



SMART-METER FOR THE SMART FUTURE

STATUS REPORT & NEW CAPITAL PROJECTS
_15TH OCT. 2017

TO MEASURE IS TO KNOW, IF YOU CAN NOT MEASURE IT, YOU CAN NOT IMPROVE IT
LORD KELVIN

Saudi Smart Electronics
Company (SSEC) – KSU
Riyadh Valley



SMART METERS

TREMENDOUS MARKET, ESSENTIAL DEVICE & COST COMPETITIVE PRODUCT

Saudi Smart Meter Company (SSEC) will explore & capitalize a SAR 12 bn Local Saudi market opportunity for Smart meters, which :

- are a basic and essential building block of Smart electricity grid that supports intelligent management & control of electricity
- Automate & reduces the average billing process by 90%
- Have a regulatory push for mandatory implantation by 2025
- Are a part of core 2025 strategy of Saudi Electricity Company
- Reduce Transmission losses and control Thefts

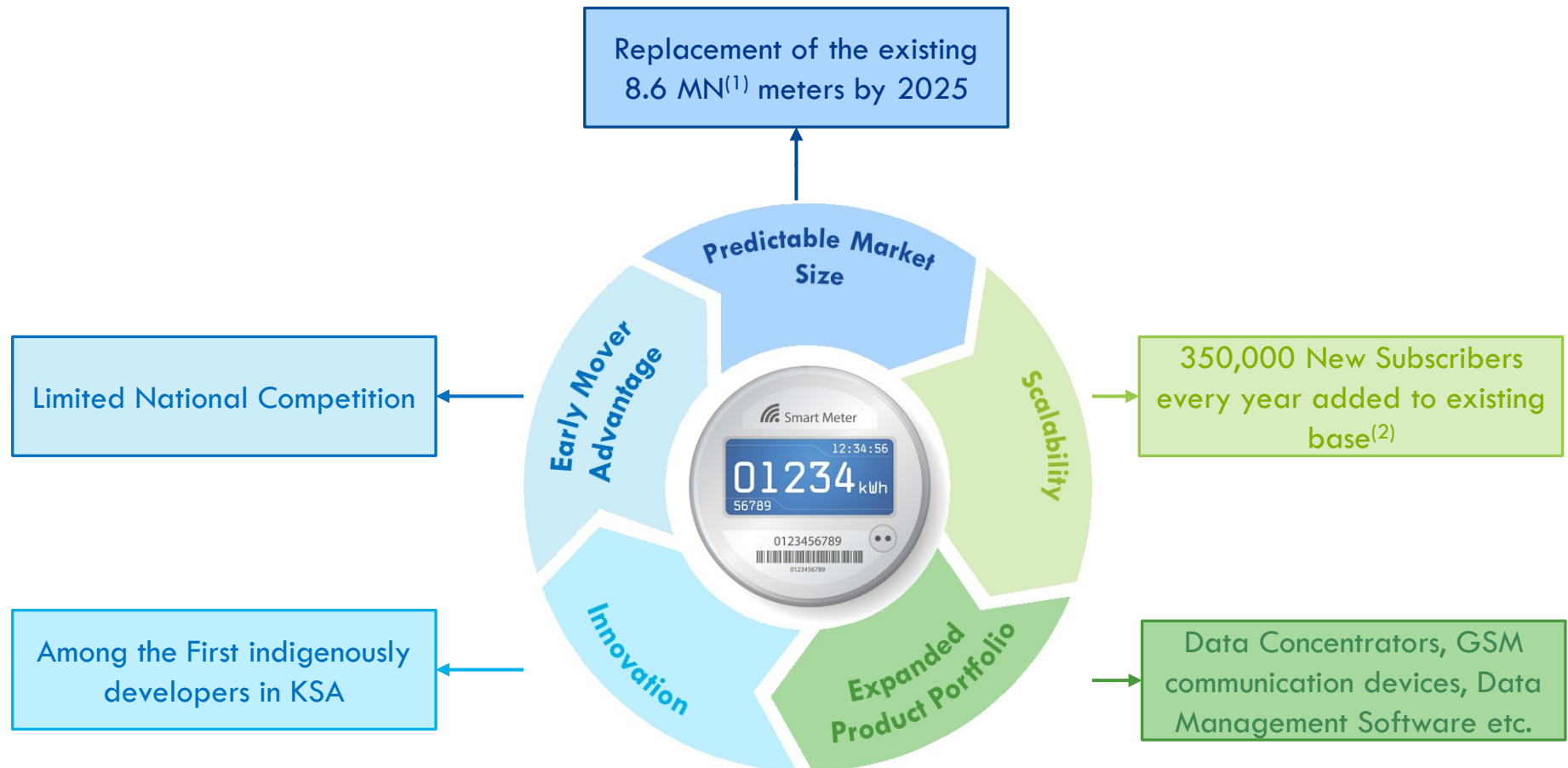
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AT A GLANCE

EXECUTIVE SUMMARY / ELEVATOR PITCH



(1) - 2016

(2) - www.se.com.sa/en-us/pages/newsdetails.aspx?NId=265

VALUE PROPOSITION

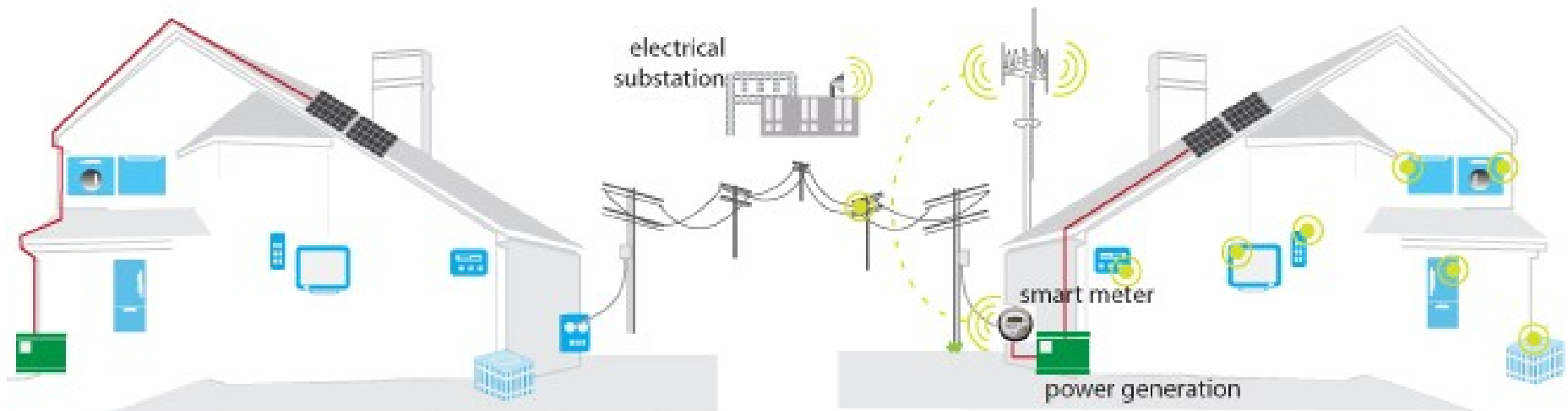
SMART GRID VS. TRADITIONAL GRID

Before – Smart Grid

- “1 way” exchange of Energy & information
- No information flow about non-peak hours
- Customer gets periodic bills
- Manual reading → Billing cycle = 90 days
- Can be tampered / Inaccuracy in reading

