of automation. There were some challenges also associated with this industry. It was a highly competitive global industry. Only a handful of companies had made money in this sector. Only the No 1 players in that segment made most of the profits. Thirdly, this industry was very cyclical, subject to booms and busts which meant you had to have resilience to survive in this industry. Fourthly, this industry required a massive amount of capital investments.

Considering the pros and cons, it was felt that an investment in this sector played to Abu Dhabi's strengths – it was capital intensive which would provide future employment for the citizens,

³ GLOBALFOUNDRIES was created in 2008 when ATIC and AMD separated design and manufacturing, at this point in time ATIC investment was 19.9%. By 2009 ATIC owned 69% and by ...100% [CONFIRM DETAILS]

⁴ AMD (Advanced Micro Devices) at the time of the acquisition was a global technology company that design innovative microprocessors and graphics solutions used for the computer and consumer to help them deliver high-performance, energy-efficient, and visually realistic solutions. Mubadala initially invested 8.1% of AMD stake in November 2007.

⁵ Chartered Semiconductor Manufacturing, Singapore was a 100% acquisition by ATIC in Q4 2009.

create diversification and aid in consolidating themselves as a knowledge economy. Furthermore a unique opportunity presented itself with respect to AMD. Ibrahim has since deployed over US\$ 10 Billion of capital in terms of investments the AMD and Chartered (Singapore) assets. Ibrahim headed Mubadala's initial acquisition of an 8.1% stake in AMD in 2007 which then led to the joint venture transaction between ATIC and AMD to establish GLOBALFOUNDRIES in January 2009. The strategy was a bit different from the previous Mubadala investments as here they were building a global champion that would act a catalyst for creating the industry cluster in Abu Dhabi. They knew at the onset that this opportunity required time. In 2008 when ATIC was launched Ibrahim had a team of 1 other person and he had to bring this vision to maturity. ATIC as an investment company looks at assets, manages the assets and also prepares Abu Dhabi for the semiconductor industry. Ibrahim says *“Good investors do two things – they deploy their capital at the right time and they manage their investments really well so they can exit and get their return.”*


At this time the focus was to separate and build GLOBALFOUNDRIES from AMD and to build ATIC. Though this task of creating ATIC and building GLOBALFOUNDRIES seemed challenging, Ibrahim knew it was possible despite the odds. The opportunity was immense as this semiconductor sector had a huge growth potential and customers in the industry were looking for another significant player to help balance the supplier dynamics. For Ibrahim it came down to a strategy of execution and his formula was very simple. *“Rule No. 1: It's all about the people”*, so Ibrahim went and *“recruited some very talented people, encouraged and attracted them to the platform based on the long-term vision”*. Ibrahim believes he needs to have a value centered and results oriented organization – an organization *“where the real differentiator is people...that gives you the long-term sustainable competitive advantage”*. A lot of time according to Ibrahim is spent on people development, making sure that the right people are in the right places and creating an environment high on values. The ATIC values and conduct framework that drove the organizational culture is shown in Exhibit 1.

For Ibrahim, there were a few critical components he needed to take care of:

- (1) Preparing Abu Dhabi as a battleground for the semiconductor industry: Developing policies, infrastructure, talent, human capital and the seamless working of the various constituents like the private sector, government sector and education. This contributed to the dual bottom line. What this means is that in addition to the financial objective, ATIC has a socio-economic objective to the government of Abu Dhabi and hence UAE.
- (2) Building GLOBALFOUNDRIES to succeed: Making sure that there was synergy between the three countries the plants operated – Germany, Singapore and USA keeping competition between the locations healthy.
- (3) Creating a new culture that weaved the ATIC vision through the companies. Identifying the best qualities of each asset and promoting it across the other assets to create one integrated

culture. For example, Chartered from Singapore was a thrifty company with strong customer service. On the other hand, GLOBALFOUNDRIES had great Research & Development (R&D) systems. All that was required was the diligence; the strong belief in the vision; stakeholder management and a tremendous amount of education. You needed foresight, energy and commitment knowing that Abu Dhabi would take 5 years to be ready and the markets of Germany, Singapore and USA needed to be sustained and built up.

Exhibit 1: ATIC Values and Conduct Framework

	
The Values We Embrace	The Conduct We Expect
<u>Accountability and Excellence</u> <ul style="list-style-type: none"> • We are focused, disciplined and rigorous in everything we do. • We set and meet aggressive targets. • We have a passion for high performance. 	<u>Thoughtful</u> <ul style="list-style-type: none"> • Empower sound decision making by challenging each other, cultivating frank debate and seeking different perspectives. • Have the confidence to be open to ideas from anywhere. • Practice innovative thinking by challenging the status quo. • Always be mindful of optimizing outcomes for ATIC and Abu Dhabi.
<u>Impact</u> <ul style="list-style-type: none"> • We have a clear vision of where we are going. • We maintain a long-term orientation. • Our goal is to never stop growing and developing professionally. 	<u>Collaborative</u> <ul style="list-style-type: none"> • Be a player for all seasons with intensity and drive; invigorate and support each other. • Lead by being coaches and mentors to help others develop more readily. • Provide and solicit timely and caring feedback, addressing sensitive topics through personal interaction. • Foster trust and respect – be open, responsive and transparent with no hidden agenda.
<u>Integrity and Humility</u> <ul style="list-style-type: none"> • We embrace and cherish the responsibility that has been granted to us. • We respect and honor the diverse cultures we represent and work with. • We strive to act always with honesty and principle. 	<u>Committed</u> <ul style="list-style-type: none"> • Speak with one voice – have strong alignment with each other and with the company's vision and goals (internally and externally). • Be a role model of our culture and values by living them every day. • Protect confidentiality of each other and our key stakeholders. • Work hard and strive to achieve work-life balance, or mission is a marathon, not a sprint.

ATIC'S CORE ASSETS

“We believe, simply, that it comes down to our three core assets - our patient capital philosophy, our perspective and our people.”

CORE ASSET 1: Patient Capital Philosophy

Daniel Durn is the Executive Director leading the Investment & Strategy Unit of ATIC. Daniel had extensive Mergers & Acquisition (M&A) deal experience in a variety of technology-related sectors and prior to joining ATIC worked as an investment banker and a member of the Merger Leadership Group at Goldman Sachs. He joined ATIC at the very beginning of its formation having worked in the M&A field with Mubadala as his client. When he was offered his current job, he jumped at the opportunity and left USA to join the company.

Daniel says of the M&A industry, “*There is an old saying – technology companies are bought – not sold*”, and he believes you create the opportunities by understanding the market needs correctly. He looks after investment (especially identifying future opportunities) and de-investments making sure ATIC operates in the advanced technology sector. The viewpoint in ATIC is that patient capital investments are determined by long-term success (5-10 year horizon) and sound financial returns takes place through a strategic, transformation approach versus a short-term, tactical and opportunistic investment. ATIC's capital base is underpinned by their shareholder's AA+ rating. Currently the key stakeholder is the Abu Dhabi government and the funding entity is Mubadala.

