

# **SUPERBRICK: INTRODUCING AN INNOVATIVE BUILDING PRODUCT TO THE SAUDI ARABIAN MARKET**

*Feraidoon (Fred) Raafat, Fowler College of Business, San Diego State University, San Diego, CA 92182, (619) 594-5685, [fred.raafat@sdsu.edu](mailto:fred.raafat@sdsu.edu)*

*Don Sciglimpaglia, Middlebury Institute of International Studies at Monterey and California State University San Marcos, [dsciglimpaglia@miis.edu](mailto:dsciglimpaglia@miis.edu)*

## **ABSTRACT**

This paper discusses a marketing strategy plan for a firm that sought to manufacture and distribute a new product to be used as a substitute to concrete masonry in Saudi Arabia. This new product has similar installation characteristics but is made up of superior insulating material and, therefore, is more suitable for harsh weather conditions of extreme temperature changes. The paper addresses some of the issues that this company had to consider for it to be a viable competitor in the new market.

## **INTRODUCTION**

This case is a study of a U.S. based entrepreneur who had decided to create a new venture in Saudi Arabia to produce and distribute a new type of construction material with superior insulating characteristic. The entrepreneur had performed some preliminary research and looked to develop business and marketing plans to secure investment capital to fund and launch the company. He engaged a consulting group to assist him to conduct a competitive analysis, identify target markets and recommend brand building strategies.

## **BACKGROUND**

### **Saudi Arabia**

The Kingdom of Saudi Arabia is a country slightly larger than one fifth of the United States, with over 28.5 million inhabitants including a 30% immigrant population. It is a country with a harsh, dry desert and great temperature extremes and is a leading producer of oil and natural gas, holding about 16% of the world's proven oil reserves. The government continues to pursue economic reform and diversification, and promotes foreign investment. It is encouraging the growth of the private sector to diversify its economy and to employ more Saudi nationals. However, it is struggling to reduce unemployment particularly its large youth population, which generally lacks the education and technical skills that the private sector needs. In 2016, it incurred a budget deficit estimated at 13.6% of GDP and, as a result, introduced plans to cut deficits by introducing a value-added tax and by reducing subsidies throughout. The country is a party to many environmental initiatives, including Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Endangered Species, Hazardous Wastes, Marine Dumping, Ozone Layer Protection and Ship Pollution, among others. In April 2016, the Saudi government announced a broad set of socio-economic reforms, known as Vision 2030. (Central Intelligence Agency, 2017).

According to the *Saudi Gazette*, Saudi Arabia comprises the largest construction market in the Middle East with multibillion dollar projects under way and many more in the planning stages by both the

public and private sectors. Infrastructure works were expected to post a four percent growth annually through 2020. The key driver of Saudi Arabia’s construction sector is the country's growing population. In 2010 the Saudi government earmarked \$385 billion for infrastructure development between 2010 and 2014. The government’s continuing focus is on social requirements such as new hospitals and clinics, education as well as housing while real estate, office and shopping mall investments and tourism projects are the focus of the private sector. Most analysts feel that this infrastructure spending will continue, but recent political developments in Saudi Arabia are somewhat troubling. Table 1 provides a relative economic comparison among the Arab Middle Eastern Countries as of the most recent data in 2016 (World Bank, 2017).

**Table 1: Country Comparisons**

**Construction**

<b>Country</b>	<b>Per Capita GDP ppp</b>	<b>Population 000</b>
Qatar	118,215	2,570
Kuwait	69,329	4,053
UAE	67,133	9,270
Saudi Arabia	50,458	32,276
Bahrain	44,658	1,425
Oman	44,508	4,425
Iraq	17,353	37,023
Lebanon	12,974	6,007
Jordan	9,050	9,456

**Practices in Saudi Arabia**

In typical construction of Saudi Arabian buildings, be it residential or commercial, concrete blocks are used extensively. This form of material has served the region well by providing relatively low cost and durable building materials. Due to economic and social changes, the Saudi government is requiring stricter environmental regulations for all new buildings and the construction industry is feeling the pressure to become more environmentally and energy efficient and to utilize materials that lead to speedier construction. Under new leadership, the government is looking to establish itself as a leader in environmental issues in the country. The government has embarked on building many new residential units to address some of the social issues, and favors construction schedules that are expected to be faster than normal.

