Systems Engineering Integrative Project SELP 695
Fall 2016
“Transformation of Saudi Arabia Economic System”
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Outline:

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• Problem statement
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• System of Systems
• System Requirements
• System Stakeholders
• Stakeholders Analysis
• Obstacles
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Introduction:

- petroleum exports

- SA is one of the G20 (world’s 20 largest economies)

- SA’s economy is dangerously reliant upon petroleum exports.

- Saudi Arabia is highly dependent upon foreign labors.

- The government of SA recognizes the value of having it’s citizens educated.
Problem Statement:

- The Saudi Arabian economy is extremely dependent upon the sale of oil and natural gas.

- The price of oil and natural gas

- Other market forces are having a significant impact on the price of petroleum products.

- SA private sector.

- There is an over reliance on foreign workers

- The current unemployment rate among Saudi citizens is approximately 11%.

- Women do not have equal status as men.
Money Flow in-out
Saudi Arabia 2015

Total in: $262.16 billion
Total out: $359.99 billion
Saudi Arabia Whole economy
deficit : - $97.83 billion

Saudi Arabian Government budget deficit:
- $182.52 billion

Government of Saudi Arabia

$224.6 billion from Other Countries

$16.8 billion to Governmental Operating Expenses

$17.2 billion to Citizens & Residents

$181.48 billion to Private Sector

$31.34 billion to Governmental Services Fees

$12.7 billion to Governmental Fees

$93.33 billion to Projects Contracts

Out

In
Interrogatives

- Who?
  The Government of Saudi Arabia

- What?
  The project will propose creation of a new economic system that will:
  1- diversify the sources of income
  2- stabilize the Saudi Arabia economy
  3- decrease the unemployment rate
  4- increase women participation in the economy
  5- add more liberty to the Saudi Arabia Law.

- When?
  The transformation will take 10 years to be completed (from 2017 to 2027)

- Where?
  In Saudi Arabia

- Why?
  This system is needed to make the Saudi Arabian economy stable and strong.
System of Systems

Political System

Privet Sector System

China Economy

Economic System in Saudi Arabia

USA Economy

Social and cultural System

Planning System
System Goals

- Diversify the Kingdom's revenue and citizen income by adding more revenue sources.
- Impose a progressive income tax legislation.
- Encourage the local industries to develop and decrease imported products.
- Transform the government's subsidies.
- Increase women participation in the economy.
- Liberalize legislation.
System Stakeholders

- Ministry of Economy and Planning (G1)
- Ministry of Commerce and Investment (G2)
- Ministry of Energy, Industry and Natural Resources (G3)
- Ministry of Water and Electricity (G4)
- Ministry of Health (G5)
- Ministry of Justice (G6)
- Ministry of Hajj and Umra (G7)
- Ministry of Municipal and Rural Affairs (G8)
- Ministry of Finance (G9)
- Saudi Custom (G10)
- Tax Authority (G11)
- Saudi Aramco company (P1)
- Saudi Arabian Mining Company (P2)
- National Water Company (P3)
- Saudi Electricity company (P4)
- Businessmen (P5)
- Foreign residents (R1)
- Citizens (C1)
Stakeholders Analysis

- Power/Influence:
  - Low:
    - G5, P1, P2, P3, P4
    - P5, R1, C1
  - High:
    - G1, G2, G3, G6, G7, G8, G9, G10, G11
Obstacles:

- Cultural environment and lack of liberty in Saudi Arabia.
- Legal legislation in Saudi Arabia.
- Lack of trained labors and advanced technology in Saudi Arabia.
- Corruption in Saudi Arabia.
Cultural environment and lack of liberty in Saudi Arabia

- Saudi Arabia is a religiously based monarchy in which the sovereign’s dominated power is controlled according to Islamic law and community law (social norms).

- In the Kingdom, life is generally more private than elsewhere. There are public spaces such as malls, parks, beaches, and others, and social gatherings of families are permitted, but there are a lot of restrictions one has to follow.

- Alcohol, LGBT activities and drugs are strictly prohibited, subject to severe penalties if caught.

- Women can’t drive in Saudi Arabia.