In 2010, the semiconductor market was worth an estimated US\$300 billion (Is there an updated version of figure 1). The structural shift in the integrated device manufacturing industry (IDM) to outsourcing; and the raising costs associated with manufacturing plants was one area ATIC sought to optimizing in terms of value with their acquisitions as shown in Exhibit 2).

Exhibit 2: Semiconductors are at the heart of Advanced Technology
(we would like to have the original picture in Greyscale)

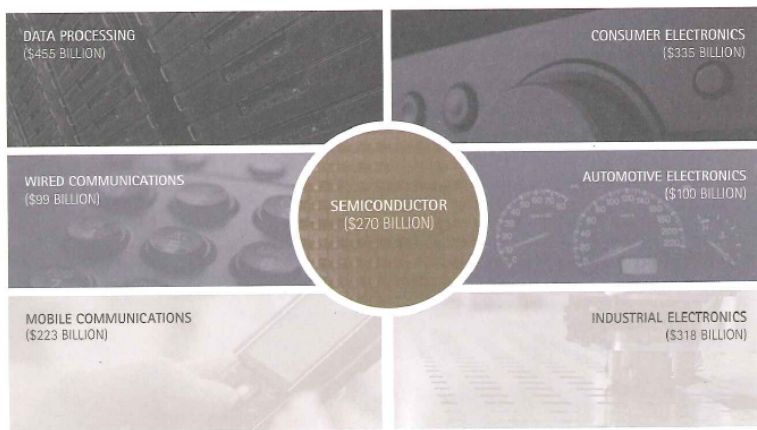


Exhibit 3: The Foundry Business: An Opportunity in the Value Chain
 (we would like to have the original picture in Greyscale)



ATIC's current portfolio extends across the Foundry business. In Fabless Design ATIC acquired AMD which at that time was an integrated device manufacturer – with two types of companies embedded in – one was a Design company that designed the semi-conductor and CPUs; and the other was a manufacturing firm. Historically this was how the industry operated but with time the cost of keeping both the design and manufacturing integrated into a mid-size company became prohibitively expensive and financially challenging. Only the largest companies in this sector were able to integrate both design and manufacturing as they needed the ability to have designs on the leading edge of technology (large R&D); and the ability to integrate that design into manufacturing. So eventually there was a disaggregation in the industry with companies retaining the design component as the investments in design were modest compared to the manufacturing business. On the manufacturing side, specialized manufacturers were merging together forming foundries and amortizing their investment costs over 100 different customers.

This meant getting economies of scale. A peculiarity of this industry is that the top companies will always have a premium in the market place. This is because the fixed cost remains relatively constant at USD 5-9 billion, hence the company that can bring the technology to the market place first will get the first mover advantage and recover costs faster by charging the premium for the average selling price (ASP). This premium can run to 50% gross margins and 30% operating margins. For example, Taiwan Silicon Manufacturing Company (TSMC) tops this industry; United Microelectronics Corporation (UMC) which is next has sales 1/3 of TSMC, SMIC and Chartered as followers found the combined sales was less than that of UMC⁶. Hence the margins and cash flows decrease dramatically for followers.

AMD was a good investment for ATIC as its R&D was on the bleeding edge of technology. Secondly in terms of manufacturing, AMD had proved that it was capable of being pushed to its limits in order to accommodate newer innovations. Typically in this industry, if one gets design companies to create products using your wafer or silicon chip specifications, you were often guaranteed customers. With design and manufacturing, AMD had a strong differential advantage in the competitive marketplace. ATIC's journey began in October 2008, when Mubadala increased its initial investment of 8.1% in AMD to 19.9%. At this time ATIC and ADM created GLOBALFOUNDRIES by separating the design and manufacturing business. By Q3 2009, ATIC's stake in GLOBALFOUNDRIES was 69%. GLOBALFOUNDRIES is now one of the world's largest semiconductor manufacturers, committed to delivering a superior level of performance and innovation to benefit chipmakers, product manufacturers and consumers around the globe. The challenge for ATIC, according to Daniel was: *"We bought a set of assets and now needed to create a company around those set of assets, which is a complex corporate transactions in the M&A world – asset divestiture from AMD and asset integration [AMD and Chartered]... This takes a long time to mature into a fully stable platform that can be driven towards industry leadership."* This was made more complex as the integration was less than 12 months after divestiture. This Merger of Equals (MOE) was not easy to achieve given that the time frame and the complexity which under normal circumstances would take 10 years. ATIC had to keep in mind the peculiar trends present in this industry sector and make the asset a leader within this industry very quickly.

In Q4 2009, ATIC acquired 100% of Chartered Semiconductor Manufacturing of Singapore. Chartered Semiconductor Manufacturing was at that time one of the Big 4 – in terms the world's most advanced semiconductor foundries. Chartered offered leading and lagging-edge manufacturing solutions which allowed its customers to create and deliver market-leading solutions. Furthermore another important factor for this acquisition was that the technology platform used for Chartered was the same as that used by GLOBALFOUNDRIES – no other player had the same technology platform. From ATIC's point of view, Chartered was a company that was known for servicing customers. Subsequently it was a company with a shortage of investment funds which is crucial to update technology because they were late to the game follower, they did not make a lot of money but this made them a lean mean organization. GLOBALFOUNDRIES on the other had a large pool of capital to pursue a leading edge roadmap and capacity investment, but lacked the customer relationships. This was a good merger of two assets – the Chartered mindset of grinding the pennies out of the business, good customer service combined with GLOBALFOUNDRIES high volume, microprocessor technology base

⁶ Source: <http://www.eeherald.com/section/news/nw100010277.html>

and high capital could be used to create an organization with a new mindset – lean, high technology, customer focus with the scale. This synergetic value from the legacy business, the consolidation of R&D costs from a merger point of view was enough justification for the acquisition cost. This also ensured that now GLOBALFOUNDRIES was one of the global forces to be reckoned in this business in terms of volume.

The typical stumbling blocks for mergers are that companies get emotionally involved and sometimes they overpay for assets. Another stumbling block is underestimating risks of the business being acquired, the reactions from customers (positive, negative or neutral), or the risk incurred in integration (company culture, geographic culture). When there is no proper diligence in estimating these risks, the valuation could be off. ATIC is trying to drive growth by deploying capital earlier in the growth cycle in the advanced technology looking at mainly the horizontal industry but the adjacent vertical industry – software, hardware, communication technology, IT services, datacenters are all potential growth centers. ATIC wants be disciplined in their acquisitions and systematic, balancing opportunities but ensuring they do not detract from building GLOBALFOUNDRIES. Hence they will always ascribe to the philosophy of patient capital: foundational investment, building a set of capabilities and leveraging that set of capabilities for capital deployment. ATIC had partnered with its asset management teams to drive change in the industry. Long-term, ATIC plans to invest in upstream investments of design services and technology solutions. They will move horizontally and acquire other specialty foundries. Finally they will also invest in downstream investments in the fields of assembly, packaging and testing. Future plans also include diversification into related fields of life sciences, and advanced materials and chemicals which are technology intensive.

