American Hospital Tbilisi

Internal Feasibility

February 1, 2016

1 Introduction

1.1 Project description

The project involves the development of a specialised, purpose-built, 80 bed hospital in Tbilisi, Georgia. It will specialise in cancer, cardiac and surgical services, offering US standards of medical care to the rapidly growing local middle class population. A core team of US management and medical staff will be recruited to inject genuine US-style operational standards and ethos.

1.2 Sponsors

Mr. Mamuka Khazaradze is a renowned Georgian businessman and philanthropist. He graduated from the Technical University of Georgia in 1988 and also holds a diploma from Harvard Business School. Between 1988 and 1989, he worked as an engineer at the Projecting-Technological Scientific Research Institute in Tbilisi. In 1991 and 1992, respectively, he founded and became the President of TBC Bank. In 1995 he founded IDS Borjomi Georgia, Borjomi Beverages Co. N.V., where he held the position of President until 2004, and between 1999 and 2002, he acted as Vice Chairman of the Supervisory Board of Microfinance Bank of Georgia. In 2004, Mr. Khazaradze also founded the Georgian Reconstruction and Development Company, of which he is still the President. Between 1997 and 2007, he was Vice President of the Olympic Committee of Georgia. Since 2000 he has been a partner and the President of NGO New Movement, and since 2010 has served as the Chairman of the Board of the American Academy in Tbilisi and the Chairman of the Supervisory Board of Lisi Lake Development.

Mr. Kurt G. Conti is President & CEO of the Conti Group. Recognized internationally as a visionary leader in the development, real estate and infrastructure industries, he has worked closely with the domestic and international investment community to skilfully grow businesses and start-up ventures both in the United States and in new and emerging markets around the world. Mr. Conti became CEO and President in 1995 and has since expanded the group to serve sovereign nations working with Fortune 500 firms. Under his guidance, Conti has completed over $4 billion in projects in more than a dozen countries. The firm's market focus includes infrastructure, energy, industrial, natural resources, environmental and security. His expertise encompasses all aspects of project development from strategic planning and capital financing, to engineering, construction and asset management. An honors graduate in Civil Engineering from Villanova University, Mr. Conti received the College of Engineering Alumni Award for Outstanding Leadership in 2012. He is a Harvard University Business School 2000 alumnus of the Owner/President Management Program and a 2012 recipient of Ernst & Young's prestigious Entrepreneur of the Year award. Mr. Conti is known for his humanitarian efforts as a pillar in the community, and recently received the Great Oak Award which recognizes attributes such as "sturdy and solid, capable of impressive growth, and able to bend and change with the times… in it for the long haul."

Mr. Dimitri Tvildiani is a successful international medical entrepreneur. He founded David Tvildiani Medical University (DMTU) in 1991. Named after his father, who was a prominent medical physician in Georgia, Mr. Tvildiani continues to contribute to the medical sector in Georgia. DTMU has been providing medical education to US standards

giving Georgian students the opportunity, after graduating, to go to the United States for residency programs in prominent US medical hospitals. DTMU has produced 30 to 40 graduates every year for the past 25 years, most of whom are now licensed physicians in the US. He is an honours graduate of Tbilisi State Medical University PhD and a Fellow of the Institute of Transplantation and Artificial Organs, Moscow.

1.3 **Project rationale**

The rationale for the project is driven by:

- The evident rapidly increasing demand for high quality healthcare in Georgia. This is driven by rising income levels, increased education and expectations, and rapidly aging population.

- The shortage of high quality local care – evidenced by the increasing numbers of local people who seek healthcare abroad every year.

- The current investment climate which is highly supportive of the private health sector.

Specifically, the project aims to attract middle and higher income class Georgians, many of whom currently travel abroad for treatment, by providing:

- a US-standard hospital facility which, crucially, will employ a core team of US-trained doctors (i.e. expat Georgians working in USA) and international management.

- Specialist services which are particularly demanded by patients who seek care abroad.

1.4 **Project objectives**

The project primary objectives of the project are:

- To deliver important social benefits to Georgia. These include higher medical standards and local employment opportunities for local and expat Georgian healthcare professionals.

- To achieve attractive investment returns for longer term (5-10 years) investors.

1.5 **Country snapshot**

Population: 4,476,900	GDP per capita: 3570
Total health spending per person: USD350	Private health spending as % of total: 78%
Life expectancy: 74 years	% GDP spending on health: 9.2%

1.6 Project management

1.6.1 Project team and roles

Inception stage team composition:

Name	Role	Qualifications & Experience
Levan Akhvlediani	Development project interim CEO	11 year experience in corporate finance and trade
Zurab Pichkhaia	Development project interim CFO	11 year experience in banking and finance.

