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Fall 2013

15.232 Business Model Innovation: Global Health in Frontier Markets

Class 3

Operations, Growth: Riders for Health
Today’s plan

• Follow up from last time
  – your thoughts/reflections
  – Google Hangout with York?
  – Six more intros; my own intro

• Looking forward to your assignments

• Riders for Health
  – What’s the problem?
  – Define the Riders approach
  – Does it work? Why?
  – Implications

• Coming up:
  – Avahan case; Kim, Porter & Farmer on Tuesday
  – group formation by tonight: let us know if you need help!
Riders for Health

http://www.riders.org/
What’s the problem?
<table>
<thead>
<tr>
<th>FACTOR</th>
<th>MEDICINE SUPPLY CHAIN</th>
<th>COCA-COLA SUPPLY CHAIN</th>
</tr>
</thead>
</table>
| Production     | • Production occurs mostly internationally.  
• Capital intensive and highly skilled production process.  
• Production is strictly regulated by national and international agencies.  
• Large economies of scale.                                                                                                                                  | • Production of Coca-Cola concentrate occurs internationally.  
• Bottling is less capital and skill intensive.  
• Bottling carried out locally in each market.                                                                                                                     |
| Information Gathering | • Lack of systematic information collection tools.  
• Expensive one-off monitoring and data collection.  
• Central, assumption-based supply chain planning.                                                  | • Systematic information collection tools.  
• Innovative methods of data collection using third parties and own sales force.  
• Data-driven supply chain planning.                                                                                                                             |
| Distribution   | • Product-specific distribution asset investments (both human and capital assets).  
• Higher need for traceability and security.  
• Limited competition in the distribution segment.  
• Poor contract compliance on attributes such as service level, and delivery lead time.                  | • Generic distribution asset investments.  
• Competition used to achieve higher contract compliance.  
• Horizontal collaboration.  
• Higher frequency of delivery to retail points of sale.                                                                                                          |
| Retail Point of Sale | • Limited to regulated pharmacies or government-run clinics.  
• Limited innovation on new points of sales due to regulation.                                             | • Variety of retail sales points such as restaurants, bars, or supermarkets, in cities, towns, and smaller retail kiosks in rural areas.  
• Constantly innovating to create new points of sale.                                                                                                             |
| Incentive Structures | • Limited ability to create incentives for actors in publicly run distribution systems.  
• Simple single-party contracts.                                                                             | • Incentive alignment through contracting given due importance.  
• Sales incentives, service-level incentives commonly used in both pricing and employment contracts.                                                              |
| Consumption Benefits | • The consumption of some medicines, vaccines, and other health products results in higher benefits to society as a whole and not necessarily to individuals.  
• Medicines are what people “need.”                                                                         | • The benefits from consumption of consumer products and soft drinks accrue primarily to the end consumer. In fact, society may sometimes bear a cost from their consumption.  
• Soft drinks are what people “want.”                                                                          |
Infrastructure is a rate-limiting constraint

• The majority of Africa’s rural populations do not live within reach of all-season roads and cannot participate in meaningful entrepreneurial activities.
  – In Kenya: about 32% of the rural people live within two kilometers of an all-weather road.
  – 31% for Angola, 26% for Malawi, 24% for Tanzania, 18% for Mali, 10.5% for Ethiopia.

• Africa will need to invest nearly $93 billion per year over the next decade to bridge the deficit in its infrastructure. Some estimates put the needed budget for Nigeria alone at $15 billion per year. South Africa plans a long-term infrastructure strategy to be implemented over the next 15 years at a cost of $462 billion (Juma guest column in Forbes, 25 Oct 2012)

• The African Development Bank estimates an economic output shortfall of 40% across the continent due to lack of infrastructure (Economist 21 Jul 2011)
Logistics performance varies widely

The World Bank’s Logistics Performance Index is based on a worldwide survey of operators on the ground (global freight forwarders and express carriers), providing feedback on the logistics “friendliness” of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed qualitative assessments of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with quantitative data on the performance of key components of the logistics chain in the country of work, data collected for nearly 130 countries.


## Table 2.5
Respondents indicating that they often or nearly always experience delay factors, by LPI quintile

<table>
<thead>
<tr>
<th>Percent of respondents</th>
<th>Major delays from compulsory warehousing</th>
<th>Major delays from preshipment inspection</th>
<th>Major delays from maritime transshipment</th>
<th>Theft</th>
<th>Informal payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom quintile</td>
<td>39</td>
<td>34</td>
<td>30</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>(lowest performance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth quintile</td>
<td>32</td>
<td>23</td>
<td>29</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>(low performance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third quintile</td>
<td>32</td>
<td>25</td>
<td>24</td>
<td>13</td>
<td>33</td>
</tr>
<tr>
<td>(average performance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second quintile</td>
<td>21</td>
<td>28</td>
<td>22</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>(high performance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top quintile</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(highest performance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2.2: Median import lead time and average clearance time, by LPI quintile

What's the problem?