CORE ASSET 2: Our Perspective – An Ecosystem Approach

Advanced technology is a highly complex, competitive and dynamic industry that requires in-depth knowledge and intelligent management on a global scale. ATIC is committed to evaluating the long-term potential of a company and the underlying merits of its technologies and investing in a smart, synergistic way that is beneficial to all concerned. The purpose of portfolio management is to look at existing assets and continue to improve value creation and performance – whether it means looking at new investments for existing assets, a new road map for sales and marketing, or new technologies. Currently the largest asset is GLOBALFOUNDRIES. With the acquisition of Chartered, the Portfolio Management department looks at Chartered integration with GLOBALFOUNDRIES and the future performance of GLOBALFOUNDRIES. With all these acquisitions, by the end of 2009, GLOBALFOUNDRIES emerged as one of the top three semiconductor manufacturers in the world by revenue behind Taiwan Semiconductor Manufacturing Company and United Microelectronics Corporation. GLOBALFOUNDRIES had operations spread across three continents across 12 locations. GLOBALFOUNDRIES had five 200mm fabs and two 300mm fabs in production. They had over 150 customers worldwide. While the Dresden and Singapore ecosystem existed and continued to be supported, the New York ecosystem (Fab 8) was created through an investment of USD 4.5-5 billion [PLEASE CONFIRM THIS FIGURE AS IT IS DIFFERENT IN DIFFERENT PRESS RELEASES] to create a significant semi-conductor industry. Through this investment 1500 direct jobs and over 5000 indirect jobs were created in the USA at a time when Global Depression was still going on. This helped create New York as a

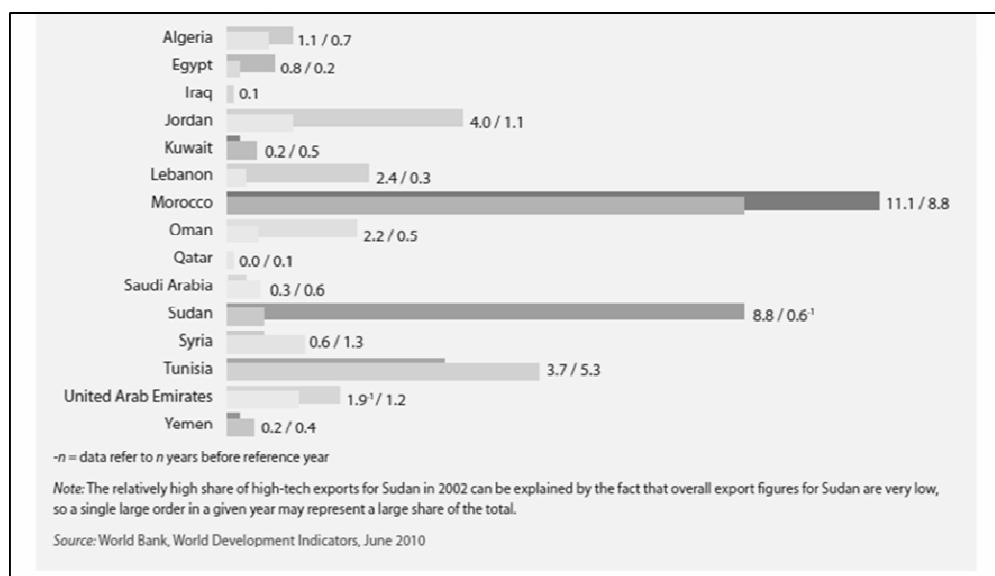
hub. When Fab 8 is completed by August 2012 (estimated), it will be the largest leading-edge semiconductor foundry in the United States.

ATIC had invested at the end of March 2011, over US\$12.2 billion (to acquire the former manufacturing assets of Advanced Micro Devices in Dresden, Germany; Chartered Semiconductor Manufacturing of Singapore and for the new fabrication facility in New York, USA). In terms of time lines, the New York plant came before Abu Dhabi as the human capital and other supporting infrastructure requirement were already present in USA. The dual bottom line meant that unlike other investment companies, ATIC needed also to focus on socio-economic factors. By the end of 2012, ATIC would have invested another approximately US\$6 billion Abu Dhabi in physical infrastructure. To get Fab 9 running and to ensure the asset GLOBALFOUNDRIES was working at its peak performance, the Human Capital Team and the intellectual infrastructure came into the picture.

In this case they needed specifically to transform Abu Dhabi and create a leading Middle Eastern high technology, semi-conductor based cluster. They needed to realize Abu Dhabi Economic Vision 2030 to make the emirate a commercial and innovative global force. This was ambitious looking at the share of high-tech exports in this sector and the future economic diversification strategy under Abu Dhabi Vision 2030 (Exhibit 4)⁷. The logic behind these acquisitions was the fact that countries with significant semiconductor clusters typically rank very high in world innovation rankings and provide significant labour opportunities for their citizens (See Exhibit 5 for more information). Countries that bear testament to this strategy were USA, South Korea, Japan, Taiwan, Singapore and China. Other countries following this strategy are India, Brazil and Russia. ATIC wanted to bring in GLOBALFOUNDRIES as an anchor tenant to Abu Dhabi having to become the global champion to create a destination transformation into a vibrant high technology ecosystem.

Exhibit 4: % Share of Arab High-tech exports in total manufactured exports (2002 and 2007)

⁷ UNESCO Science Report 2010.



Source: UNESCO Science Report 2010

Exhibit 5: Opportunities and Challenges Affecting the Realization of Abu Dhabi 2030 for ATIC

Opportunities	Challenges
Abu Dhabi Government: stable; forward looking and very tolerant to diverse cultures with a financial capability.	UAE has a low R&D spend and Abu Dhabi yet had to create a policy for the same.
Capacity for Innovation: the UAE is the highest ranking Arab country in terms of its capacity for innovation ranking 27 out of 133 countries in 2009-2010.	Low collaboration between the private, and government and education sectors: this is vital to the creation of an ecosystem.
National Manpower Required: Emiratis are less than 20% of the population and such an industry is not manpower intensive.	Low number of full time researchers/million (This requires a long-lead time to develop and currently most of the capabilities are imported in the form of expatriates)
Opportunity to provide employment and high	Low impact of research (patents, publications

wages: About half the national population of UAE is below 15 years of age (opportunity to develop talent); estimated unemployment rate stands at 10% (opportunity to provide jobs). As a highly skilled industry, the employment will provide high wages (attractive private sector job).	and citations) – This is more an effect of the previous two points.
ICT Adoption: UAE has a high ICT adoption showing comfort level with internet and mobile technology and infrastructure development.	Intellectual Property (IP) rules needed greater clarity and legal protection.
UAE a trade hub: UAE was already a trade hub which had two international air carriers operating in close proximity that would be required for supply chain management.	UAE did not have any education body at the time of founding of GLOBALFOUNDRIES a degree/diploma focusing on micro-processing.