**The Product**

Insulating concrete form (ICF) products are blocks used for poured concrete walls, with steel reinforcement added in the blocks before concrete is poured inside. Typically, they utilize is a strong

foam on both sides and are stacked one on top of each other to create the foundation and walls of a house. As used in the United States and Western Europe, or insulated concrete form technology is a system of formwork for reinforced concrete usually made with a rigid thermal insulation that stays in place as a permanent interior and exterior substrate for walls, floors, and roofs. The forms are interlocking modular units that are dry-stacked (without mortar) and filled with concrete. The units lock together somewhat like Lego bricks and create a form for the structural walls or floors of a building. ICF construction has become commonplace in the U.S. and parts of Europe for both low rise commercial and high performance residential construction, particularly as more stringent energy efficiency and natural disaster resistant building codes are adopted.

Insulating concrete form products have been gaining popularity with builders, manufacturers, and suppliers, since the product concept has many significant advantages. Notably, ICF products are energy efficient, strong, have low rates of acoustic absorption, provide superior fire protection (the polyurethane foam is separated from the building interior by a thermal barrier regardless of the fire barrier provided by the central concrete), have superior air quality (ICF walls mitigate the potential for mold and facilitate a more comfortable interior while maintaining high thermal performance), are more environmentally sensitive (ICF walls can be made with a variety of recycled materials that can minimize the environmental impact of a building) and provide superior protection from vermin (because the entire interior space of ICF walls is continuously occupied they pose more difficulty for casual transit by insects and vermin).

Examples of the product as marketed in the United States are shown below:



Many things have improved over the last 9,000 years... until now brick was not one of them!

<p><b>LIGHTWEIGHT</b></p> <ul style="list-style-type: none"> <li>• Weighs only 2.45 lb/ing. ft. before mortar</li> <li>• Results in higher daily productivity</li> <li>• Eliminates del. gaps, and shell angles, significantly reduces load-bearing footings</li> <li>• Compresses exterior construction schedules</li> </ul>		<p><b>ENERGY EFFICIENT</b></p> <ul style="list-style-type: none"> <li>• Can reduce energy bills because thermal insulation in built right into feedback</li> <li>• Can contribute to LEED credits when used in combination with Qualification C1 systems</li> </ul>
<p><b>TESTED</b></p> <ul style="list-style-type: none"> <li>• Meets NFPA 285</li> <li>• Contributes to the insulation requirements as published in the ICC and ASHRAE 90.1 when installed over any Qualification C1</li> <li>• Meets the State of California energy efficiency requirements as defined in Title 24, part 01 when installed over any Qualification C1 system</li> </ul>	<p><b>SIMPLE</b></p> <ul style="list-style-type: none"> <li>• Quick and easy installation</li> <li>• Can include air/water-resistive barriers, continuous C1, drainage plane, and a cranking system that comes with a complete single-source warranty</li> <li>• Supplied by a single manufacturer can be installed by a single contractor</li> <li>• Horizontal alignment guide makes installation process easier and faster</li> </ul>	

The potential advantage of using these types of products over regular concrete masonry that are traditionally used in Saudi Arabia, is that the ICF's two built-in layers of foam insulation provide more energy efficiency and less noise transmission through walls.

## PROJECT OBJECTIVES AND METHODOLOGY

With all the useful attributes of ICF products, it was not clear how many of these would prove to be significant product attributes for the Saudi market. The entrepreneur behind the venture (GSICF), who called his product SuperBick, engaged a consulting group to evaluate his ideas and propose an entry strategy to the Saudi market. The consultants proposed a project with seven major outcomes:

Product/Service Positioning, Competitive Analysis, Logo/Branding Strategy, Online Marketing Strategy, and Sales/Pricing Strategy. Below are excerpts from the consultants’ report.

**Create Value Proposition**

SuperBrick brings environmentally friendly and cost-effective building materials to the Saudi Arabian market and the greater Gulf Cooperation Council (GCC) region. This product favorably positions ICF blocks as a remedy to overcome some of the issues of concern in Saudi Arabia.

Concrete masonry blocks have served the region well by providing relatively low cost and durable building materials. However, with increased pressure on the domestic construction industry for more environmentally energy efficient material and speedier construction, GSICF can position its ICF blocks as a solution to both of these challenges to comply with the Saudi government’s requirements for stricter environmental regulations for all new housing.