The project concept was inspired by Mr. Dimitry Tvildiani and team of Conti Group's professionals together with TBC Holding participated and contributed to project creation.

1.6.2 Project oversight

The Sponsors have incorporated a separate company, AHT Man Co JSC, through which they will own shares in American Hospital in Tbilisi JSC. AHT Man Co will undertake the development process of the Project until the Hospital becomes operational.

The project oversight will be the responsibility of AHT Man Co (JSC), who will inter alia ensure engagement of the project team and will monitor the progress of the Hospital development on monthly bases.

Development Team is being formed, including: Project CEO, Medical Expert, Design Team and support staff. Jointly the team will carry out day-to-day management processes and will be accountable to AHT Man Co. Consequently AHT Man Co will assume responsibility for project oversight vis-à-vis AHT JSC shareholders until such time when the Hospital becomes operational and which point, a five member supervisory board will be formed to ensure healthy corporate governance of the entity.

1.7 Health sector investment climate

1.7.1 Overview

There are no hard and fast rules as to what constitutes a successful investment climate for private healthcare, but the following are recognized as essential factors:

- economic stability and growth;
- a supportive regulatory environment;
- prevalence of private health insurance and employers who will pay for health coverage;

- patients who are able and willing to pay for health services;
- availability of qualified health workers.

This section explores the extent to which these factors are prevalent in Georgia.

1.7.2 **Economic stability and growth**

Health spending is closely correlated to GDP, and growth in spending on health is closely correlated with GDP growth. Over time health spending tends to rise at two percentage points above GDP growth. (Eg if GDP growth averages 5% for several years, healthcare spending will grow by 7% on average).

Georgia has one of the fastest growing economies in Eastern Europe. Real GDP grew at a CAGR of 5.9% between 2004-13. The World Bank forecasts future growth of 2%.

Georgia is open for FDI with an investment-friendly environment: The World Bank ranks Georgia 15th in the world for its ease in doing business, making it one of the top global economies for starting and operating a business.

The country offers a liberal and straightforward low tax regime, a competitive cost of labour and energy, a pro-business and corruption-free government, a stable financial sector, and a very low crime rate.

Georgian government efforts to reduce corruption in the public and private sectors have significantly improved Georgia's ranking in the Corruption Perception Index by Transparency International (from 130 to 50). The Heritage Foundation ranks Georgia as the 22nd freest economy in the world.

In 2014, Moody's affirmed Georgia's BA3 rating and changed the outlook on sovereign rating from stable to positive. Fitch also affirmed Georgia's BB-rating and changed the outlook from stable to positive.

1.7.3 **Regulatory and policy support**

For more than a decade Georgia has consistently supported the development of the private health sector through pro-market policy statements and regulatory measures, eg including privatisation and PPPs. The government approach to commercial healthcare is generally "laissez faire", with "light touch" regulation and oversight.

Georgia is unusual in that much of the state's healthcare assets have been privatised.

Specific measures that support the development of the private health sector include:

- No price controls for health services, drugs or medical products,
- No restrictions on profitability,
- No restrictions on healthcare staff working in the private sector,
- No restrictions on ownership of healthcare facilities (eg by foreigners, insurers, pharma companies, for-profit entities etc),

- No VAT or sales taxes on healthcare services,
- Reliefs on import duties for medical equipment and supplies,
- Tax relief on employer-paid health insurance,
- Ease of licensing for new facilities,
- Governmental program of social insurance covering hospital services up to 6000 USD per year and additional 5000 USD for oncology treatments.

Also, importantly, private providers may contract with the state-run social health insurance (SHI),

There have been no unexpected significant changes regarding healthcare policy, and none are expected to the general direction of support for the current highly market-oriented system.