Sources: Interviews with Key Managers in ATIC; Data from World Competitiveness Reports.

The current organization structure has Ibrahim as the CEO with three major subunits under him: Investment and Strategy; Portfolio Management and the Abu Dhabi Ecosystem. This is supported by the ATIC corporate functions of Human Resources; Legal, Corporate Communications and Finance, Procurement and IT. ATIC as an investment company keeps its corporate functions distinct from its assets though they do consult and help when needed. In addition to the Executive Leadership team, the Board members, represented by Mr. Waleed Ahmed Al Mokarrab Al Muhairi (Chairman) share a collaborative mentorship approach with regards to the investment strategy and business development activities of ATIC. Waleed is also the Director General of the Abu Dhabi Council for Economic Development and Chief Operating Officer of Mubadala Development Company. The Board members come to ATIC with a wealth of experience: Dr. Sultan Ahmed Al Jaber, is also the CEO of the Abu Dhabi Future Energy Company (ADFEC), which is overseeing the landmark MASDAR alternative energy initiative. Jassem Mohammed Al Zaabi is the CEO of Yahsat, an Abu Dhabi-based satellite communications company responsible for the first hybrid satellite communication system to be launched in the Middle East. Mohamed Al Hammadi is the CEO of the Emirates Nuclear Energy Corporation (ENEC). Falah Al Ahbabi is the General Manager of the Urban Planning Council, responsible for overseeing the Emirate's entire planning framework.

As of June 1, 2011, ATIC plans [or is it GLOBALFOUNDRIES?] to build a technology center in Abu Dhabi that will support the company's long-term innovation plans and create the Middle East's first semiconductor foundry. The site will be near Abu Dhabi International Airport to give it access to the region's transport centres and educational facilities and is designed to cover 3 sq. km. The new semiconductor plant was also being planned near MASDAR City with an expected investment cost of US\$ 6 billion (Dh13.2bn) to expand the capacity of its GLOBALFOUNDRIES microchip business. It should be in operational around 2015 and is

expected to contribute up to \$4bn to the capital's economy and create up to 6,000 jobs over the next 10 years, industry officials say.

Sami Issa, the Abu Dhabi Ecosystem Executive Director defines his unique role as one that makes sure that the champion (GLOBALFOUNDRIES) is healthy and profitable so that ATIC is able to add the Abu Dhabi dimension into the existing vibrant ecosystem that includes the other geographies creating a synergy of multiple innovation houses. Sami had over 15 years of experience in the semiconductor industry where he has held diverse leadership positions with industry leaders such as Intel Corporation, Texas Instruments and Broadcom Corporation. Prior to joining ATIC, he was a director at Intel Corporation and elected as the top 1% of Intel's technical community. He had always wanted to work in an industry that could contribute to the creation of a knowledge economy. In summer 2008, while working in INTEL, he heard about an opportunity to work in ATIC through a past colleague. For him it was like a dream come true so he moved to Abu Dhabi in March 2009. He says 60% of his time is spent on enabling Abu Dhabi for the high technology sector and another 40% of his time is spent on portfolio development and investment strategy to ensure that the champion is healthy. Sami further clarifies his role as a unique one which contributes to the socio-economic bottom line. He says, *"Looking at investments from a financial lens, it's what Wall Street does but it's limiting. The proper way of looking at investments is to take a macro-lens not a micro-lens. Looking at what is the [investment's] contribution to the GDP, education, etc... are real wealth creating elements...it shows that government cares about its people through government funded investments. You really want to look holistically at investments"*.

This ecosystem approach which looks beyond the pure financial investment; looks instead at the investment into the destination, its people, its allied industries to get return on human capital, building a market, educating a society, changing the mindset, reforming policies, education and business environment regulations, creating a relevant R&D culture that reaches commercialization, creating global competitiveness for the population and nation and creating both long-term social and fiscal wealth for the citizens. This is the approach ATIC is taking. It's a transformational approach spearheaded by an organization (ATIC) which acts as a catalyst. ATIC was creating a global champion – GLOBALFOUNDRIES – which competes across the world, consolidating and expanding existing ecosystems and then creating one in Abu Dhabi (Fab 9) where GLOBALFOUNDRIES would be the global champion for this destination change.

The semiconductor industry ensures that the destination of focus is competitive as the product (the wafer) needs to be able to fight in terms of technology and quality to justify the price in the open marketplace. There is no room for error and every cent counts. The other reason is the capacity of Fab 9 would make it compete on a global level as the quantities produced would be larger than the local and regional market. The innovation knowledge needed to be supported by a mutually beneficial relationship with supporting industries, universities, and R&D to optimize its impact. With Abu Dhabi where a significant population was transient, this needed to be developed. ATIC was the entity tasked or mandated with enabling or forcing this transformational change. So while ATIC was certain of the long-term objective and the spillover

effects of the investments they had to identify how to measure the contribution to the socio-economic bottom line.

Sami says *"We know... it is a fantastic strategy to force the transformation of a destination... Though we know the socio-economic benefits, there are no tools or mechanisms to quantify it unlike for the financial benefits. This is an area of research development -about how do you create the right language, which is equivalent to the financial language to measure and quantify the benefit of the investment, will change the investor perspective..."* ATIC is creating a research conducive environment by working closely with the Technology Development Committee (TVC) on Intellectual Patent Policy, Science and Technology Innovation Policy and the Abu Dhabi Economic Council on Business Environment and Business Regulation. A test of a conducive R&D environment is when the innovations are relevant and can be commercialized. Secondly, ATIC hired Semi-Conductor Corporation (SRC), an entity that has worked on creating an ecosystem in USA between industry and the education sector to replicate the same in Abu Dhabi. The test for a productive education system aligned to a nation's needs to ensure that the students from these universities can work in the top MNCs globally rather than getting more Universities in the top 200. ATIC's asset GLOBALFOUNDRIES will invest 950 million dollars in R&D across the world in Dresden, Singapore and New York. To create a cluster, ATIC has invited senior managers of the semi-conductor industry to visit Abu Dhabi and put their R&D entities in Abu Dhabi. This should become self-sustaining if done properly – Governments fund research, Education institutions come up with excellent research orientated programs and hence excellent quality of students who get absorbed in the industry; industry funds research, GDP goes up, and the system survives on its own. Abu Dhabi till recently did not have an allocation for research from its GDP budget though there was a small sum earmarked at the Federal level. ATIC has been one of those agencies championing a science and technology policy that outlines the funding percentage to be spent at the government level to spearhead R&D. ATIC wants to encourage research, convince people it should be done and can be done. Last but not least is to create an entrepreneurial culture that will drive a self-sustaining ecosystem, create opportunities for employment, increase innovation and GDP.