**Environmental/Energy Efficiency Benefits**

ICF blocks addresses the environmental/energy efficiency requirement with their inherent insulating capabilities. Even when insulation is added on an after-the-fact basis for existing concrete masonry on interior walls, they still could provide an approximately 20% decrease in energy usage for heating and cooling. Additionally, the size of the cooling/heating systems themselves can be reduced because of smaller loading, thereby reducing the environmental footprint and capital costs. Moreover, because of the superior sealing property of the ICF blocks, the internal environment and comfort of the buildings are improved by preventing sand and pollutants from entering the buildings. Another resultant benefit is increased sound insulation, which is significantly higher than the traditional material. For those contractors interested in being recognized as having received green building certification, such as LEED, ICF building blocks provide up to 23 points in the “LEED for Home” ratings. Moreover, ICF brings a compelling benefit in its faster assembly time as they can be used to assemble entire walls at once, with no application of mortar or adhesive. Then, as it is assembled, the entire wall is filled with concrete at once with no interim steps. This unique process allows ICF walls to be constructed twice as fast as with the traditional materials.

Since other ICF manufacturing companies were beginning to enter the Saudi market, the choice of manufacturing equipment for the ICF blocks took on a more significant role than otherwise. SGICF obtained the costs and technical standards of the machinery needed for ICF production from a number of major manufacturers across the world. These companies range from relatively new low-cost providers in China to established high-quality manufacturers in Austria (Table 2).

**Table 2: Comparison of ICF Machinery Suppliers**

<b>ICF Machinery Supplier</b>	<b>Country</b>	<b>Cost</b>	<b>Quality</b>
<b>Fangyuan Plastic Mfg</b>	China	\$593,200	Budget
<b>Gaofu</b>	China	\$775,000	Budget

<b>Hebei Xuelong</b>	China	\$683,000	Budget
<b>Shanghai Zhongji</b>	China	\$612,180	Budget
<b>Promass</b>	Italy	\$943,883	Mid
<b>Hirsch Gruppe</b>	Austria	\$1,804,701	High

In order to provide a competitive advantage against new suppliers, the consultants suggested selecting the Austrian company Hirsch Gruppe, even though its machinery were more expensive because in addition to maintaining a quality advantage, this would have minimized the risk in setting up the production facilities in Saudi Arabia and reduced the time to market. The Hirsch Gruppe is an international company founded in 1972 with core experience in expandable polystyrene (EPS), a material with a wide range of applications (bicycle helmets, insulating materials, packaging materials, etc.). Hirsch's Technology Segment business unit produces high quality and flexible machinery for molding EPS into various molded parts, including ICF blocks. In addition to developing and producing the ICF machinery, Hirsch Gruppe also has a dedicated team to support “turnkey” plants. This enables the company to apply its deep experience and lessons-learned from numerous factory installations. Specifically, Hirsch has developed a mobile ICF plant that can tightly integrate the EPS processing and form tools. This plant is the fastest way for GSICF to set up production facilities in Saudi Arabia.

### **Competitive Analysis**

Competitive analysis includes not only competitor evaluation and competitive advantage identification, but also country risk assessment. By thoroughly investigating the Saudi Arabian profile and data available through Business International Monitor, it was recommended that the following factors be taken into consideration:

- Short- and long-term political risk
- Currency exchange fluctuations
- Increasing labor costs
- Cultural context insofar as it pertains to business contracts and hiring; and marketing and sales strategy

### **Create Logos, Color Scheme and Slogan Options**

Based on an analysis of several competitors’ websites, a web design strategy for GSICF was proposed. The key competitors with respect to web design and content were identified as: Permacrete, Greenblock, Logix ICF, Quadlock, ICF Homes, Lite Form Technologies, and AMVIC System. Multiple factors were analyzed at these websites, which included logos, slogans, social media links, title tabs, “contact us”, about us, history, educational/tutorial, colors, and listed prices. At the time of analysis, only the web sites of competitors in the U.S. market were analyzed as it was thought the cultural differences in the Saudi market would not affect the GSICF’s website content. Table 3 provides a summary of the major findings. These findings led to the following recommendations:

**Company name --** In addition to Superbrick, the following names were suggested to be potentially used for the company: “Greentech,” “Greenbuild,” “Ecobuild,” “Duratech,” and “Ecotech. Moreover, it was recommended that a green and gray color scheme be used to convey the environmentally friendly nature of the product.