1.7.4 **Availability of private medical insurance**

All Georgian citizens are covered by some form of SHI. Additionally, private medical insurance (PMI) now covers some 500,000 people (about 12% of the population). There are 14 PMI companies, with six dominating the market:

- Aldagi BCI
- GPI Holdings
- IMEDIL (Aldagi Group)
- Alfa
- IC Group
- Irao

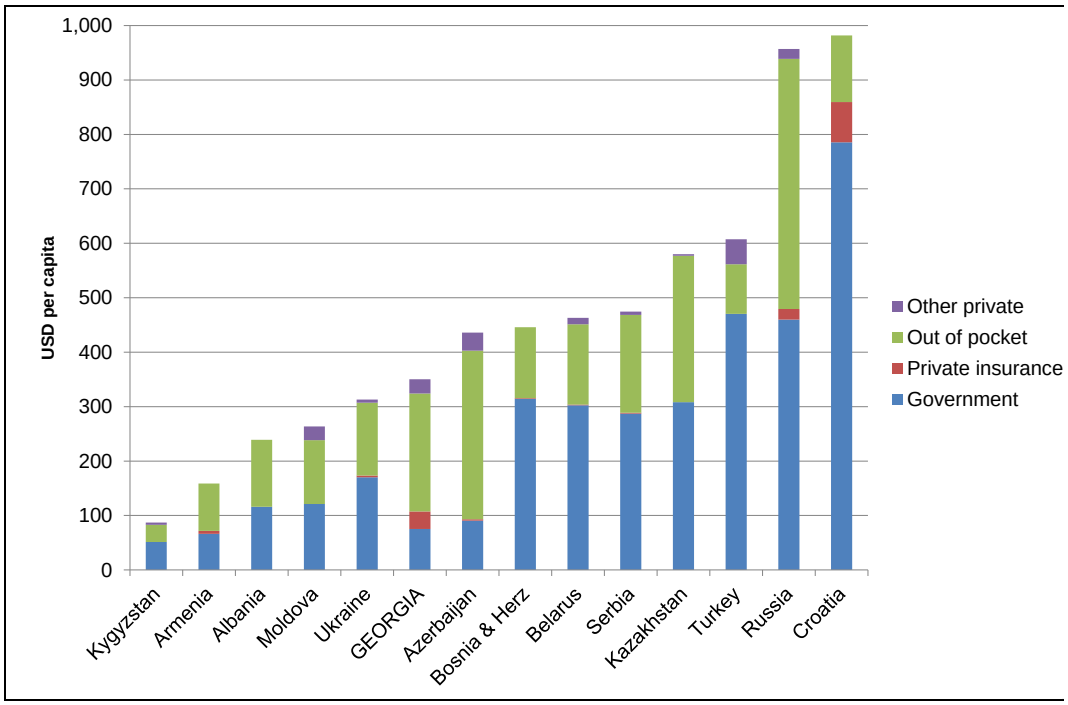
The average annual premium per person is about GEL36 (c.US$200) making the PMI market worth roughly US$100 million per year.

1.7.5 **Ability and willingness to pay for healthcare**

Georgia's total health spending represents 9.2% of GDP – meaning that Georgians spend much more as proportion of their wealth compared with most developing (and many developed) countries.

Also importantly, there is a well-established culture of paying for healthcare in Georgia. Compared with other countries Georgians pay for a significantly higher proportion of their healthcare out-of-pocket – see Figure 1 below, which compare health spending in Georgia with comparable countries in Eastern Europe and former CIS.

Figure 1: Healthcare expenditure by category and country



Source: WHO 2013 data (USD at actual exchange rates)

And out of all former CIS countries only Russians pay more out-of-pocket per person.

1.7.6 **Availability of qualified staff**

Although WHO statistics show relatively high numbers of healthcare staff in Georgia (a legacy of the Soviet health system), skills are generally low across all professional cadres and all local hospitals report recruitment problems. Skills are improving as more staff have access to overseas training opportunities.

1.7.7 **Summary assessment**

Considering the key determinants of a conducive private health sector investment climate, the Georgian environment is generally positive overall. Plus factors include continued strong economic growth, a well-established concept of paying for health care, and a favourable policy environment. Key challenges include skills shortages across all main healthcare cadres, a relatively small population, and generally low income levels. Georgia's "fit" against key health sector investment climate criteria is summarized in Table 1 below.

Table 1: Summary assessment of Healthcare Investment Climate in Georgia

Criteria	Rating
Economic stability and growth Strong economic track record, and economic growth of 5% projected.	***
Supportive regulatory framework Overall business environment ranked 15th out of 189 countries by World Bank. Government policy supportive of development of private health sector.	***
Patients ability and willingness to pay for health care services Per capita health spending – *c.*USD350, and increasing as living standards rise. Low average incomes, but well-established culture of willingness to pay for health care.	**
Maturity and development of private medical insurance Private medical insurance sector expanding with 12% population coverage. All citizens covered now by social health insurance. Low reimbursement rates.	**
Availability of qualified staff Shortage of experienced hospital staff in all main professional cadres. Shortage less acute in Tbilisi.	*

*** = excellent; no stars = poor

The most favourable location is clearly Tbilisi where there is an increasingly affluent middle class and higher numbers of professional staff.