- Mingling with members of the opposite sex in public places is not allowed, unless it is a family member.
Cultural environment and lack of liberty in Saudi Arabia

- All commercial establishments close down during prayer times, five times a day.
- In most places, including educational institutions, one is not allowed to mingle with members of the opposite sex, unless it is a family member. The religious police actively discourages any form of mixed-gender activities in public.
- Women above the age of 13 are expected to cover the entire body except face and hands at all times in public.
- Women cannot drive, or travel without consent from their male guardian.
- Women do not have equal opportunity of employment in Saudi Arabia.
Special Zones have More Liberty in Saudi Arabia:

- Special places in Saudi Arabia designated for foreigners have no restrictions, such as Aramco Half Moon Beach, or Foreigners Compound.
- People can drink alcohol in these places.
- They can wear whatever they want.
- Women can drive cars.
- Cinemas are available in these compounds.
Special Zones with More Liberty in Saudi Arabia:

- https://www.youtube.com/watch?v=IM2RMGYJYyg
- https://www.youtube.com/watch?v=nltCDliBOBU
Legal Legislation in Saudi Arabia:

- There is no law protecting local industries.
- There is no government regulation preventing monopolies.
- Foreigners can’t own land or real estate.
- There is no property tax.
- There is no income tax.
- There is no tax incentive for businesses to invest in the local economy.
Lack of trained labor and advanced technology in Saudi Arabia

- The Saudi Economy can be described as highly dependent on foreign labor, especially in the private sector; for example, in 2010 Saudis accounted for only 7% of the labor in the private sector and 47.1% of the overall labor force.

- Most Saudi workers are untrained to do technical jobs.

- There is a general lack of technical training available to ordinary citizens in Saudi Arabia.
Analyses of Alternatives

- Identify the alternative solutions
- Define the Measures of Effectiveness (MOEs)
- Assess each alternative with the MOE's
- Analyze the results
- Select the best alternative
Alternative Solutions:

Alt 1: Use The Current System

Alt 2: Use Austerity System

Alt 3: Use SAESBO System

Has been discussed above.
Alternative solutions:

Alt 2: The Second Solution (Austerity System)

- Continue depending on oil and natural gas as the major resource for Saudi Arabia.
- Reduce the budget deficit by imposing income tax.
- Stop hiring new employees in the government.
- Lay off some of the government employees.
- Stop spending money on development projects.
- Start austerity plan.
Alternative solutions:

Alt 3: The Third solution

I named this system SAESBO (Saudi Arabia Economy System Beyond the Oil)

SAESBO will:

- Diversify the Kingdom revenue and citizen income by adding more revenue resources.
- Impose a progressive income tax legislation.
- Encourage the local industries to develop and decrease imported products.
- Liberalize legislation.
- Transform the government's subsidies.
- Increase women participation in the economy.
Diversify the income by adding more resources:

In SAESBO Saudi Arabia will target five existing and new revenue resources:

- Oil and Natural Gas (Existing)
- Tourism and Hospitality
- Petrochemical industry
- Mining and Metals
- Manufacturing
- Health Care
SV-1 Saudi Arabia Economy Resources Chart

- Petrochemical industry
- Tourism and Hospitality
- Mining and Metals
- Oil and Natural Gas
- Manufacturing
- Health Care

Saudi Arabia economy Resources
Introduce progressive income tax legislation:

- The government will impose a progressive income tax system in which higher-income earners pay a higher tax rate compared to their lower-earning counterparts.

- The income tax will be:

<table>
<thead>
<tr>
<th>Annual income, $</th>
<th>Tax rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30,000</td>
<td>0%</td>
</tr>
<tr>
<td>30,001-100,000</td>
<td>3%</td>
</tr>
<tr>
<td>100,001-1,000,000</td>
<td>7%</td>
</tr>
<tr>
<td>1,000,001-10,000,000</td>
<td>12%</td>
</tr>
<tr>
<td>10,000,001-100,000,000</td>
<td>20%</td>
</tr>
<tr>
<td>100,000,001-1,000,000,000</td>
<td>30%</td>
</tr>
<tr>
<td>More than 1,000,000,000</td>
<td>40%</td>
</tr>
</tbody>
</table>
Encourage local industries

The government of Saudi Arabia has to encourage and enable local industries by:

- Offering a loan to local manufacturing companies.
- Imposing no taxes for local production.
- Increasing the tax (duty) for imported products.
- Imposing prohibitive tax on the imports that have alternatives in the local product.
- Supporting local companies in forming a partnership with global companies.
Liberalize legislation

- The Law must treat women as equal to men.
- Give women the right to a driver’s license.
- Give women the right to travel without anyone’s consent.
- Allow more hotels to open a lounge bar for foreigners to drink alcohol.
- Eliminate the moral police.
- Change the law to be more liberal overall, patterned after Western democracies.
Liberalize legislation

How to do that?