**Logo --** The competitors all had very simple logos, often times displaying name of the company in large letters. After several iterations and designs changes, a three-dimensional cube with an ICF block set above the ocean on the front face were suggested as an appropriate logo.

**Table 3: Competitor Website Analysis**

<b>Company</b>	<b>Positives</b>	<b>Negatives</b>	<b>Recommendation for inclusion</b>
<b>Permacrete</b>	Free product demonstration classes are offered as well as a ten-year limited warranty	No social media links, too many different colors are integrated	Use social media links and a sleek color scheme that does not mix too many colors
<b>Greenblock</b>	44 years of experience in the industry, featured construction projects	Youtube is the only social media outlet used, the press release page is outdated	Pictures and videos of ICFs and their properties, no press release page
<b>Logix ICF</b>	Uses multiple social media outlets, features an investor newsletter, has a concise, effective slogan	Logo is essentially the company name and not effective for branding	Slogan should be a brief power statement. For branding, request a logo that incorporates an ICF block. Implement a newsletter
<b>Quadlock</b>	ISO: 9001 certified, contains installation training videos and CAD drawings	The slogan does not emphasize durability or environmental sustainability	Incorporate environmental sustainability into the slogan, highlight the durable nature of ICFs on the website
<b>ICF Homes</b>	No prices listed to keep the competition from getting them, detailed explanation of ICF makeup	Hyperlinks instead of tabs gives an unprofessional appearance, no comparison to competitor's ICFs	Protect prices by a password, request traditional tabs for the website
<b>LiteForm Technologies</b>	Detailed specifications about the product offering, contributes to 4 LEED categories	Cost estimator does not work well, no logo, limited social media outlets	Instead of a cost estimator, requires a section to request information and/or a quote
<b>Amvic System</b>	Uses several social media sites, offers ICF flooring and hurricane-proof safe rooms with a lot of detail provided	Pictures in the architect/engineer section are small and ineffective	Request an ICF floor section, note that ICF structures are hurricane-proof, provide a clear explanation to architects/engineers of the positive qualities of ICFs

## Pricing Strategy

Below assumptions were made for recommendation for both the pricing and sales strategy. The product pricing was based on competitive pricing of comparable products on the market and the target levels were selected to be:

- \$22 (82 riyals) per square meter
- \$11 (41 riyals) per block, which is 0.5 square meter

This pricing needed to be validated through surveys and other means. For example, the construction company Saudi Oger provided an estimate of total materials and labor cost for a typical residence villa as \$18.67 /m<sup>2</sup>. Unfortunately, pricing data from other regional competitors, such as Saudi Nidyon, Jehan Green Walls and Plastbau Middle East were not available to do a more thorough analysis of range of pricing for this product. The analysis indicated that \$22 per square meter, though low in comparison to North American prices, would be appropriate in comparison to those alternatives in the Middle East region. Although the main component of ICF (EPS pellets) is a global commodity, the price disparity could be explained by lower production infrastructure costs such as land, labor and energy costs and significant subsidies by the Saudi government for key production inputs. The pricing survey results are shown in Table 4.

**Table 4: Pricing Survey Results**

Manufacturer	Block Size	Block Cost	Cost per m <sup>2</sup>	Sales Channel	Notes
<b>FoxBlocks</b>	16"x48"	\$20.48	\$41.34	On-line Retail	Menards' site
<b>SmartBlock</b>	12.5"x40"	\$12.95	\$40.13	On-line Retail	Home Depot
<b>Perma-Form</b>	unknown	unknown	\$21.41	On-line Wholesale	Direct to builder
<b>Standard ICF</b>	16"x48	\$15.95	\$32.20	On-line Retail	N/A
<b>Industry Average</b>	n/a	n/a	\$29.48	Builder Wholesale	Average of 10 survey respondents
<b>Saudi Survey</b>	n/a	n/a	\$20.00	Builder Wholesale	Consultant's survey results
<b>Saudi Oger</b>	unknown	unknown	\$18.67	unknown	Size and quality of ICF unknown
<b>SuperBrick</b>	<i>various</i>	<i>various</i>	<b>\$22</b>		<i>GSICF business model assumption</i>