After – Smart Grid

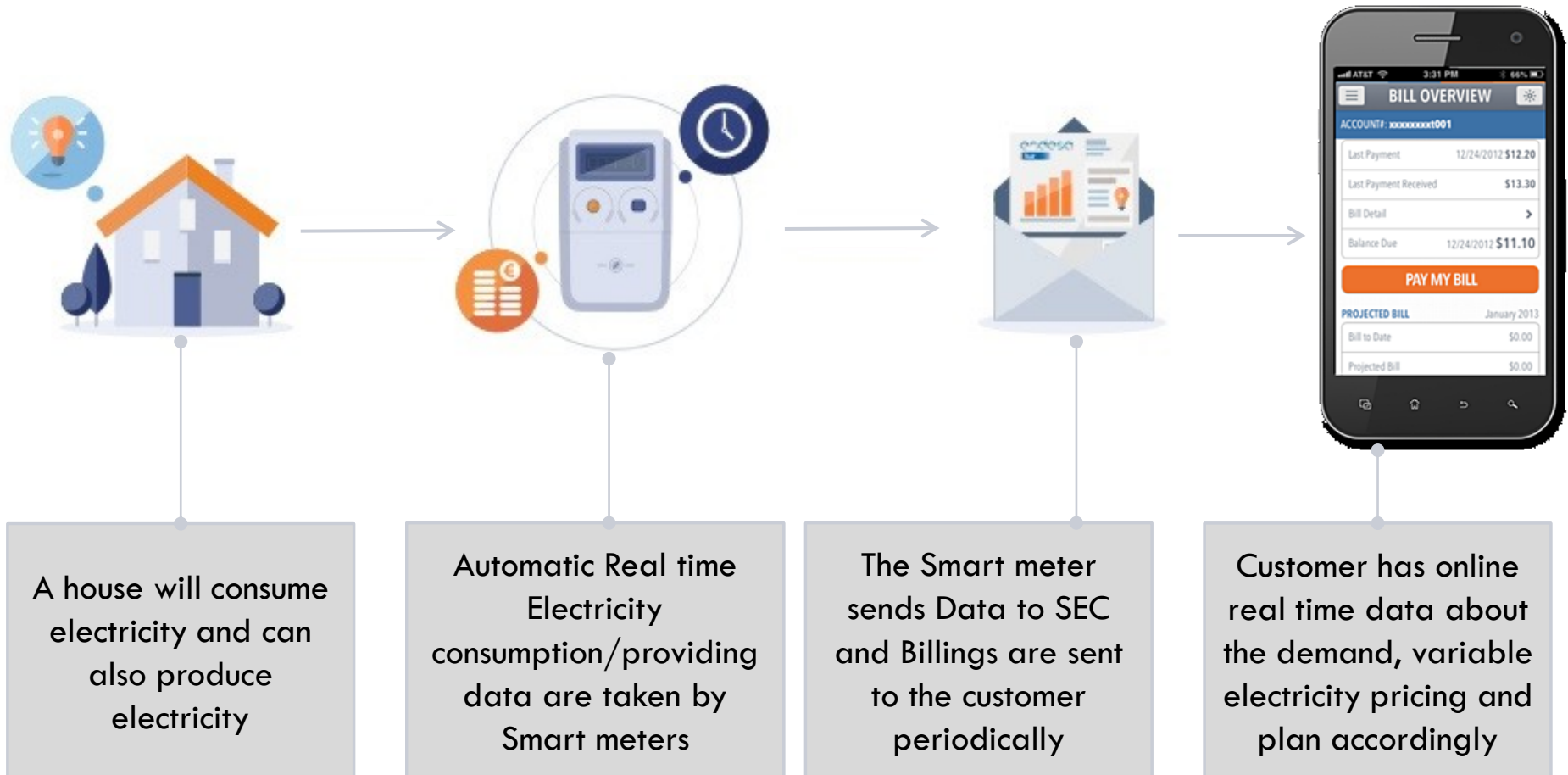
- “2 way” exchange of Energy & information
- Ability to benefit from variable pricing
- Get real time alerts via email / SMS / App
- Manual reading → Billing cycle = 9 days
- Couldn't be tampered / Accurate reading



Smart Grid adds monitoring, analysis, control, and communication capabilities to the electrical delivery system to maximize the throughput of the system while reducing the energy consumption

SOLUTION

FIRST STEP TO THE SOLUTION — HOW THE SMART METER WORKS



- Market research Inc. estimated that the smart grid market to grow from USD 19.77 Billion in 2016 to USD 65.42 Billion by 2021, at a Compound Annual Growth Rate (CAGR) of 27.0% during 2016–2021.
- BCC Research says the U.S. market for Smart Grid “enabling technologies” will grow at a compound annual growth rate (CAGR) of 15.3%.
- Morgan Stanley Research sizes the Smart Grid market is growing to \$100B by 2030.
- Zpryme Research & Consulting reports that a total of \$18,4 Billion was made available by the 10 top Countries that announced Stimulus funding for Smart grids in

Smart Grid Market Solutions include :