1.8 **Competitor analysis**

1.8.1 **Overview**

The Tbilisi health sector is fragmented and highly competitive. It consists of numerous small clinics and physician practices. Many are located within former state facilities. In contrast with most former CIS countries, state sector hospitals in Georgia are not active players in the private healthcare market.

Following rapid market evolution and growth, several hospitals have emerged as industry leaders. These include:

1.8.2 **lMediClub**

MediClub is a premium segment 65 bed purpose-built hospital opened in 2010. It is commonly perceived to be the "best" hospital in Tbilisi. It is a member of American Hospital Association and aims to acquire JCI accreditation in 2016. MediClub has three operating rooms and employs about 200 staff, including 35 doctors and 98 nurses. Main specialties include:

- Interventional Cardiology
- Gynaecology
- General Surgery
- Paediatrics
- Urology
- Orthopaedics
- ICU and HDU
- ER
- Cancer surgery
- Chemotherapy
- General medicine
- Occupational health
- CT (16 slice)
- Ultrasound
- X-ray
- Laboratory

(Obstetrics, radiotherapy, cardiac surgery and MRI are not provided. The cath lab is under-utilised).

Income sources are Social Health Insurance (60%), PMI and corporates (30%), and cash (10%).

1.8.3 **"Todua" Research Institute of Clinical Medicine**

Todua is a well-equipped 40 bed hospital serving the premium income segment. Occupying a former state railway workers' hospital, it has 5 operating rooms and employs 250 staff, of whom 70 are doctors. Services include:

- Radiation therapy (2 x linacs)
- Cancer surgery
- General Surgery
- Paediatrics
- Urology
- Orthopaedics
- ICU
- ER
- Neurosurgery
- Chemotherapy
- Gynaecology
- IVF
- 3 x CT (incl 64 slice)
- 5 x MRI (incl 3 Tesla)
- Nuclear medicine
- Laboratory

(Interventional cardiology, cardiac surgery and obstetrics are not provided). About 40% of income is cash, with the remainder from SHI and PMI.

1.8.4 **Georgia Healthcare Group**

GHG is an integrated healthcare insurer and provider. It is major national mass market player which operates 29 hospitals with 2,140 beds (22% of Georgia's private hospital beds). Following a strategy of rapid acquisition, it now employs c.8,011 full time employees, including 2,394 doctors. Revenues for the hospital business in 2014 were GEL 138 million (USD 60 million), with an EBITDA margin of 27%.

GHG aims to increase its foot-print in Tbilisi. In 2014 it acquired 4 companies (Caraps, Avanti, Sunstone, Traumatology) with a total capacity of around 600 beds in the city.

http://ghg.com.ge/

1.8.5 **Other players**

Gudushauri Clinic	Highly utilised clinic providing specialised services.
Aversi	Owned by a pharmaceutical company. Provides specialist services, including neuro-surgery. Engages foreign visiting doctors (from Turkey). http://www.aversi.ge/
High Technology Medical Center - Ingorokva University clinic	Ingorokva University Clinic is 205 bed hospital offering wide range of services, including oncology to the population. Services include: • *General Surgery* • *Neurosurgery* • *Endovascular Neurosurgery* • *Emergency, Anaesthesia and Reanimation* • *Traumatology* • *Orthopedy* • *Diagnostic and Interventional Radiology* • *Radiation Oncology* • *Kidney Transplantation Therapy* • *Urology* • *Cardiology* • *Laboratory*
Jo Ann Medical Centre (JAMC)	Opened in 1996 in the premises of a former state hospital. JAMC operates as a not-for-profit organization, specialising in paediatric cardiac surgery. It was established with support from foreign (mainly US) foundations and donors which provided funds and training, mainly from visiting US doctors. http://jamc.ge/
Open Heart Clinic	Established in 2002. Initially used visiting overseas doctors to perform operations.
Republic Hospital	Main state hospital. c.100 beds. Major emergency dept. Does not operate commercially but commonly refers/transfers patients to private facilities.