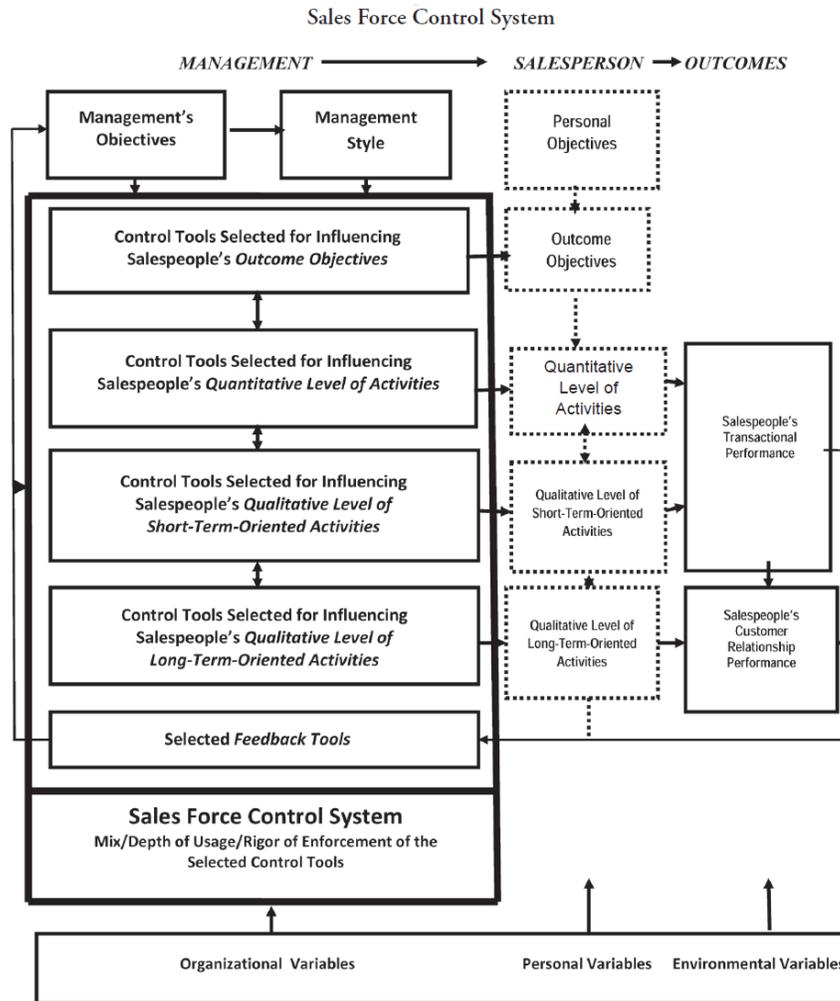
The quality of GSICF blocks needs to be taken into account when developing the pricing model. With the selection of Hirsch Gruppe as the supplier of ICF production machinery, a premium will be paid above the cost of the low- and mid-ranged machinery suppliers. Aside from the benefits of time to market and operational reliability, the ICF blocks produced have a higher quality with tighter tolerances than the competition and therefore could provide value by requiring less time during construction.

The initial financial model with the assumption of \$22 /m<sup>2</sup> price indicated that there was relatively a low profit margin on this undertaking considering the risks and the level of support needed to implement the project. The profit margin in Year 1 was only 8%, increasing to 16% in Year 2, but then declining to 13% in Year 3. This low profit margin pointed to a need to increase the prices or lowering costs by improving productivity and or obtaining subsidies from the Saudi government. However, a revised financial model was evaluated based on nominal \$22 /m<sup>2</sup> targeted price and revenue of \$103 /m<sup>2</sup> of building floor area (not area of the ICF walls themselves). A typical house was assumed to contain 0.21 m<sup>2</sup> of wall area for every 1 m<sup>2</sup> of floor area. The revised model yielded a profit margin of 48% in the first year, with subsequent years ranging between 49% and 52%. Given this improved profitability, a nominal price of \$22 /m<sup>2</sup> was determined to be the correct pricing.

### **Marketing and Sales Strategy**

A survey consisting of 23 questions targeted to architects, developers and building professionals in Saudi Arabia was administered. Those surveyed consisted of personal contacts of the company founder who were able to answer questions regarding not only ICF but also the building industry in Saudi Arabia. Due to the very specific nature of the survey, subjects and questions, solicitation was limited to these known personal individuals and, therefore, with understandable biases. However, the survey results were nevertheless informative. Seventeen unique responses were received; eleven of these respondents answered every question and six answered at least some. In general, the results showed that typical clients in this industry were developers or the government and clients were more likely to specify building materials. Respondents seemed well informed on current building trends and materials. As expected, the results showed that respondents were much more likely to use ICFs if they were able to save in material and labor costs.