Brian Lott is Executive Director, Communications, for ATIC and has 11 people reporting to him. Brian has over 20 years of experience in global public relations. Brian describes his role simply as one that is *"responsible for reputation both inside and outside"*. On the industry side, ATIC must communicate what is their value proposition to the industry as an investment company. In this case they must communicate about the deployment of capital to create fabs that make leading edge technology. It's also an introduction to Abu Dhabi's vision to be a future leading advanced technology hub. In Fall 2010, 250 Semiconductor C-level executives were brought to UAE for the first semiconductor conference in Abu Dhabi. Two days were spent understanding the role of Mubadala, role of ATIC and why Abu Dhabi was planning to enter into the industry. ATIC also got immersed within industry events to create a presence and educate the industry and current and potential customers. Another important part of communication is education of stakeholder in and out of Abu Dhabi. The idea was to take a dry topic like silicon wafer manufacturing and turn it into an inspirational story about future possibilities; a chance to participate as an employee, an entrepreneur, an educationalist or a member of society in nation building; an opportunity to create a start-up culture of entrepreneurship.

Internally the communication strategy focused on making each ATIC team a brand ambassador that understands the vision, the industry, the terminology and ATICs role in the Abu Dhabi vision 2030. There were some challenges - for example, Arabic does not have a word for semi-conductors so ATIC had to create a new word to begin this process and then extend this translation to the existing terminology. ATIC created a glossary and used those Arabic terms to educate the community about the industry. Another challenge was to get “one voice” to speak about the large vision ATIC was involved with especially when talking to customer, Abu Dhabi influencers and media. For this an on-line Q&A portal was created that allowed employees to be proactive and read information and get the appropriate contents and terminology into their narrative.

Secondly ATIC has been building the “*Al Nokhba*” brand (which means “*The Elite*” in Arabic) for educational initiatives. These campaigns were to appeal to a new generation of Emiratis and to create for the participants of the various human capital programs a sense of identity and empowerment by working in a prestigious occupation and study in some of the most elite programs. Detailed research was conducted for these campaigns. It was important to understand the perspective of not only the students, the parents and the community as the parents and family were a big influencer in this society. From a cultural point of view, it was important to understand the perceptions about the semi-conductor working environment, for working overseas and if the uniform or bunny suit was appealing or not. The findings were used to push the campaigns. Some of the findings were: “*There was a lot of pride associated with the industry; there was a lot of comfort around the uniform as it was considered respectful and there was a lot of appreciation for high technology machines in the clean room as it was considered different from a typical manufacturing environment*”. More importantly many females thought that this was an industry they felt they could advance their education and have a career. In a follow-up survey, 86% of the population surveyed found the *Al Nokhba* brand popular – more so than ATIC. One of the reasons was the social media campaigns. Abu Dhabi had always traditionally spent on big media campaigns so this was a change in the communication strategy but proved immensely successful: there was a huge uptake on the *Al Nokhba* Fan page, there were twitter handles, they had a vision summit hash tag and many of the interns have had blogs that made the campaigns viral [[Khalifa/Raeda I need some numbers](#)].

For building Fab 9, GLOBALFOUNDRIES needed to find the internal resources to fund the project. Traditionally there are three sources of funds – cash flows from revenues; shareholder equity investments and debt markets. ATIC and Mubadala were involved with GLOBALFOUNDRIES in coming up with an appropriate strategy to ensure the project had sufficient capital. Bruce McDougall, Chief Financial Officer was involved from ATIC side. As CFO, he is responsible for overall financial management of the company and its financial reporting and transparency. Bruce worked as CFO of GLOBALFOUNDRIES (he currently sits as a member of GLOBALFOUNDRIES Singapore Board), and has worked in Mubadala Development Company on the EMAL International JV valued at US\$5.7 billion.

Another important issue was that there were only 2 or 3 elements within ATICs direct control as some of the issues were policies or regulations that had to be worked out with other relevant stakeholders. ATIC “*needs to create enablers for the transformation or it must remove barriers that would allow the transformation.*” Sami believed policy could be changed and the largest

obstacle was actually convincing people that this transformation was crucial for long-term survival for a place that depends heavily on oil exports. He felt strongly that they do not have the luxury of time as the world was changing so rapidly and even now an alternative for oil could be developed. The areas ATIC focused on for destination change were – talent management through the human capital team; infrastructure; and all other physical infrastructure to enable the factory – like power, water, streets, housing etc. and finally R&D. In this case, ATIC needed to enable R&D as it would take too long to grow organically to the level they required. Some changes were already taking place, for example some Universities were already coming up with micro-chip designs. Sami had a team of 30 people, of which 15 are in Human Capital Management.

CORE ASSET 3: Human Capital

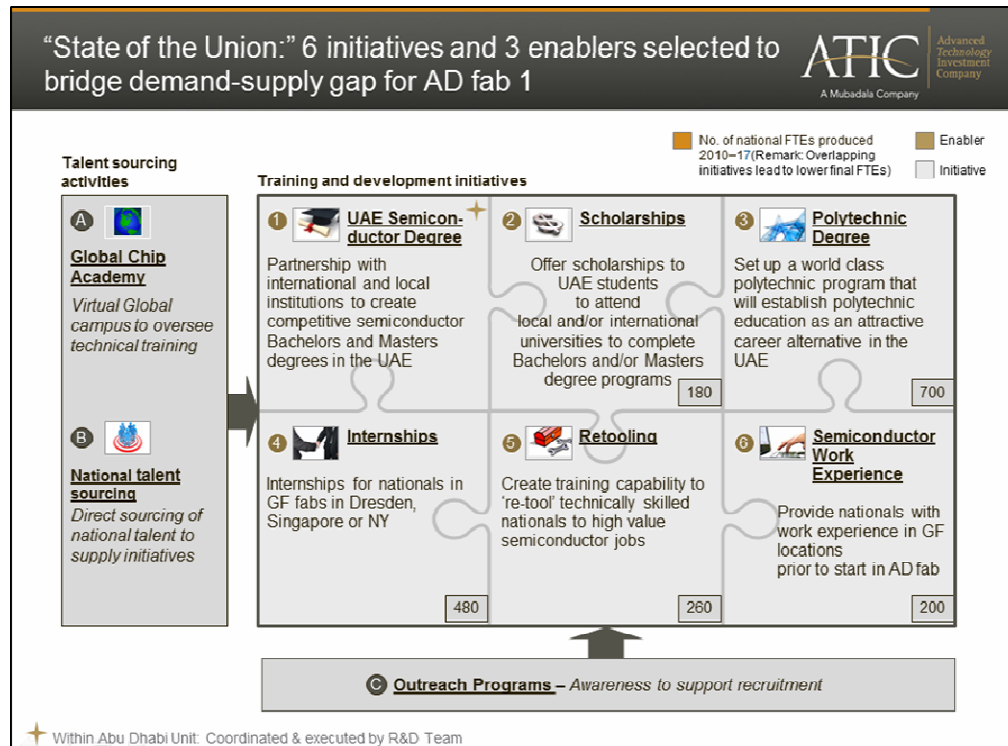
According to Sami to create a vibrant self-sustaining ecosystem and cultural mindset across locations in the globe, during this current disruptive global economy, one would need a tremendous amount of investment in intangible assets. Human capital is one key intangible asset. Brigitte Sitzberger, the Associate Director of Human Capital, Abu Dhabi Ecosystem Development runs the Emiratisation program for the semi-conductor industry in Abu Dhabi. She is responsible for developing the required Human capital for GLOBALFOUNDRIES Fab9 and works in close collaboration with the Abu Dhabi GLOBALFOUNDRIES HR Manager and the Worldwide GLOBALFOUNDRIES Vice President of Human Resources to ensure that the people they recruit fit in with the GLOBALFOUNDRIES standards and that the internships and internal placements do not overload the factories.