1.8.6 **New entrants**

Potential new entrants include:

Lancet Medical Centre: This new Azeri-backed hospital initially failed and is now under new management.

http://mclancet.com/

American Hospital Tbilisi: A similarly-named "AHT" is planned by Azeri investors on a local brownfield site. The sponsors have commissioned American Hospital Management Company (a specialist international management services company) to manage the facility. Cardiac and cancer services are planned. The project is early stage and appears to be moving very slowly.

http://www.americanhospitalmanagement.com/?attachment_id=2945

2 Services and facilities

2.1 Services profile

AHT will focus on providing specialist oncology (cancer), orthopaedics, cardiac and surgical services.

The main services are set out below.

Treatment services			
Specialised surgery	▪ General surgery	▪ Gynaecology	▪ GI
	▪ Urology	▪ Vascular surgery	▪ ENT
Neurosurgery	▪ Brain surgery	▪ Vertebral surgery	Peripheral surgery
Orthopaedic surgery	▪ Joint replacement	▪ Fractures	
Cardiac	▪ Interventional cardiology	▪ Electro Cardiology	
Oncology	▪ Radiation therapy	▪ Chemotherapy	▪ Radiation Surgery
High Dependency Care	▪ Care for emergency transfers		
Outpatient services	▪ Range of general medical consultation services	▪ Emergency room	▪ Minor procedures
Dialysis			
Diagnostic and support services			
Radiology	▪ CT	▪ MRI	▪ X-ray
	▪ Fluoroscopy	▪ Mammography	▪ Bone densitometry
	▪ PET/CT	▪ Linac	▪ Proton Therapy

	▪ Ultrasound	▪ Endoscopy	▪ EKG/EEG/Holter
Laboratory	▪ Biochemistry	▪ Haematology	▪ Histopathology
	▪ Microbiology	▪ Cytology	▪ Blood storage
Clinical support	▪ Physiotherapy	▪ Rehabilitation	▪ Home therapy

Notes:

Emergency services: Admissions will be mainly elective (planned). High cost 24/7 trauma services will not be provided. The HDU will receive transfers from trauma hospitals, under formally agreed transfer arrangements. The ER room will mainly cater for unplanned consultations and "walking wounded" in order to stabilize patient condition. (This is similar to the arrangements in other commercial hospitals, including MediClub).

PET: AHT aims to provide PET scanning as a unique offering in the local market. PET is a diagnostic tool that is increasingly used to support the treatment of cancer. Crucially however, there are currently no cyclotron units in Georgia to manufacture the required nuclear isotopes (FDG); therefore one would also need to be constructed. New cyclotron unit to be installed.

Outpatient services: A range of general medical services will be provided beyond the range of defined inpatient services – ie to provide for routine healthcare needs. These will likely include general medicine, endocrinology, neurology, gastroenterology and ENT. Direct access to diagnostics (radiology and laboratory) will be provided, ie without requiring an AHT outpatient consultation. (The 24/7 emergency room will service out-of-hours outpatients, walk-ins, minor injuries, and "walking wounded"). The rationale is to enhance the hospital brand (by providing high quality "everyday" healthcare) and to generate referrals for higher value diagnostic and treatment services.

Excluded: Maternity services will not be provided.

Appendix I provides a more detailed list of services.

2.2 Key facilities

AHT will be a purpose build hospital, constructed to US specifications. Key facilities will include:

Facilities	Capacity	Notes
Clinical facilities		
Inpatient wards: ▪ Surgery – General	Total 80 single rooms 20 beds	Rooms will be designed with flexibility to accommodate 2 beds.

Facilities	Capacity	Notes
▪ Surgery – Neuro ▪ Surgery – Orthopaedic ▪ Surgery – Oncology ▪ High dependency ▪ Interventional cardiology/Coronary care unit (CCU)	15 beds 15 beds 10 beds 5 beds 15 beds	All beds to be served by central gas supply and vacuum/suction. Bed numbers by specialty are indicative, as most rooms will be multi-purpose/specialty.
Tele-monitoring	✓	Will be required for single rooms, especially for higher dependency patients.
Operating rooms	4 rooms	Equipped with negative pressure, required for neuro, cardiac and orthopaedic surgery.
Cardiac catheterization suite	1 cath lab	
Dialysis ward	10 units	
Chemotherapy ward	10 couches	
Radiation therapy	1 x linear accelerator ("linac"). Capacity in bunker for 2	Linac or gamma knife.
Linac Simulator	1 simulator	
Outpatient suite	20 rooms	Including minor procedures and ER consultations).
Diagnostic facilities		
CT scanner	1 scanner	At least 64-slice specification
MRI scanner	1 x scanner	
General radiology	1 x X-ray, 1 x fluoroscope, 1 x mammography	