The proposed sales model for SuperBrick was rather unique for geographic as well as logistical reasons. The Saudi Arabian business environment is heavily reliant on relationships and it is especially important for the government officials, when making funding decisions, to deal with entities that have physical presence in the country. However, the proprietor of SuperBrick wished to continue maintaining his primary residence and business headquarters in California while overseeing the business in Saudi Arabia. To undertake and manage the sales activity, a sales force control system similar to the one depicted in Figure 1 was proposed to be put in place. The sales representative/staff would have to maintain a residence in Saudi Arabia and must be readily available to manage clients' day to day operations – this sales position is crucial to the success of the SuperBrick's project, given the rapid growth rate that GSICF wanted to achieve in the Saudi building industry. For ease of transition and considering cultural imperatives, it was recommended that the sales team to consist only of men. They would be selected from Australia, Germany, or Britain as well as several local Saudis. The sales staff compensation would be a combination of a monthly salary and a generous commission plan.



**Figure 1: Sales Force Control System**

There are many trade shows/exhibits that will be relevant to SuperBrick. It was recommended that GSICF plan to have a presence at these events, as they would allow them to meet new customers, and learn about the competition and the market trends.

## ACKNOWLEDGMENT

We would like to recognize the dedicated work by Briana R Henscheid, Jeff Cadena, Alan Greubel, and Genelle Kunst, who participated in the data gathering, analysis and earlier drafts of this case study under the supervision of the authors.

## REFERENCES

- LEED for Homes Rating System* (2008).. U.S. Green Building Council.
- Pearl Building Rating System: Design & Construction, Version 1.0.* (2010). Abu Dhabi Urban Planning Council.
- Business Environment Outlook - Q1 2012. (2011, October 26). *Business Monitor Online*.
- Central Intelligence Agency. (2017, October 13). The world factbook: Saudi Arabia. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/sa.html>
- Overview of HIRSCH Gruppe.* (2011). Retrieved October 28, 2011, from Hirsch Gruppe: [gruppe.com/homepage/com/unternehmen/die\\_hirsch\\_servo\\_gruppe.php?navtext=Overview of the HIRSCH Servo Group](http://gruppe.com/homepage/com/unternehmen/die_hirsch_servo_gruppe.php?navtext=Overview%20of%20the%20HIRSCH%20Servo%20Group)
- Political Risk Analysis - Crown Prince's Death Highlights Succession Risk. (2011, October 24). *Business Monitor Online*.
- Saudi allocates \$67bn for housing and healthcare.* (2011, March 20). Retrieved October 1, 2011, from Construction Week Online: <http://www.constructionweekonline.com/article-11469-saudi-allocates-67bn-for-housing-and-healthcare/>
- Saudi power sector moves to privatization.* (2011, June 15). Retrieved October 5, 2011, from Megawhat, Who, Where, When, Why & How of the Power Industry: <http://www.megawhatme.com/en/2011/06/saudi-power-sector-moves-towards-privatisation/>
- Darmon, R. &. (2011). A New Conceptual Framework of Sales Force Control Systems. *Journal of Personal Selling & Sales Management*, 297-310.
- Gajda, J. (2001). *Energy use of Single-Family Houses With Various Exteriors.* Portland Cement Association.
- Khan, S. A. (2011). *KSA Leads Construction Boom in Region.* Retrieved September 5, 2011, from The Saudi Gazette: <http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentID=20110905108290>
- Lehrer, A. (1988, Summer). A Note on the Semantics of -ist and -ism. *American Speech*, pp. 181-185.
- Raafat, F., & Sciglimpaglia, D. (2015). Situation Analysis for a Start-up Company in Saudi Arabia. *Proceeding of The 27th Annual CSU-POM Conference*, 78-89, February 28, 2015.
- Ware, C. (2011). *Know the Real Competition: Specifying ICF over CMU.* Retrieved September 15, 2011, from ICF Builder Magazine: [http://www.icfmag.com/articles/features/icf\\_over\\_cmu.html](http://www.icfmag.com/articles/features/icf_over_cmu.html)
- World Bank (October 13, 2017). GDP per capita, PPP (current international \$), various countries. Retrieved from <https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?locations=SA>