Fab9, Abu Dhabi is expected to have about 2000 employees of which at least 50% must be Emiratis and 30% should be female as per the ATIC mandate set by the Abu Dhabi government. Planning for manpower 6 years in advance, Bridgitte says, *“It was simple mathematics, we looked at demand, we looked at supply – supply cannot meet the demand so we have to do something”*. Firstly, a Fab of this size and technology would require some experienced professionals – there were no local semi-conductor companies that could provide people of this expertise and competencies. Secondly, the current education system had no Universities focusing on this field of specialization which meant it was unlikely that there would be any large pool of graduates from which to choose prospective employees. Historically, students did not do as well in science and mathematics and higher education often focused on management studies. Thirdly nationals formed only 20% of the population and the current trend showed they favoured public sector jobs rather than private sector jobs.

Based on the past trends with previous GLOBALFOUNDRIES Fab, ATIC would require 13% of the employees to be engineers with at least 5 years of semi-conductor foundry experience; 40% of the employees should have some technical experience to work as wafer fab technicians; and 47% could be non-experienced, fresh graduates. ATIC had to get about 1000 Emiratis ready for Fab 9 by 2015. In addition to this, they would require 500 employees (250 Emiratis) in corporate functions but this they were sure would not be an issue. ATIC began to strategize about developing the technical human capital in 2009. They used a multi-prong method to

develop local talent from the grass root level and contribute to its dual bottom line is shown in Exhibit 6. All scholarships are fully funded by the Abu Dhabi Education Council (ADEC).

Exhibit 6: State of the Union



Initiative 1: UAE Semi Conductor Degree: ATIC worked closely with established UAE Universities to bring out relevant semi-conductor degrees and diplomas. They worked with ADEC to fund the scholarship of all nationals in degree and vocational programs (in the country and abroad). The first successful collaboration was in Fall 2010 with Massachusetts Institute of Technology (MIT) and the MASDAR Institute of Science & Technology to launch the first Masters Degree in Microsystems. The first batch had 12 students enrolled of which were only 2 Emiratis. At current (2011), the enrolment numbers are increasing. This is a long-term venture that will partner with local and international universities to bring in relevant Masters Degree and enhance existing Bachelor degrees through introduction of semiconductor subjects. Two professorships were sponsored by ATIC to bring in top academic researchers to the UAE. ATIC hopes through this strategy to get 20 specialists full-time employees (FTE) by 2015.

Initiative 2: Al Nokhba Scholarships: Since they require 200 engineers, and the grassroots efforts at education are time consuming, ATIC provided scholarships to the brightest and best school students to study abroad in Ivy League and T1 universities. In 2010 they had 42 successful candidates (25% were female) of which 95% got accepted in the best Universities in USA. The

students can choose where they want to study from the list of pre-approved Universities that work closely with AMD and GF. In 2011, they had 50 students of which 6 were Masters students. There was a lot of education of parents as they initially were very wary of sending their children abroad to study by themselves in a coed environment. ATIC gives career guidance to every student. ATIC always invited parents to the information sessions, showing the parents that they care. The approach is caring where each individual is known and followed up with on a regular basis. Each student has a mentor from GF. ATIC created an Emirati buddy program for this batch to be guided and supported by Al Nokhba seniors from previous batch. Females are allowed to travel home more often. In some cases if required, parents can also visit their children on the campus. ATIC has built a great reputation with the community, one of the parents said “*I know if it’s ATIC, my kids are in good hands*”. (NEED PICTURES OF THE WEBSITE).

Initiative 3: Polytechnics: UAE does not have a culture of vocation training. In Germany polytechnics, are used to feed into the semiconductor industry. The training is a three year program that connects students to prospective employers from day 1. ATIC facilitated the start of polytechnic in collaboration with the Institute of Applied Technology (IAT)⁸ that would lead to a supply of wafer fab technicians. The advantage of this is that the students do not need to hold a bachelor degree or any engineering qualification prior to commencement. This degree gives them a higher diploma which allows them to pursue higher education if they so desire.

ATIC received over 1,100 applications from both science and arts stream from all across the 7 emirates with 49% female participation. After the rigorous 3-step process of both theoretical and practical assessments, they shortlisted the top 275 students. One common factor in all these students were that they said they loved to work with their hands and build things. In fact one of the assessments had the candidates build a model car made of 50 pieces in 20 minutes using an instruction booklet. Another exercise had groups of 5 work with giant Lego blocks to construct something that satisfied three conditions. Out of these 120 students were selected for the Higher Diploma in Semiconductor Technology (HDST) program, which would start in September 2011. The tough assessment was a new experience for students and it according to Brigitte “*Differentiates ATIC as an employer as students feel ATIC cares, not just looks at my papers. The students go home excited whether they are chosen or not. They tell their friends about this cool assessment*”. Furthermore, this detailed assessment allows ATIC to ensure that it is really the right quality of people but it also creates an employer brand. To get students interested in the program they had a massive media campaign using a combination of radio ads, emails, text messages, school posters, phone calls, newspaper ads and information’s sessions as shown in Exhibit7. The messages spoke about the transformative nature of the industry, installed a feeling of pride about the participating in the industry and asked them to be part of the change. It is expected that this strategy will eventually produce at least 450 graduates in time for Fab9 launch. ATIC has factored in a 17% drop-out rate keeping in mind current Emirati student trends. While ATIC will eventually be responsible for the marketing of the program, the diploma will be run by GF and on the job training (OJT). The program is a 3 year diploma with 25% of the time spent in a mock training clean room which ATIC built at the cost of USD 10 million. Another 15% of the time is spent on-the-job training in GF, either in Singapore or Germany till Fab 9 is

⁸ Formally known as Vocational Education and Training Institute - Abu Dhabi (ADVETI), Will also create higher diplomas for nuclear and aerospace industry.

operational. This program is free for nationals and each student earns a stipend during the program.