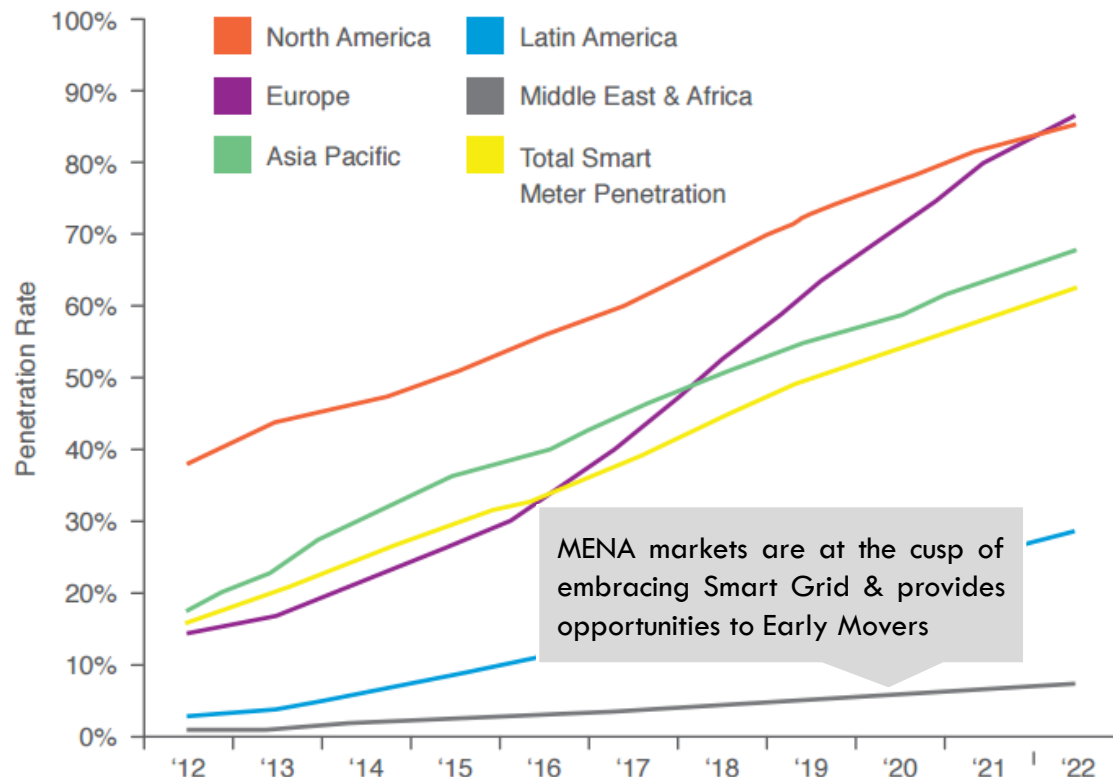
- Advanced Metering Infrastructure
- Smart Grid Distribution
- Smart Grid Communication
- Grid Asset Management,
- Geographic Information System
- Billing & Customer Information System



MARKET VALIDATION / WHY NOW?

MENA MARKETS ARE UNDEREXPLORED

Smart Meter Penetration Rate of All Electric Meters
by Region, World Markets: 2012 - 2022⁽¹⁾



Smart meter penetration is significant in N. America & growing quickly in major global markets⁽²⁾

- The % of smart meter installations as part of new installations expected to increase every year though 2021
- Smart meter installations for residential and small commercial customers across the globe has increased dramatically
 - ✓ The U.S is expected to have over 91% penetration by 2024
 - ✓ Asian & European markets continue to grow with penetration is est. to reach 68-86% by 2022
- **Saudi Electricity Company (SEC) has mandated for 100% replacement of Electro-mechanical Electricity Meters by 2025⁽³⁾ by installing 12 mn units**
- **In 2017, Smart Metering Project Wave 1 has plans to deploy 2.5mn units for 2017-22**

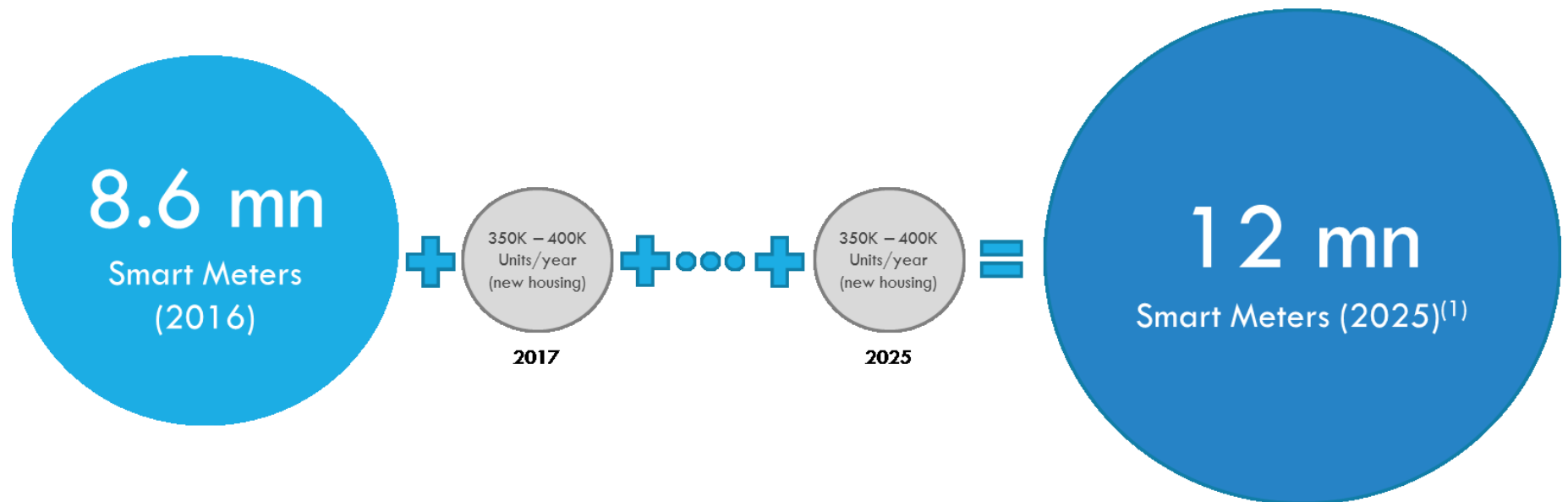
(1) - Navigant Research

(2) - Smart Meters are Disrupting the Retail Energy Landscape – PARIVEDA Solutions