- King of Saudi Arabia
- Saudi Shura Council
- Media
- Schools
Transform government subsidies

The Government has to do many things to transform the current subsidies:

- Eliminate the subsidies on gasoline and natural gas.
- Eliminate the subsidies on electricity.
- Eliminate the subsidies on water. Introduce and incentivize recycling of waste water for agriculture.
- Give free health insurance for free for unemployed, seniors, orphans, disabled and poor.
- Provide highly-controlled welfare to poor, disabled, unemployed, and orphans.
OV-1 Government Subsidies Chart

Subsidies in SAESBO System

Subsidies in the current system
Increase women participation in the economy

The government has to support women participation in the economy, as follows:

- Let them study all majors of their choosing, with priority for the economy needs.
- Let them study in the technical schools in Saudi Arabia.
- Pay half of the salary to the companies who hire women for two years.
- Incentivize a requirement on all companies to hire at least 30% women.
Measures of Effectiveness (MOE)

The following MOEs will be used to analyse the alternative solutions:

- Stability
- Budget Deficit
- Economy Growth
- Productivity
- Unemployment Rate
- Quality of Living
- Waste
- Inflation
# Measures of Effectiveness (MOE)

<table>
<thead>
<tr>
<th>MOE’s</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>The system should have the ability to be stable in all conditions</td>
</tr>
<tr>
<td>Budget Deficit</td>
<td>The system should have the ability to eliminate the budget deficit</td>
</tr>
<tr>
<td>Economy Growth</td>
<td>The system should yield 3% or more economic growth every year</td>
</tr>
<tr>
<td>Productivity</td>
<td>The system should increase the national productivity rate</td>
</tr>
<tr>
<td>Unemployment Rate</td>
<td>The system should reduce the unemployment rate</td>
</tr>
<tr>
<td>Quality of Living</td>
<td>The system should enhance the quality of living</td>
</tr>
<tr>
<td>Waste</td>
<td>The system should have the ability to eliminate waste</td>
</tr>
<tr>
<td>Inflation</td>
<td>The system should have the ability to mitigate inflation</td>
</tr>
</tbody>
</table>
# Measures of Effectiveness (MOE)

<table>
<thead>
<tr>
<th>MOE’s</th>
<th>Current System</th>
<th>Austerity System</th>
<th>SAESBO System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Low (1)</td>
<td>Medium (2)</td>
<td>High (3)</td>
</tr>
<tr>
<td>Reduce Budget Deficit</td>
<td>Low (1)</td>
<td>Medium (2)</td>
<td>High (3)</td>
</tr>
<tr>
<td>Economy Growth</td>
<td>Low (1)</td>
<td>Low (1)</td>
<td>High (3)</td>
</tr>
<tr>
<td>Increase Productivity</td>
<td>Low (1)</td>
<td>Low (1)</td>
<td>High (3)</td>
</tr>
<tr>
<td>Reduce Unemployment Rate</td>
<td>Low (1)</td>
<td>Low (1)</td>
<td>High (3)</td>
</tr>
<tr>
<td>Quality of Living</td>
<td>Medium (2)</td>
<td>Low (1)</td>
<td>High (3)</td>
</tr>
<tr>
<td>Reduce The Waste</td>
<td>Low (1)</td>
<td>High (3)</td>
<td>High (3)</td>
</tr>
<tr>
<td>Inflation</td>
<td>Low (1)</td>
<td>Medium (2)</td>
<td>Medium (2)</td>
</tr>
<tr>
<td>Total MOE’s Score</td>
<td>(9)</td>
<td>(13)</td>
<td>(23)</td>
</tr>
</tbody>
</table>
### Risk Management:

<table>
<thead>
<tr>
<th>Risk</th>
<th>Type of Risk</th>
<th>Risk Description</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Funding</td>
<td>Government couldn't afford to invest in new resources.</td>
<td>Probable</td>
<td>High</td>
<td>The government will get funds by offering bonds or mandating withdrawal of money from investments and private savings abroad.</td>
</tr>
<tr>
<td>2</td>
<td>Technology</td>
<td>The local companies don’t have the technology to start manufacturing</td>
<td>Very Likely</td>
<td>Major</td>
<td>The local companies should be incentivized to form partnerships with global companies.</td>
</tr>
<tr>
<td>3</td>
<td>Trained Labor</td>
<td>Most Saudi workers are not trained for technical jobs.</td>
<td>Very Likely</td>
<td>Moderate</td>
<td>The government to incentivize technical schools in cooperation with the best global companies and practice</td>
</tr>
<tr>
<td>4</td>
<td>Religious people</td>
<td>The religious people will not accept the new liberalized laws</td>
<td>Very Likely</td>
<td>Major</td>
<td>The government has to cancel their authority.</td>
</tr>
<tr>
<td>5</td>
<td>Culture</td>
<td>People may not accept the new regulation.</td>
<td>Probable</td>
<td>Major</td>
<td>The Ministry of economy and planning has to perform effective awareness campaigns about the new regulations</td>
</tr>
<tr>
<td>Risk</td>
<td>Type of Risk</td>
<td>Risk Description</td>
<td>Likelihood</td>
<td>Impact</td>
<td>Mitigation</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>------------</td>
<td>--------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Capital flight</td>
<td>The assets or money rapidly flowing out of the country as a result of increased taxation</td>
<td>Probable</td>
<td>High</td>
<td>The Ministry of commerce to organize conferences for businesses showing the opportunities in the new system, and impose penalties for violations.</td>
</tr>
<tr>
<td>7</td>
<td>Inflation</td>
<td>Inflation in commodity prices due to taxes.</td>
<td>Very Likely</td>
<td>Moderate</td>
<td>Increase the minimum wage and salaries.</td>
</tr>
<tr>
<td>8</td>
<td>Corruption</td>
<td>Some VIPs will use their power to ignore the new regulations.</td>
<td>Very Likely</td>
<td>High</td>
<td>The government must initiate severe sanctions for corruption and lack of compliance.</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Minor</td>
<td>Moderate</td>
<td>Major</td>
<td>High</td>
</tr>
<tr>
<td>----------</td>
<td>-----</td>
<td>-------</td>
<td>----------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Very Likely</strong></td>
<td></td>
<td></td>
<td></td>
<td>(3),(7)</td>
<td>(2),(4)</td>
</tr>
<tr>
<td><strong>Likely</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Probable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unlikely</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Very Unlikely</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before Risk Mitigation
### Risk Assessment

#### Impact

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Low</th>
<th>Minor</th>
<th>Moderate</th>
<th>Major</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Likely</td>
<td>4</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probable</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td>3</td>
<td>2,8</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Very Unlikely</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After Risk Mitigation
## Verification Methods

<table>
<thead>
<tr>
<th>No</th>
<th>Requirements</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diversify the Kingdom revenue and citizen income by adding more revenue resources</td>
<td><strong>Demonstration</strong> (The Ministry of Economy and Planning will hire consultants to make a plan for diversifying the revenue resources)</td>
</tr>
<tr>
<td>2</td>
<td>Impose a progressive income tax legislation</td>
<td><strong>Inspection</strong> (The Tax Authority will hire inspectors and develop a program to report people income and collect the tax)</td>
</tr>
<tr>
<td>3</td>
<td>Encourage the local industries to develop and decrease imported products</td>
<td><strong>Demonstration</strong> (The Ministry of Commerce and Investment will develop a program to support the local industry and fund them, also will impose taxes on imported products)</td>
</tr>
<tr>
<td>4</td>
<td>Liberalize legislation</td>
<td><strong>Demonstration</strong> (The Presidency of Council of Ministers will enact laws to liberalize the legislations)</td>
</tr>
<tr>
<td>5</td>
<td>Transform the government’s subsidies</td>
<td><strong>Demonstration</strong> (The Ministry of Financing will give the subsidies to the eligible citizen directly)</td>
</tr>
<tr>
<td>6</td>
<td>Increase women participation in the economy</td>
<td><strong>Demonstration</strong> (The Ministry of Economy and Planning will impose a requirement on all companies to hire at least 30% women)</td>
</tr>
</tbody>
</table>
The Royal Family in Saudi Arabia is comprised of around 15,000 members, many of them have a power to ignore the law.

The society in Saudi Arabia is a tribal society, Most of people use their authority to benefit their relatives from the same tribe.

Companies operating or planning to invest in Saudi Arabia face a high risk of corruption.

Corruption and a lack of transparency are big problems in the Saudi Arabia.

Lack of equal rights for women in Saudi Arabia.

Fixing these deficiencies is a high moral challenge.
Conclusion:

- Saudi Arabia economy is facing a high risk of collapse due to low price of oil and almost total reliance on oil.
- The Government of Saudi Arabia has to undertake a huge transformation of the economic system.
- Liberalizing the economy, law, culture and religion in Saudi Arabia are the first steps to the reform.
- Private sector in Saudi Arabia will play a major role in the economic revival.
- Nothing will work if we don’t fight the corruption.