What is Riders' solution?
What role do these play?
Map removed due to copyright restrictions. See Riders for Health, Where We Work.
Current programs

- Fleet management
- Emergency referrals
- Mobilising health workers
- Sample transport
- Supply chain distribution
- Training

Source: Riders for Health.
Riders has improved health care access for 12 million people across Africa. We do this by ensuring health workers and health facilities have access to reliable vehicles to carry out their work effectively, so that communities across Africa receive regular, reliable health care.

Health workers mobilised with reliable vehicles can travel further to reach more rural communities with health care. They can also offer an important link for referring rural communities to a health facility when they need it.

With reliable transport, outreach health workers can hold more health education meetings in communities across Africa. Sharing information on disease control and prevention means that people will understand how to prevent themselves and their children from getting ill. They will also recognise symptoms so that they know when to seek treatment.

In 2011 in the Gambia, three times more patients were referred from health centres to hospitals by Riders-managed ambulances. Ambulance referrals not only mean quicker and safer transportation but they also mean better quality of care in transit as a nurse will accompany the patient.

Source: Riders for Health.
Riders for Health has just won the Third Sector Social Enterprise Award for its new Transportation Asset Management project, a health delivery initiative in Gambia created in partnership with the Skoll Foundation, Gambian Department of State for Health and GT Bank. A Clinton Global Initiative commitment in 2007, which included a $3.5 million loan guarantee from Skoll, the TAM project integrates vehicle purchase, leasing & maintenance with health delivery. With 153 vehicles purchased and operational in country (out of a total planned fleet of 240), the TAM project is already letting the Department of State for Health reach 1.1 million of the 1.7 million citizens of Gambia.

for more on the Gambia model, see

http://www.ssireview.org/articles/entry/fueling_growth/

Riders for Health had won international acclaim for its novel approach to maintaining health transport vehicles in sub-Saharan Africa. Yet the organization was having trouble scaling its services at its first site: Gambia. Here is how the organization won both government support and private funding for its latest innovation.
What about this?

more about Riders

see my three detailed posts

• the first explains the model;
• the second adds more resources and discussion; and
• here’s the most recent.

Visit http://www.riders.org/research where downloads include

• Connecting the Dots: A Pilot Program to Link Laboratory Services to Patients in a Rural Zambia Province, Alliance for Case Studies for Global Health, 2012.
Much of the laboratory and medical equipment in resource-poor settings is out-of-service. The most commonly cited reasons are (1) a lack of spare parts and (2) a lack of highly trained technicians. However, there is little data to support these hypotheses, or to generate evidence-based solutions to the problem. We studied 2,849 equipment-repair requests (of which 2,529 were out-of-service medical equipment) from 60 resource-poor hospitals located in 11 nations in Africa, Europe, Asia, and Central America. Each piece of equipment was analyzed by an engineer or an engineering student and a repair was attempted using only locally available materials. If the piece was placed back into service, we assumed that the engineer’s problem analysis was correct. A total of 1,821 pieces of medical equipment were placed back into service, or 72%, without requiring the use of imported spare parts. Of those pieces repaired, 1,704 were sufficiently documented to determine what knowledge was required to place the equipment back into service. We found that six domains of knowledge were required to accomplish 99% of the repairs: electrical (18%), mechanical (18%), power supply (14%), plumbing (19%), motors (5%), and installation or user training (25%). A further analysis of the domains shows that 66% of the out-of-service equipment was placed back into service using only 107 skills covering basic knowledge in each domain; far less knowledge than that required of a biomedical engineer or biomedical engineering technician. We conclude that a great majority of laboratory and medical equipment can be put back into service without importing spare parts and using only basic knowledge. Capacity building in resource-poor settings should first focus on a limited set of knowledge; a body of knowledge that we call the biomedical technician’s assistant (BTA). This data set suggests that a supported BTA could place 66% of the out-of-service laboratory and medical equipment in their hospital back into service.

- Evidence-based approach to the maintenance of laboratory and medical equipment in resource-poor settings.
- Malkin R, Keane A.

It is often said that most of the medical equipment in the developing world is broken with estimates ranging up to 96% out of service. But there is little documented evidence to support these statements. We wanted to quantify the amount of medical equipment that was out of service in resource poor health settings and identify possible causes. Inventory reports were analyzed from 1986 to 2010, from hospitals in sixteen countries across four continents. The UN Human Development Index was used to determine which countries should be considered developing nations. Non-medical hospital equipment was excluded. This study examined 112,040 pieces of equipment. An average of 38.3% (42,925, range across countries: 0.83-47%) in developing countries was out of service. The three main causes were lack of training, health technology management, and infrastructure. We hope that the findings will help biomedical engineers with their efforts toward effective designs for the developing world and NGO's with efforts to design effective healthcare interventions.

- Effectiveness of medical equipment donations to improve health systems: how much medical equipment is broken in the developing world?
- Perry L, Malkin R.
(not used)

Other videos to watch
introduction about Riders: Ian McEwan narrates (5 minutes): [http://www.youtube.com/watch?v=Tk_iZK39k1M](http://www.youtube.com/watch?v=Tk_iZK39k1M) and from the PBS series Rx for survival (11 minutes): [http://www.youtube.com/watch?v=ZmHL3693Cc0&feature=related](http://www.youtube.com/watch?v=ZmHL3693Cc0&feature=related)
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