(3) - <https://www.se.com.sa/en-us/pages/newsdetails.aspx?NId=265>

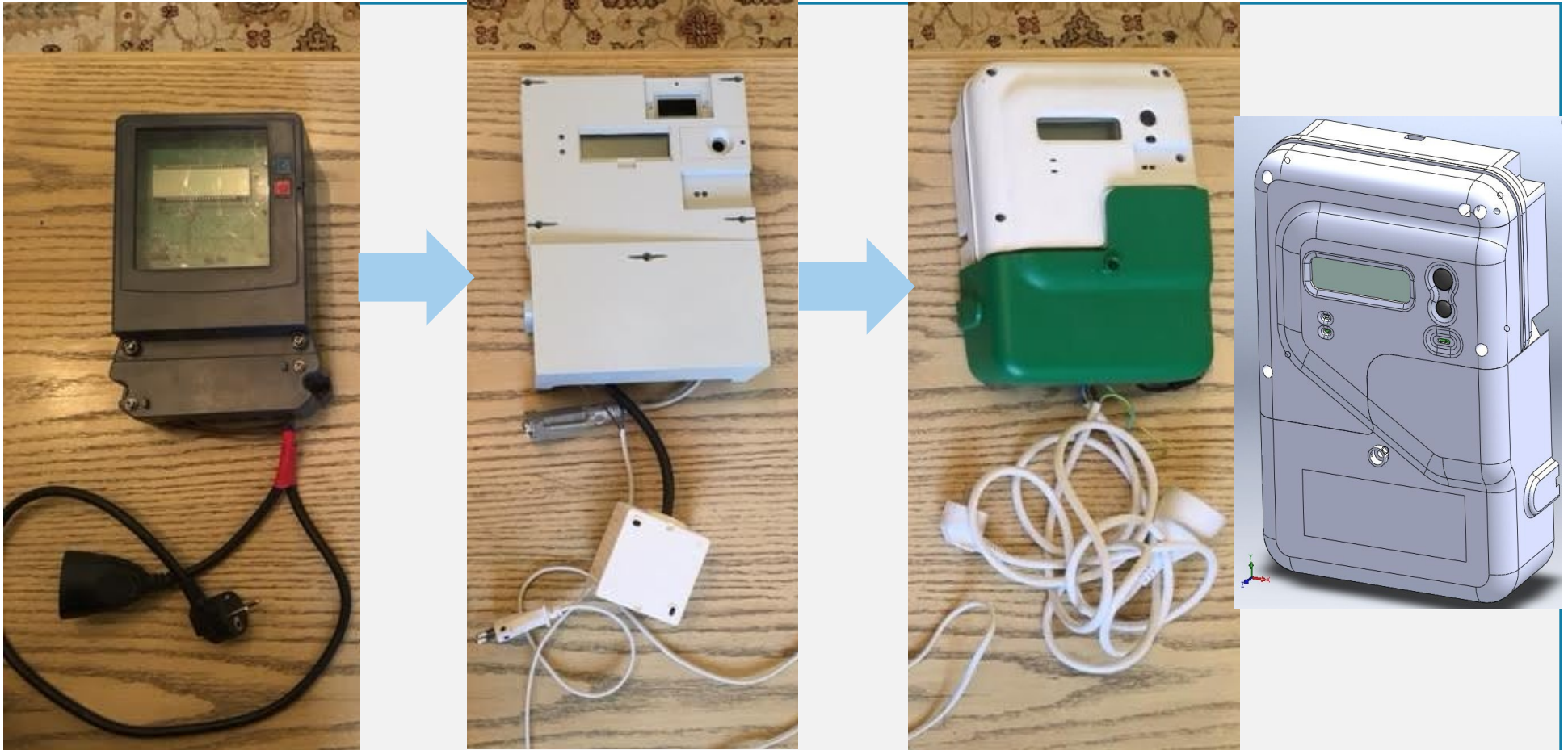
WHY NOW : SAUDI MARKET SIZE

MANDATORY REPLACEMENT OF ELECTROMECHANICAL METERS



PRODUCT INITIATION AT 2012 AT KSU RIYADH VALLEY

SMART METER PROTOTYPES WERE BUILT AT RESEARCH & DEVELOPMENT PHASE
ACCORDING TO SAUDI ELECTRIC COMPANY SPECIFICATIONS



SSEC —SMART METER PROJECT : *CAPTURE THE ADDED VALUE* *ESTABLISHING NEW COMPANY*

A proposal has been made in May 2012 to the **Riyadh Valley Company (RVC)**, a holding company fully owned by **King Saud University KSU** - to develop a smart Electricity meter specifically designed for the Saudi Market started and to establish and sponsor a Smart metering company including a R&D lab in Riyadh and to build the first production Line within the RVC and King Saud University in Riyadh.

A company was established in 2013 and owned jointly between RVC and the smart meters developers & named : The Saudi Smart Electronic Company (SSEC) with initial capital of six million Saudi Riyals (6000000 SAR).

SSEC will have the task to work in close cooperation and technical exchange with the Saudi Electricity company (SEC) to bring the existing prototype to the industrial stage maturity and to be one of the few existing companies in the region capable to response to huge and fast growing need of smart grid infrastructure products.

- Design , production and sale of 3 phase residential Smart Meter developed according to the SEC specifications.
- Design production and sale of other smart Grid Products (e.g. Concentrators, GSM & PLC communication devices, Data Management Software etc.)
- Build-up local expertise in the production, assembly, test , programming and calibration of the Smart Meters
- Technology transfer and build up local engineering expertise for the follow-up and the design of new smart meter or smart meter derivate for other GCC and MENA countries
- Tremendous Export potential for MENA market



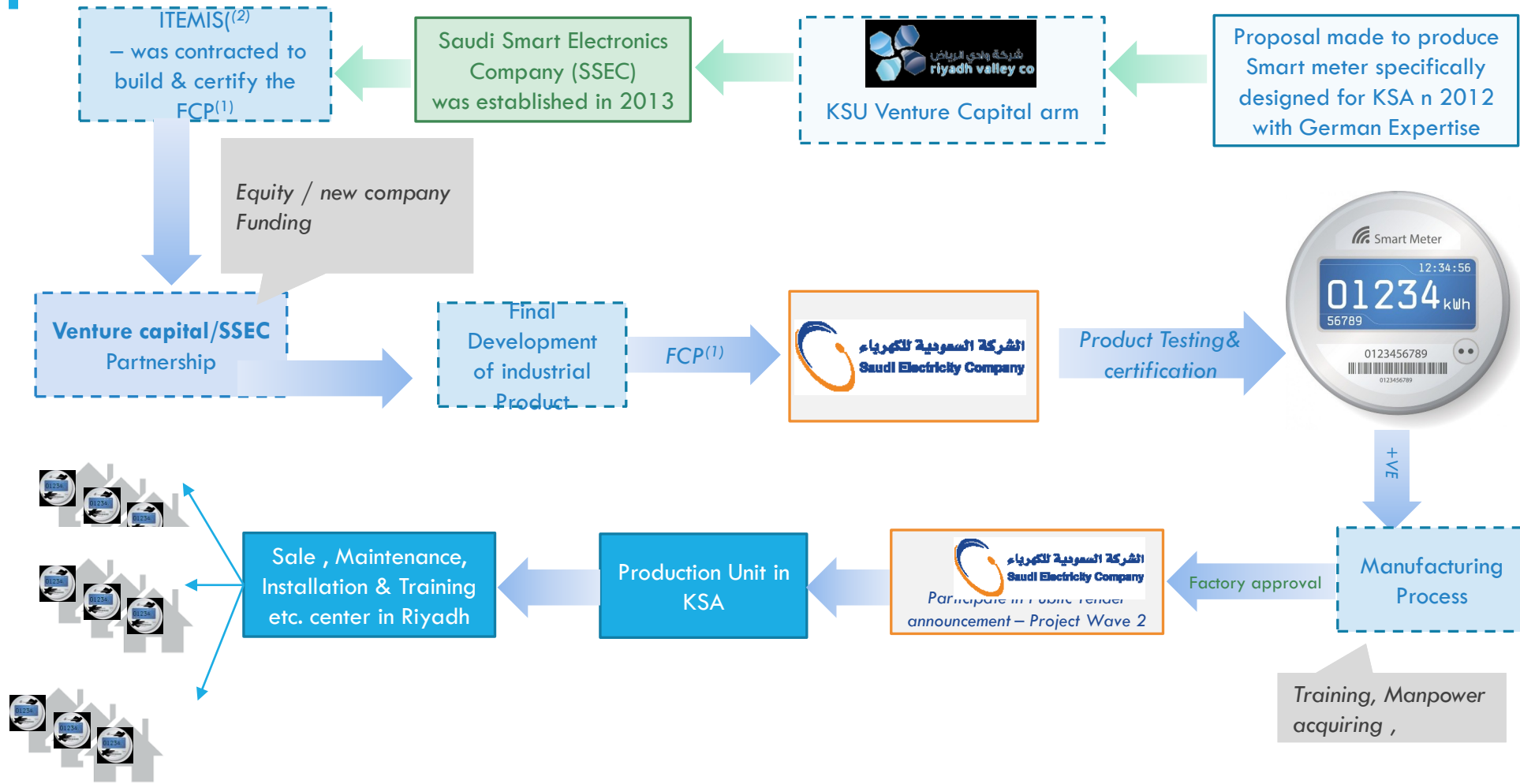
Saudi Electric company offers the following advantages for Saudi Local Manufacturing :