Exhibit 7: Media Promotion for HDST



Initiative 4: Internships: This is a 6 week internship program in GF. The search for candidates began in August 2010. ATIC looked for students in the Bachelors close to graduation in the science track. The first batch in 2009 had 20 students sent to Dresden. In December 2010, 60 students (50% Female) were selected and sent to Dresden; the third batch, 2011, 55 students were sent to Dresden and Singapore. On the 6 weeks, the last 2 weeks in OJT. Besides the in-depth training in the classroom and mock-up clean rooms, students are also immersed in an inter-cultural environment where they learn about their host culture and educated their hosts about their Emirati culture. The idea is to give the students exposure to the industry, gauge their comfort levels with the bunny suits worn in the clean rooms and help them decide if the factory life is what they want to pursue. Conditional contracts will be issued to top performers to pursue the International Work Assignment (IWA) track upon graduation. Five interns (4 are women) have now become fulltime employees working for Dresden, GF and once Fab 9 is complete will make the transition back to Abu Dhabi. Either is become a marketing tool (as students generally come back saying it was a great experience), it can feed into the scholarship for higher studies or the semi-conductor work force.

Initiative 5: International Work Assignment (IWA): The candidates recruited for IWA will be hired by GF Abu Dhabi and sent abroad to Singapore or Germany for a two-three year

assignment to gain Fab experience. Participants will return to Abu Dhabi during start-up phase and based on individual competencies and development needs they will assign relevant positions. Typically these are experienced Emirati engineers/professionals from labor force who have relevant technical competences, language skills, international mobility and motivation. 40 FTEs were selected for the pilot program in 2011: 5 were sent to Dresden, 5 to New York and 30 to Singapore. ATIC targets 800 Emiratis in the initial recruitment stages before using the three stage process to get 40 FTEs. Taaheed⁹ is actively involved in the initial stages of recruitment. ATIC and GF takes over in stage 2 and 3 and matches candidates with job opportunities. GF is responsible for final employment and works with FTE to come up with an individual development plan. Of the 40 chosen, 8 have declined [CAN WE KNOW WHY].

Initiative 6: Retooling: ATIC has worked with several partners for this program. For recruitment, ATIC has worked with Tawteen Council¹⁰ and Tanmia¹¹. The prospective candidate is Emirati technicians with limited (1-5 years) experience from labor force, with a minimum 12 Grade high school certificate (Science/Technical), English language competency, international mobility and motivation. About 800 applications were screened, 46 FTEs have signed on (ATICs aim was to get 40 FTEs). These FTEs were offered Traineeship by GF. They will undergo preparatory training in Mathematics, English and Science by UAE Academy in Abu Dhabi for 6 month; a 1 year training program in Singapore Polytechnic, one of the oldest polytechnics in the semiconductor industry in Singapore followed by a 1 year assignment in GF. Students will then return to Abu Dhabi during ramp-up phase in 2014. Additional preparatory training maybe provided depending on participant competence level. All FTEs are paid a progressive stipend during different phases of the training program and given relocation and immigration support during this time.

Initiative 7: Outreach: The objective is to create awareness, interest and get students to think about a job in the advanced technology sector. Three key programs were introduced in 2010. The first, Semi-conductor University focused on Grade 11-12 students and their teachers. 50 Emirati students, 20 Emirati Teachers, and 48 parents were involved in a 4 day international program where all of them were flown to Singapore over the UAE National Day holidays. There were three separate programs, one for the students, the teacher and the parents. From this initiative, 10 students joined Al Nokhba scholarship. In 2010 in the American University of Sharjah a 2 week boot camp focusing on Microelectronic was held in the summer for Grade 11 – 12 students. Of the 20 students who participated, there was a 50% female participation and 3 students joined Al Nokhba scholarship. In 2011 multiple camps of this nature for Grade 8-9; Grade 10-12 and Grade 12 were organized and over 150 students participated. The Future Scientist Program, 2010, a four week program, had 20 Emirati students belonging to Grade 8 – 10 (50% female participation); 3 Students joined Semi High Tech University Program. In 2010 all these initiatives had 92 Emirati students in the human capital pipeline. The 2011 expectation for the Outreach Programs is that number will increase to 150 new Emirati students. For 2011 the program was revamped and became more intensive as shown in Exhibit 8.

⁹ Taaheed is a specialist MENA recruitment solutions company

¹⁰ Tawteen Council is an initiative designed to empower young Emirati men and women. It works with all facets of UAE society to help young Nationals unlock their potential in order to pursue meaningful private sector employment

¹¹ Tanmia is also known as National Human Resource Development and Employment Authority focuses on the UAE National to increase their competitiveness locally and internationally.

Exhibit 8: Outreach Programs in 2011

OUTREACH PROGRAMS
Highlight of outreach programs in 2011

ATIC
Advanced Technology Investment Company
A Mubadala Company

Outreach programs will yield approximately 150 new Emirati students in pipeline by end of 2011

Summer of Semiconductors

- 3-week program: July 10 – 28
- 4 programs running in parallel:
 - Future Scientist Program
 - Future Technologist Program
 - Microelectronics Boot Camp
 - Robotics Program (VRO Team)
- 150 students from Grades 9 – 12
- 10 teachers to participate in AMD Changing the Game Program as facilitators & administrators
- Program Providers
 - AMD Foundation
 - Creative Kids Academy
 - American University of Sharjah
 - Abu Dhabi Education Council (ADEC)

Alumni Re-engagement

- Hosted alumni event in May with additional re-engagement events to follow throughout the year
- Alumni:
 - Outreach program participants
 - (students and teachers)
 - Interns from AI Nokhba Internship
 - Participants in Retooling Program
 - Distant alumni – AI Nokhba Scholarship and International Work Assignment participants

All these programs are supported by enablers. The Global Chip Academy is long-term project which will take the form of a virtual corporate university sitting within GF. This will manage all the learning and development and international movement within GF retaining tacit knowledge, overseeing technical knowledge and leadership training and helping to integrate all the multiple cultures.

The second enabler is the National Talent Sourcing. This is a database of applications and referrals which will be leveraged more in the future as the need arises. ATIC has worked with embassies abroad to let existing Emirati students know about the opportunities available in this sector. An Alumni has been set up of and any participant (whether successful or not) is part of this association. This will allow ATIC to track talent, engage them, work with them and if necessary develop them further.

The third enabler is awareness and its role is to work with corporate communications. The focus of one part of the communication strategy for Human Capital Development is to make the people in UAE (especially Emiratis) aware of: (1) what is an advanced technology ecosystem in semiconductors is about; (2) what initiatives they can participate in; and (3) what career prospects are available for them especially in the private sector.