Facilities	Capacity	Notes
	unit, 1 x bone densitometer, 3 x ultrasound.	
PACS	✓	
Cyclotron unit	✓	
PET scanner	✓	
Laboratory	✓	
Clinical support facilities		
Colposcopy suite	1 suite	
Endoscopy suite (diagnostic, therapeutic)	1 suite	
Pharmacy	✓	
Ambulances	2 vehicle	
Other facilities		
Training centre	Capacity for 200 people	To include meeting room, auditorium/conference hall, and library.
Mortuary/cold room	✓	
Laundry	✓	Include in physical specification. Will consider outsourcing.
Kitchen	✓	Include in physical specification.
Car-parking	200 spaces	

Appendix II sets out a more detailed schedule of facilities.

The land "foot-print" of the site is 2.5 hectares.

The total estimated building capacity is 9,000 sq m. (This excludes any "shell" space that may be added for future expansion).

The exact building footprint, number of floors etc. will be determined at architectural/design stage. Current estimate is 4 floors plus one basement floor (with radiation protection) will be required to house the linac and other equipment with Gamma radiation.

3 Business model

3.1 Target market

AHT will target three specific categories of patients:

- Local premium income segment: AHT's core target market will be the growing local middle class population in Tbilisi. Specifically, this includes A and B income segments. Approximately 5% of the population of Georgia (roughly 225,000 individuals) has an after-tax income above GEL1,500 (US$670) per month, or an annual income above GEL18,000 (US$8,000) per year.

  Of this 225,000, 110,000 Georgians receive annual income above US$12,000 per year. About 40,000 Georgians have annual income above US$20,000 per year, and an estimated 6,000 to 8,000 Georgians have annual income above $30,000 per year.

  Approximately 400 individuals in Georgia are believed to earn income of greater than GEL120,000 (US$53,000) per year Given the anticipated price point of AHT's medical services, it is expected that 330,000 Georgians (297,000 in Tbilisi) would be the target market for the Hospital.

  Note: This numbers are based on the official statistics only. High income population might be much higher.

- *Outward medical tourists:* Specifically targeted are those patients who currently travel abroad for treatment (and/or diagnosis). More than ten thousand Georgians are estimated to travel abroad for healthcare every year – mainly to Turkey, and frequently for the specialist services that AHT will provide.

- *Inward medical tourists:* Over time, AHT will target patients in nearby countries (eg Azerbaijan and southern Russia). Local clinics such as MediClub and Todua already attract patients from these countries.

3.2 Payer profile

Considering the specialist, high value service profile and target market most payment is expected to be in cash. The ratio of cash to insurance (PMI and SHI) is expected to be around 80/20. This is almost the reverse ratio of local premium competitors (eg MediClub and Todua) which cater heavily towards insurers and corporate payers.

Importantly, it is anticipated that the adult children of elderly patients will represent a major payer group. This is because the AHT services tend to mainly affect older people, who typically do not hold PMI and have lower levels of wealth.

3.3 Competitive advantages

Competitive advantages for attracting premium-class patients will include:

- Purpose built state-of-the-art facility and equipment.

- US-trained doctors, committed to work with AHT.
- Convenient location and parking space.
- High quality service and care environment.

JCAO accreditation will help to attract insured foreign patients.

3.4 **Referral sources**

AHT will attract referrals through several main channels:

- Local clinics. AHT will cultivate relationships with local clinics and diagnostic centres to attract patients requiring specialist diagnosis and treatment. Reciprocal agreements would mean that AHT would also refer back patients for services it does not provide. In common with local practice, referrals may require incentive payments (such as commission, admin fees, or shared service fees) – subject to what is legally/ethically permitted.
- State hospitals: Transfer arrangements will be agreed with state hospitals, such as Republic Hospital, to transfer trauma patients they receive, including emergencies. For example, AHT can provide post-trauma specialist treatment, such as orthopaedic, cardiology and neurosurgery, or HDU medical care.
- Outpatient centre. The higher volume outpatient department will generate a proportion of patients who will require more specialist diagnosis and treatment.
- Diagnostic services: Similarly, by allowing direct access to routine and specialist diagnostic services, a proportion of patients will require follow-up investigation and treatment.
- Emergency room: Some patients attending the ER will require additional services – especially diagnostic services, orthopaedics and cardiology. (MediClub's ER is an important source of hospital admissions - around 10,000 patients attend annually).
- Own local clinics: AHT is considering establishing local neighbourhood clinics in advance of the hospital opening in order to establish the brand and to help generate early referrals.