- ☐ No References are needed for approval
- ☐ 10% price allowance in tender offers
- ☐ Short qualification process of 6 months instead of 2 years for foreign manufacturers
- ☐ Support through SEC Saudi nationalization committee
- ☐ After 2019 all SEC tender Wave2 bidders need to have a local smart meter manufacturing partner .



BUSINESS DEVELOPMENT OVERVIEW

JOURNEY FROM PROTOTYPE TO COMMERCIAL PRODUCT TO FINAL PRODUCT



(1) – Final Commercial Product.

(2) ITEMIS – France , -a company owned by the German partner

SCOPE & ESTIMATE FOR PROFIT

NO	TOTAL INVESTMENT DESCRIPTION	NO
1	Product adaptation to the new SEC Specifications + industrialization + Certification	1
2	Electronics Production Line - Machinery	1
3	Needed Additional Machinery	1
4	Vehicles & transport equip&Other Machineries & Pre operating	1
TOTAL		

Avg. Selling Price per Smart meter

700

Net Profit per Smart meter

273

Market Size after Project WAVE 1 (mn units) 10

Assuming a 10% Market share (mn units) 1

Scope for Profits spread over 8 years (2018-25)

SAR 273 mn

NPV = SAR 131 mn⁽¹⁾

Avg. Selling Price per Smart meter	700
Avg. Cost Price	219
Gross Margin	481
Gross Margin	74%
Operating & Maintenance costs	70
% of Sales	10%
Operating Margin	411
Operating Margin (%)	59%
Selling, Gross & Admin costs	35
% of Sales	5%
Other Corporate Overheads	35
% of Sales	5%
Earnings before Tax	341
Zakat	68
% of EBT	20%
Net Profit per Smart meter	273
% of Sales	39%

(1) NPV of the Net Profits spread over 8 years using Discount rate of 20%

CURRENT STATUS

SAUDI ELECTRIC COMPANY SMART GRID PROJECT



CURRENT SAUDI ELECTRIC COMPANY TENDER

MANDATORY REPLACEMENT OF 2.5 MILLION ELECTROMECHANICAL METERS

مشروع العدادات الذكية المرحلة الأولى Smart Metering Project Wave 1

Public Tender Announcement

The Saudi Electricity Company (SEC) announces the launch of the Smart Metering Project Wave 1 public tender, which includes the deployment of 2.5 million smart meters, telecommunications infrastructure, testing equipment and head end system.

The project will consist of five stages including proof of concept, pilot, deployment, operation & maintenance and warranty. The scope of work includes performing the detailed engineering design, architecture, procurement, manufacture, supply, shipping, storing, transportation, delivery to the work site(s), installation, testing, commissioning, integration, training, operation and maintenance in order to put into service the smart metering infrastructure of the company.

The Request for Proposal number 4000055082 is open to purchase for the cost of SAR 15,000 (non refundable) starting 12 June 2016 and until 27 June 2016. As part of their proposals, bidders shall submit a bid bond issued by a Saudi Arabian bank worth SAR 30 million and valid for 180 days.

The RFP package, which includes documents such as the scope of work, technical specifications and instruction to bidders, can be purchased from SEC's Contracting Department in Riyadh, Ghomata Business Center, Tower A6, Ground Floor.

إعلان مناقصة عامة

تعلن الشركة السعودية للكهرباء عن طرح المرحلة الأولى من المناقصة العامة لمشروع العدادات الذكية، والتي تشمل توريد وتركيب ٢,٥ مليون عداد ذكي، وكذلك البنية التحتية للاتصالات وأجهزة الاختبارات والأنظمة المساعدة.

ويتكون هذا المشروع من ٥ مراحل، وهي مرحلة اختبار تصميم الحلول المقدمة، والمرحلة التجريبية، ومرحلة التنفيذ الشامل، ومرحلة التشغيل والصيانة، ومرحلة الضمان. وسوف يتولى نطاق العمل على تجهيز التصميم الهندسي التفصيلية، وبنية الأنظمة، والشراء، والتصنيع، والتوريد، والشحن، والتخزين، والنقل، والتسليم إلى مواقع العمل، وأعمال التركيبات، والاختبارات، والتهيئة، والربط التقني، والتدريب، والتشغيل والصيانة، بغرض تأسيس البنية التحتية لنظام العدادات الذكية في الشركة.

مستندات المناقصة ذات الرقم المرجعي ٤٠٠٠٥٥٠٨٢ سوف تكون متاحة للشراء مقابل مبلغ وقدره ١٥ ألف ريال سعودي (غير مسترد) ابتداءً من ١٢ يونيو ٢٠١٦ وحتى ٢٧ يونيو ٢٠١٦. علماً أنه يجب على المتقدمين للعطاء تقديم ضمان بنكي صادر عن بنك سعودي بقيمة ٣٠ مليون ريال سعودي صالح لمدة ١٨٠ يوم.