ATIC: Writing the Future

Success will not only be defined by the introduction of physical infrastructure in Abu Dhabi but a community and a change in mind-set. This means an ecosystem where individuals can experiment and fail and to succeed eventually. The biggest challenge according to Ibrahim is *“How can ATIC play a role in positioning the UAE, particularly Abu Dhabi in the Middle East as a strong contender for technology innovation and high technology manufacturing.”* For ATIC, as an asset, a successful investment will be only be acknowledged when ATIC is able to successfully divest from GLOBALFOUNDRIES. That means building GLOBALFOUNDRIES to succeed in an market that has booms and bursts. Planning a strategy to win is vital for success! That means anticipating potential roadblocks and opportunities in advance.

TEACHING NOTES: ADVANCED TECHNOLOGY INVESTMENT COMPANY (ATIC): A DESTINATION GLOBAL CHAMPION

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Prepared By Dr. Melodena Stephens Balakrishnan & Immanuel Azaad Moonesar

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Synopsis

ATIC is an investment company with a dual bottom line mandate. This means besides the financial objective it has for its investors (which is largely the Government of Abu Dhabi), it must contribute to socio-economic objectives outlined by the Abu Dhabi Vision 2030. For this perspective ATIC had developed a unique approach looking at the “Ecosystem” perspective. Some key areas are destination development as an advanced technology hub and human capital development or “Emiratisation”. All these are key to long-term success of the country as the MENA region has one of the youngest populations and an increasing unemployment rate. Most government organizations are saturated and it is vital that nationals start working and performing in the private sector. This case outlines the plans and efforts of ATIC towards those goals.

Teaching Objectives

This case is suitable for under-graduate students and post-graduate students studying Policy; Strategy and Human Resources. Practitioners from the human resource industry, government sector and destination marketing may also benefit from the case.

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Suggested Assignment Questions

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Recommended Readings

ATIC: <http://www.atic.ae/>

GlobalFoundries: <http://www.globalfoundries.com/>

Emiratisation:

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Destination Marketing & Policy

Internal Marketing: Recruitment / Brand promotion, identity of Al Nokba brand for potential recruits and selected candidates.
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Loyalty Rules: <http://hbr.org/products/2050/2050p4.pdf>

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Question 1

A part of top management team's activity is planning for the future. Use the information given in the case to highlight possible future scenarios and the actions plans going forward to ensure a positive outcome for ATIC.

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Question 2

Emiratization plans for Fab 9 are going as planned. These plans will have to be extended to the ecosystem to create a vibrant self-sustaining economy based on the private sector for diversification to be successful. How can you extend the insights and lessons learnt to the broader community? Are there any potential pitfalls/obstacles to look out for?

Question 3

Creating a productive and positive culture can be a competitive advantage but this requires value indoctrination. What are the values you think that the Human Capital Department should work hard towards creating in Fab9? How should it be conveyed, educated and reinforced? Highlight any potential barriers that might prevent creating a productive and positive culture.

Question 4

So far this industry works on economies of scale – looking at strategic competitors, does this always hold true? Look at the steel industry as a strategic competitor and the petrochemical industry to see if there are any changes in this thinking.

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Question 5:

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How does ATIC balance multiple stakeholders in the ecosystem development? How do you create loyalty among the industry partners?

Potential Discussion Points Related to the Question

Question 1: A part of a top management team's activity is planning for the future. Use the information given in the case to highlight possible future scenarios and the actions plans going forward to ensure a positive outcome for ATIC.

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Discussion points: UG Students can begin by reading Schoemaker (1995) and applying it directly to the case study. You can make the class more interesting by dividing the class into multiple stakeholders and each come forward and state their concerns and needs. Then the class could look at the case from the TMT perspective and figure the best course forward keeping in mind key outcomes and stakeholder.

For PG classes you can ask students to read a text like Ringland (2006) and consider risks from multiple perspectives – organizational, political, economic, environmental, legal and technological. Risk management is an important part of strategic planning especially in an investment management company and a sector like advanced technologies. Financial Risk is an important perspective. Fiscal strength is obtained through a disciplined investment strategy; risk mitigation strategy (foreign exchange; insurance risk; financial crisis risk); economic returns; Deciding which customer you are going after and why. For MBA classes the class can be divided on the basis of their functional expertise and they could analyze the case from that perspective.

Question 2: Emiratization plans for Fab 9 are going as planned. These plans will have to be extended to the ecosystem to create a vibrant self-sustaining economy based on the private sector for diversification to be successful. How can you extend the insights and lessons learnt to the broader community?

Discussion points: This is recommended for classes familiar with Nationalization schemes and Policy Initiatives. You are looking at spillover to the community, cultural values and possible resistance based on these reasons. You will need the class to choose benchmark countries where there have been vibrant advanced technology ecosystems (USA, South Korea, etc) and extend those to UAE. This will help students identify gaps and then propose plans. If students have access to location, they can do surveys to see which recommendations will have maximum barriers to implementation, why and then they can recommend modifications. This would be an excellent project.

Question 3: Creating a productive and positive culture can be a competitive advantage but this requires value indoctrination. What are the values you think that the Human Capital Department should work hard towards creating in Fab9? How should it be conveyed, educated and reinforced?

Discussion points: This question is ideally suited for PG HR students. They can begin by reading Ichniowski and Shaw (2003). Keeping in mind existing cultural norms in the Emirati workforce, ATIC and GLOBALFOUNDARIES they should be able to propose and defend what they think would be ideal cultural norms for Fab 9. It needs to have some commonality with GLOBALFOUNDARIES. Students can prepare HR plans (values, recruitment criteria, and

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training and performance appraisals). These plans to work must have feedback mechanisms built in. The question can be used as a group project. Having change management techniques; appropriate leadership styles; knowledge on how to deal with change resisters; strategic planning techniques.

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Question 4: So far this industry works on economies of scale – looking at strategic competitors, does this always hold true? Look at the steel industry as a strategic competitor and the petrochemical industry to see if there are any changes in this thinking.

Discussion points: Review from Fab -9 viewpoint the physical, financial, human capital constraints. Looking at the industry growth and opportunity, students must understand or predict how much customers are going to pay for new technology – compare two types of products – the specialty product and the customized product. Most Fabs have a minimum 12 month lead time for customization hence protection of IP and patent is critical. Here are some constraints for Fab 9; minimum 4 years for factory operationalization; 3 years for human capital development; 12 months for production (R&D to production)...]. This is a good question for students of PG strategy. Here they are looking at benchmark companies and strategic groups. A Strategic Group of Companies need not be in the same sector but have competencies the said organizations would like to benchmark itself against to improve its performance (like advanced technologies and steel).

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Question 5:

How does ATIC balance multiple stakeholders in the ecosystem development? How do you create loyalty among the industry partners?

Discussion points: review the various stakeholders involved with ATIC. Highlight the various marketing techniques, recruiting techniques; management styles involved, discuss how change was implemented and branded. Highlight the positive aspects of each technique and make reference to other companies.

Deleted: Destination or policy making ¶
How do you balance multiple stakeholders? ¶
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Marketing ¶
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Get reference readings. ¶
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Marketing: How do you create loyalty among the industry partners?

Deleted: Check ethihad and look for different readings. ¶

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