Of course, conventional marketing channels will also be used. These will likely include medical education/training events, public health campaigns, social media promotion etc.

As AHT eventually develops a reputation for excellence, word-of-mouth will become increasingly important factor in attracting patients.

3.5 **Physician model**

The hospital will employ a combination US-trained and local doctors. Most doctors will be employed exclusively and full-time.

Remuneration will be a combination of base salary plus performance related pay – likely 50/50 in proportion.

Some local visiting doctors will selectively be awarded rights to admit and operate on their patients at AHT – e.g. under a fee-sharing arrangement.

Occasional specialist opinion will be contracted as required from local and international experts.

3.6 Pricing strategy

In line with local practice, pricing will be based on itemised fee-for-services – rather than "package pricing". (This is also the common practice in neighbouring countries such as Turkey and Russia).

Prices will be set at premium levels to the local market.

Actual assumptions about price levels are described in section 5.1.4 below.

3.7 Key revenue generators and profit centres

Revenue will be mainly generated from inpatient services – 68%.

In line with international commercial practices, key profit centres will be:

Procedures	▪ Operating rooms/surgeries	▪ Radiation therapy	▪ Dialysis
	▪ Chemotherapy		
Diagnostics	▪ Radiology	▪ Laboratory	
Sales	▪ Drugs	▪ Medical devices	

Loss-leading/lower profit areas will likely include: room charges, consultation fees, physiotherapy/rehab.

3.8 Outsourced services

Services which will be market-tested for outsourcing include:

▪ Security	▪ Laundry & linen	▪ Cleaning	▪ Sterilisation of instruments (CSSD)
▪ Grounds/gardening	▪ Buildings maintenance	▪ Equipment maintenance	▪ Waste mgmt.
▪	▪ Blood bank	▪ Pest control	▪ Management services

Additionally, tenders for management services will be invited from international hospital management companies.

A detailed schedule of services considered for outsourcing is set out in Appendix III.

3.9 **Physical asset management**

Hospital land and buildings will be owned by AHT.

Hospital equipment will generally be owned – although leasing arrangement with suppliers will be explored if feasible. (This particularly relates to high value specialist equipment such as cyclotron and PET).

Neighbourhood outpatient clinics, if established, would be rented.

4 Preliminary capital planning assumptions

The estimated capex cost is summarised in Table 2 below.

Table 2: Estimated project costs

	USD
Land	1,250,000
Equipment	19,995,390
Building	11,557,887
Capitalized Interest – Debt	1,032,044
Budget for the construction period	3,209,360
Total Capex	**37,044,681**

The land cost is based on local valuation.

Building costs are calculated using departmental space estimates and a standard construction cost per meter of USD 1,250. This is based on a regional hospital building norm of USD 1,050 per sq m + USD 200 contingency.

Equipment costs are based on price research relating to main suppliers.

The project is expected to take two years prior to opening.

A detailed capex schedule is set out in Appendix IV.

5 Projections

5.1 Key assumptions

5.1.1 Summary of key assumptions

All key assumptions aim to reflect the actual experience and performance of hospitals in emerging markets elsewhere. Specifically:

- Ramp up of patient numbers will be in line with greenfield developments elsewhere, and take five years to reach maturity.
- Peak occupancy/utilisation at maturity will be 75%.
- Bed utilisation (inpatient admissions per bed) will be in line with emerging markets hospitals' performance.
- Prices will be premium to local market and 30% lower than premium Turkish hospitals.
- Inflation will be 3%.
- Staffing numbers have been determined bottom up with ratios per bed in line with emerging markets norms. Recruitment will be phased – so 50% of staff will be in post in year 1 of operation, rising to full staff complement in year 5.
- Staff salaries are in line with local premium sector hospitals. Salaries for US-trained doctors are near US levels.
- Non-pay costs set are calculated as a proportion of revenue and in line with Georgian hospitals.

These assumptions, and the resulting projections, are discussed in more detail below – including comparison with actual experience of existing private hospitals in emerging markets.

5.1.2 Ramp-up of patient numbers

Activity is projected to ramp up in line with the actual experience of greenfield hospitals elsewhere – i.e. where new hospitals have been developed by organisations with no prior market presence. See Table 3 below.