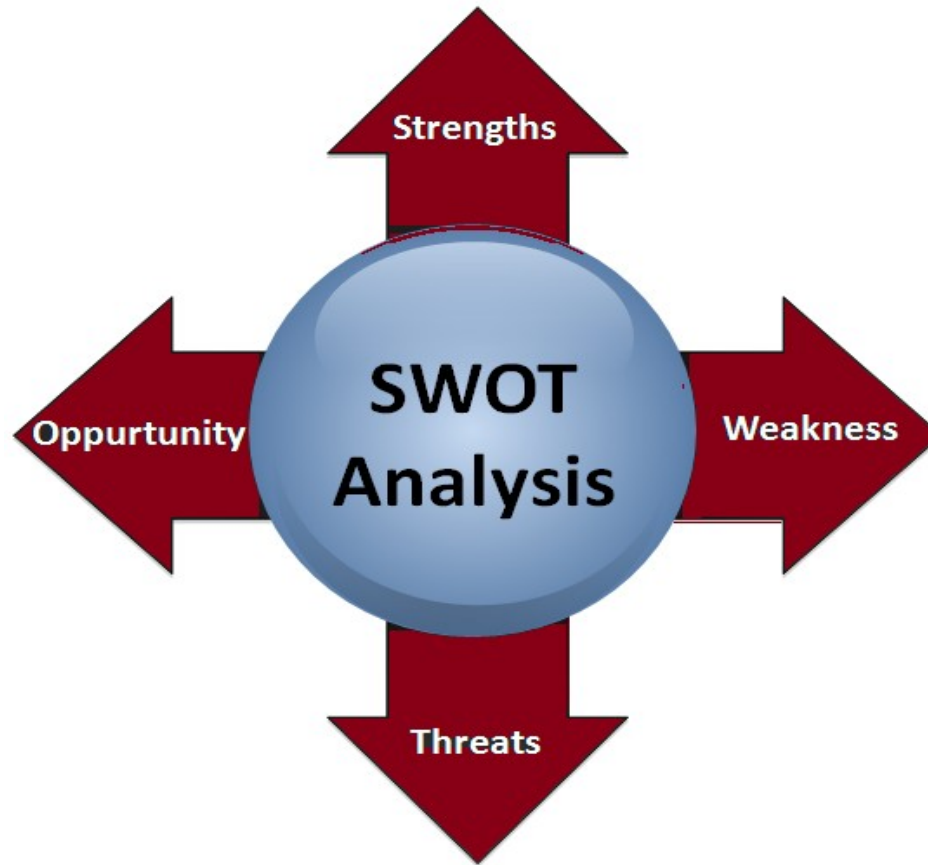
وعلى الراغبين في شراء وثائق المناقصة والتي تشمل على «نطاق العمل، المواصفات الفنية، تعليمات للمتنافسين، وغيرها» التواصل مع إدارة العقود بالشركة السعودية للكهرباء بالقطاع الوسط، الدور الأرضي، مبنى ٦ أ - واحة غرناطة، الرياض، المملكة العربية السعودية.



The kingdom is in need for six factories for smart meters.

**Dr. Abdullah Al-Shehri
Governor, Electricity &
Cogeneration Regulatory
Authority.**

BUSINESS OPPORTUNITY IN SMART METERING NEW COMPANY **SWOT ANALYSIS**



BUSINESS OPPORTUNITY IN SMART METERING LOCAL INDUSTRY:

SWOT ANALYSIS

Challenges

Foreign products future competition

Rapid change and advancement of technology

High cost of design and development of innovative products

Weak spending on R & D

Opportunity

Start of SEC project for introducing smart grid at KSA

Existence of demand at other Gulf and Arab states

Variety of smart products to be produced & wide products line

Lunching of vision 2030 at KSA

Weakness

Limited venture capital in KSA

Market is SEC dependent

Weak foreign investment in high Tech. at KSA

Weak incentives for technology transfer and localization

Strengths

A technical team highly experienced from KSU & Germany

A customized smart meter technology based on SEC specific Specifications

Small Number of national competitors

Existence of abundant local financial resources & local Manufacturing Industry Experience

Tremendous market for the smart meter product

MAJOR INTERNATIONAL PLAYERS

PLAYERS IN THE INTERNATIONAL THEATER ARE FOCUSING ON EXPANSIONARY ACTIVITIES IN THEIR OWN LOCAL MARKET DUE TO THE STRONG GROWTH PROSPECTS IN THEIR MARKETS

Country	Utility firms	Manufacturers	IT Firms
Austria	E.ON	Diehl Metering, Iskraemeco	Echelon
Belgium	ENEL, Nuon	Elster, Iskraemeco, Landis+Gyr	EnergyiCT, Itron, Telit
Denmark	Vattenfall	Elster, Iskraemeco, landis+Gyr	Echelon
Finland	E.ON, Vattenfall	Elster, Iskraemeco, Landis+Gyr	Echelon
France	ENE L	Diehl Metering, Elster, Hager, Iskraemeco, landis+Gyr, Sensus Metering Systems	Echelon, EnergyiCT, Itron, Wavecom
Germany	E.ON, Nuon, Vattenfall	Diehl Metering, Elster, Hager, Iskraemeco, Landis+Gyr	Echelon, EnergyiCT, SAP, Cinterion
Italy	ENE L, E.ON	Elster, Iskraemeco, landis+Gyr, Sensus Metering Systems	Echelon, Itron, Cinterion
Netherlands	Nuon, E.ON, Oxxio	Elster, Iskraemeco, landis+Gyr	EnergyiCT, Itron
Poland	Vattenfall	Diehl Metering, Iskraemeco, Sensus Metering Systems	Cinterion
Portugal	EDP Distribui ao	Elster, Iskraemeco	Itron
Spain	Red Electrica, ENEL	Elster, Iskraemeco, Sensus Metering Systems	Cinterion
Sweden	Vattenfall, E.ON	Iskraemeco	Echelon
UK	First:utility, E.ON	Navetas, Elster, Hager, Iskraemeco, landis+Gyr, Landis+Gyr, Navetas, PRI, Sensus Metering Systems	Telit, Trilliant, Itron

COMPETITIVE LANDSCAPE

CURRENT COMPETITION IN KSA

Local Manufacturer of Smart meter products



Potential Foreign Manufacturer of Smart meter products

(None have a meter that fulfill SEC specifications V8)



- (1) Advanced Electronics Company Limited
- (2) 2,378 Kamstrup water, cooling & electricity meters with IP data collection and a data management system.
- (3) <https://www.us-sabc.org/custom/news/details.cfm?id=1000>

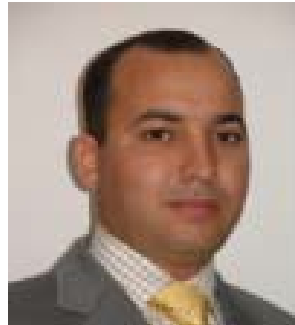
FOUNDING EXPERT TEAM CV'S

EXPERIENCED ENGINEERS AS PROMOTERS



Prof. Dr. Sami Saleh Al-Wakeel

- Ex - Dean and Founding Member of College of Computer Sciences & Information – King Saud University
- Ex - Member King Saud university Council 2003-2009
- Masters and Ph.D. in Electrical Engineering from Stanford University , USA
- Core Competencies : • IT Curriculum Development & Training, Research & Reporting ICT Systems & Products , ICT USA Patents Holding ,Consultancy to various Saudi government ministries and Private establishments



Abdelghani El – Kacimi, MSEE

- Master in Electrical Engineering, Ruhr University Bochum – Germany
- Member of the Board, Senior VP operations and Controlling itemis AG / Dortmund – Germany
- Partner Managing Director, ITEMIS (France) - MDSD of Embedded Systems, Mobile Solutions
- EX-Managing Director, MMC - Morocco Microelectronics Cluster
- Ex – Texas Instruments Engineer & Masters - Electrical Engg from Ruhr University Bochum, Germany



Stephan Eberle

- Chief Engineer of ITEMIS (France)
- Project Manager of Smart Meter Design for SSEC

Saudi Smart Electronic Company Partners

Core Competencies of Saudi / German Partner Technology and Expertise

Riyadh Valley Company



شركة وادي الرياض
riyadh valley co

itemis



Riyadh Valley Company

Established by Saudi Council of Ministers at 2010
with 100 Million SR Capital



STRATEGIC OBJECTIVE:

1. Support transformation towards knowledge-based economy
2. Transfer Technology and Value to Saudi Arabia
3. Leverage KSU Capabilities
4. Foster entrepreneurship and job creation.

OPERATING MODEL COMPONENTS:

1 Venture Investment

Investment fund(s) focused on identifying, accessing & bringing technologies & business models back to KSA

2 Strategic Projects

Later-stage business development initiatives – new businesses and/or joint ventures with KSA & co-investment partners

ACHIEVING OUR OBJECTIVE – KEY HIGHLIGHTS:

- Financial & strategic returns
 - Longer-term horizon
 - Strategically-selected focus areas
 - Bring technologies back to KSA
-
- Primarily financial returns
 - Shorter-term horizon projects
 - Create new businesses & JVs
 - Leverage real estate assets
 - Partner to foster entrepreneurship



Partners



**Partners in Saudi Sensors &
Systems Co
(Radar Systems)**



**Partners in Saudi Health
Information Systems Co
(Hospital Services)**



**Partner in Knowledge
Developers
(Enterprise Systems)**



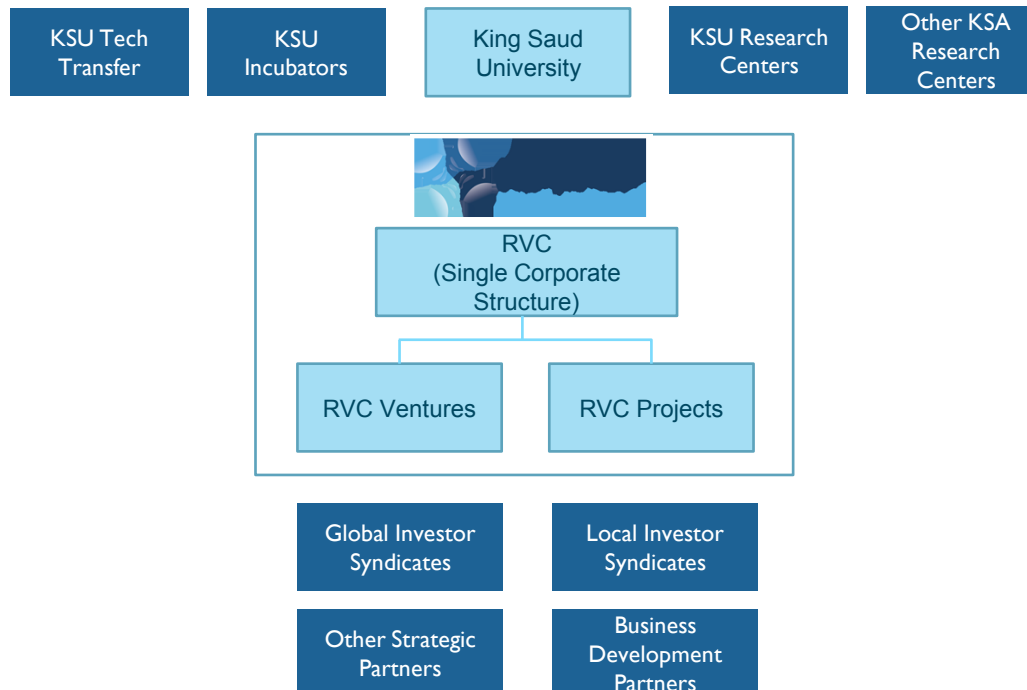
**Entrepreneurship
building and
education**



**National Diabetes
Center**



Environment & Structure



Riyadh Valley Company

Established by Saudi Council of Ministers at 2010
with 100 Million SR Capital



شركة وادي الرياض
riyadh valley co

Infrastructure

- Land
- Labs and Research
- RTV Infrastructure

Scale

- KSU Size and Needs
- Largest market, most disposable income per cap. in MENA

Expertise

- KSU Centers
- RVC Joint Venturing Experience
- Local market knowledge

Access

- KSU Network
- Government Relations
- Investment Board
- Partners
- Talent pools

Value Add Proposition

Riyadh Valley Company brings value to co-investors and portfolio companies involved in connecting new technologies & businesses to attractive and growing markets in Saudi Arabia by providing infrastructure, scale, expertise, and access.

High Potential Markets for Target Sectors in Saudi Arabia





Specialist for Model Based Software Development



EAST-ADL

AUTOSAR

Automotive Customers



BOSCH



Continental

Johnson Controls

KOSTAL



Audi

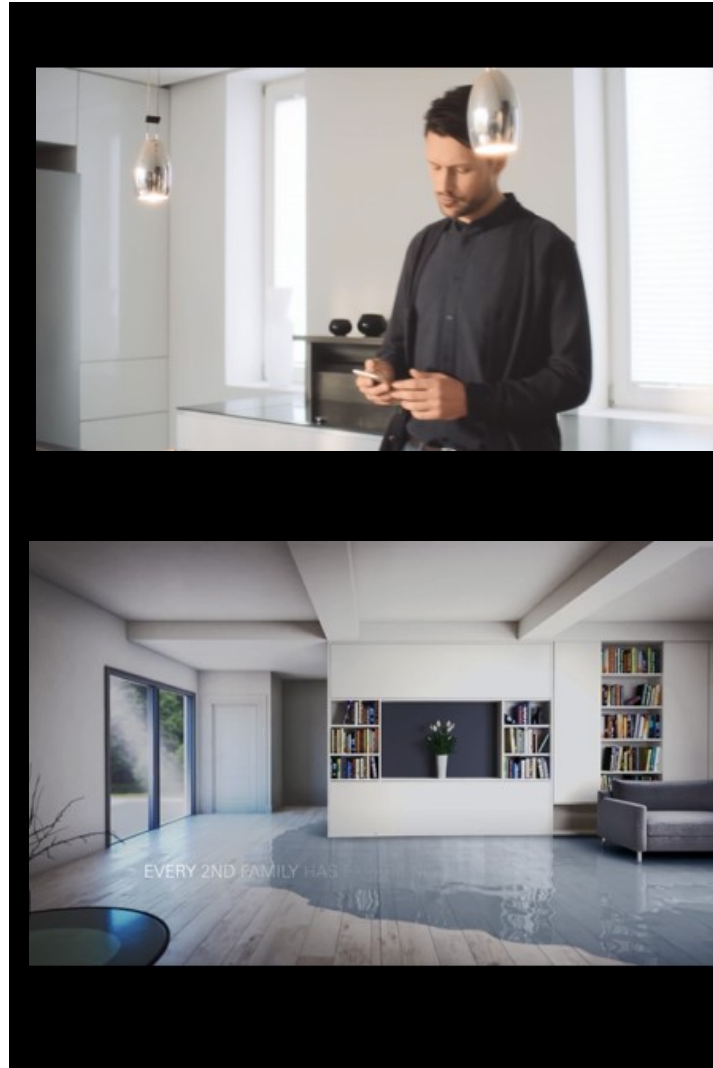
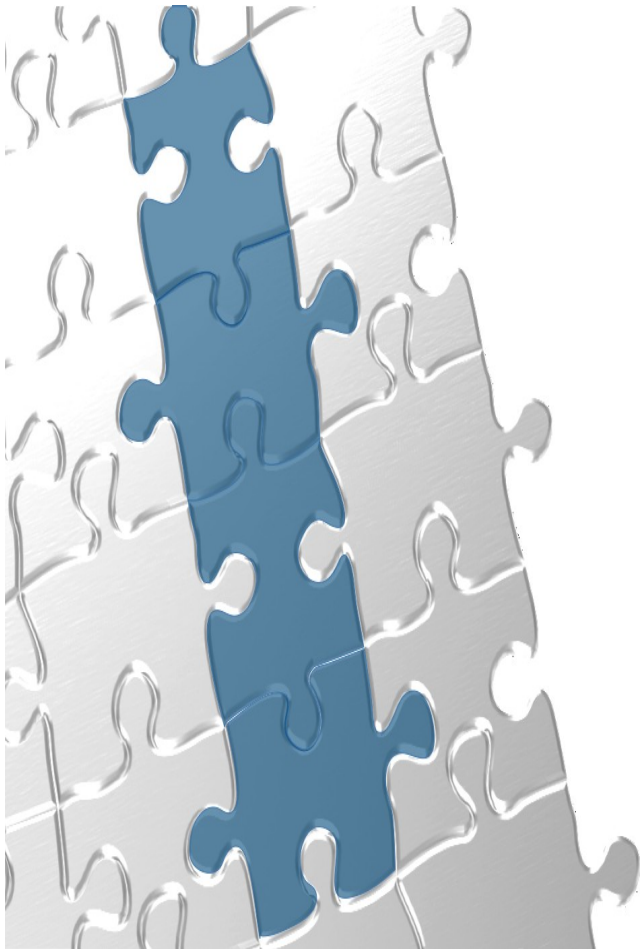
Open Platform Eclipse – Strategic Membership



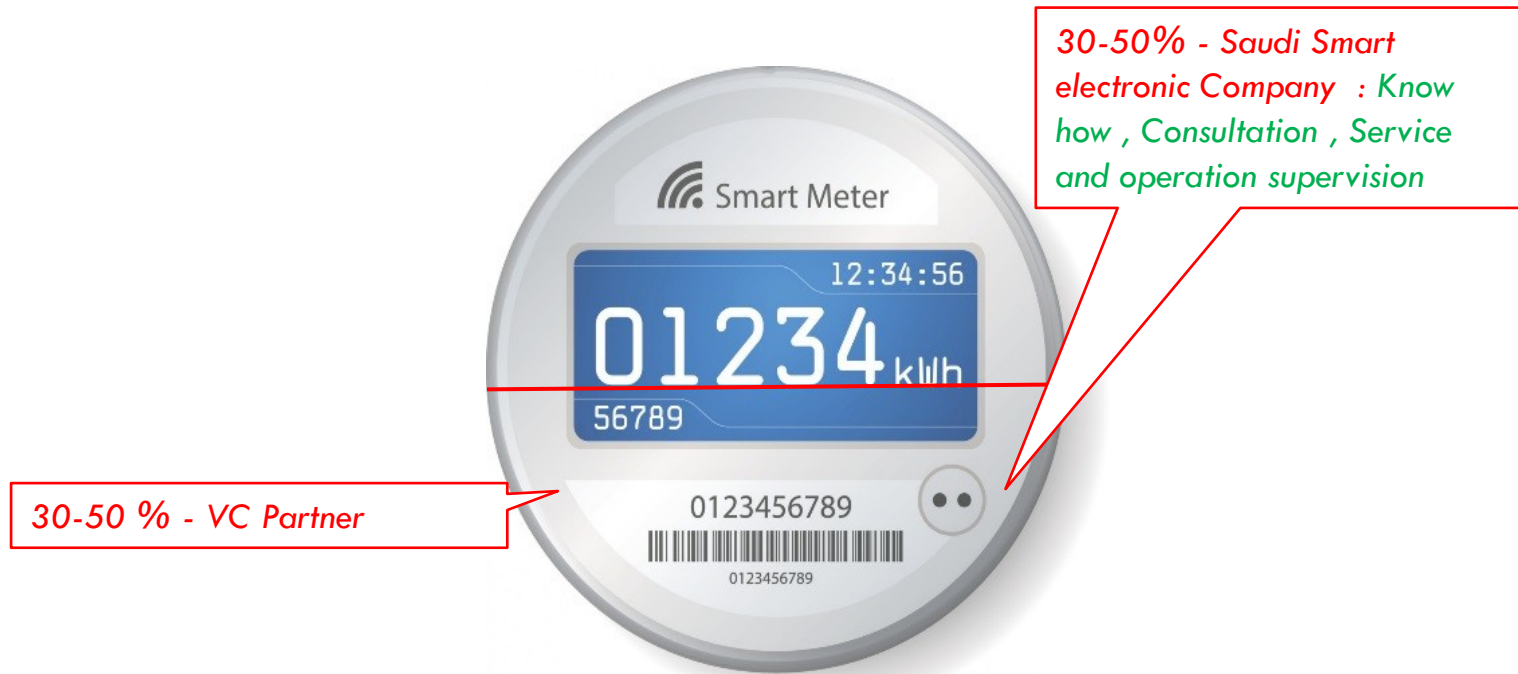
- Systems Engineering & Optimization of Development Processes and Tool Chain Systems
- Engineering for Automotive and Industry Electronics
- Software- and System Architecture
- Test Automation & Integrated tool chain for ECU development

Itemis AG/France

Strong Automotive Position



NEW COMPANY WITH VC SUGGESTED EQUITY AND SHARE PARTICIPATION



Note: This is only a suggestion

THANK YOU

WELCOME TO THE WORLD OF SMART HOMES