Table 3: AHT projected utilisation ramp up

Year of operation	1	2	3	4	5	6	7
Capacity utilisation	20%	40%	50%	60%	75%	75%	75%

Sources: Experience of greenfield hospital investors including IFC and EBRD.

Thus the hospital is expected to take 5 years to reach maturity with utilisation projected to peak at 75% from year 5 onwards.

5.1.3 **Asset utilisation**

Utilisation of services is based on local industry performance as summarised in Table 4 below.

Table 4: Productivity ratios

Inpatient services	**AvLOS**	**Activity unit**
Interventional Cardiology	3.0	days
Surgery – General	5.0	days
Surgery – Neurologic	9.0	days
Surgery – Orthopaedic	7.0	days
Surgery – Oncology	5.0	days
High Dependency Unit	8.0	days
Average inpatient	***5.8***	days
Other services	**Work rate**	**Activity unit**
Outpatient Department	3	Consultations per hour per room
CT	2	Scans per hour per scanner
MRI	1.5	Scans per hour per scanner
Radiotherapy	1.5	Session per hour per linac
Chemotherapy	2.5	Sessions per day per couch
Dialysis	2	Sessions per day per dialysis unit

Sources: Local hospital research

5.1.4 **Pricing**

Because many of the targeted patient population would generally consider treatment abroad, AHT plans prices that are about 30% lower than premium Turkish hospitals (the main destinations) and above/comparable with local premium clinics - see Table 5 below.

Table 5: Price Comparison – AHT vs Domestic and Foreign Competition

Services	**Average of premium local hospitals**	**AHT Prices**	**Average in Turkish Medical Tourism Destinations**
Surgery - Cardiac	4,783	**5,000**	10,000
Surgery - Special	4,916	**5000**	10,000
Surgery - Neurologic	8,769	**9,000**	15,000
Surgery - Orthopedic	1,643	**2,629**	9,000
Surgery - Oncology	2,500	**5,000**	15,000
HDU	1,400	**2,240**	2,240

Sources: Local and online research

Using these and workload assumptions, the estimated average revenue per inpatient is at USD4,837.

A similar approach is taken regarding ambulatory diagnostic services – see Figure 2 below.

Figure 2: Average fees for ambulatory and diagnostic services

Service	Activity unit	Average revenue
Outpatient	consultation	30
CT	scan	150
MRI	scan	300
Radiotherapy	session	500
Histopathology	sample	60
Chemotherapy	session	100
Dialysis	session	100

Sources: Local and online research

5.1.5 Staff numbers and recruitment

Staff numbers were developed bottom-up using the following ratios – see Table 6 below

Table 6: Staffing ratios per bed at full capacity

Staff group	No per bed
Doctors	0.4
Nurses	1.0
Para-medic & Technical	0.25
Management and administration	0.25
Support	0.4
Total	***2.3***

Source: Review of staffing in hospitals internationally, and taking consideration of local medical practices

Staff recruitment is expected to be phased at the same rate as patient numbers – i.e. over 5 years. However 50% of staff will be recruited in the opening year, reflecting that a minimum fixed number of staff will be required even for low patient numbers – see Table 7 below.

Table 7: Projected recruitment of staff, years 1-5 of AHT operation

Year of operation	1	2	3	4	5
% of total staff in post	50%	70%	90%	95%	100%

5.1.6 Salaries

Staff salaries are in line with local premium sector hospitals. Salaries for US-trained doctors are at US/international levels for the commercial health sector – see Table 8 below.

Table 8: Average staff salary costs per FTE

Staff cadre	Ave cost USD	Notes
International leadership	210,600	
US doctors	210,600	

Staff cadre	Ave cost USD	Notes
Local doctors	36,000	
Nurses	15,000	Assumes 50/50 registered (24k) and assistants (6k)
Para-medic & Technical	24,000	Same as registered nurses
Mgmt and admin	36,000	
Support	10,000	

Sources: Local hospital research, estimated US/expat salaries.

5.1.7 **Non-staff costs**

The main non-staff costs have been estimated as follows:

Cost category	Assumption	Basis
Drugs and supplies	13% of total revenue	Based on GHG costs
Utilities & maintenance	5% of total revenue	Based on GHG costs
Marketing fees	4% of total revenue	Based on local market costs
Training (first 5 years)	USD 250,000 for first 5 years; USD from year 6.	Based on expected training requirements.

Importantly, all non-staff costs (excl training) ramp up at the same rate as recruitment – to reflect some that costs will be incurred in early years even at low workload levels.

5.2 **Projections and validation**

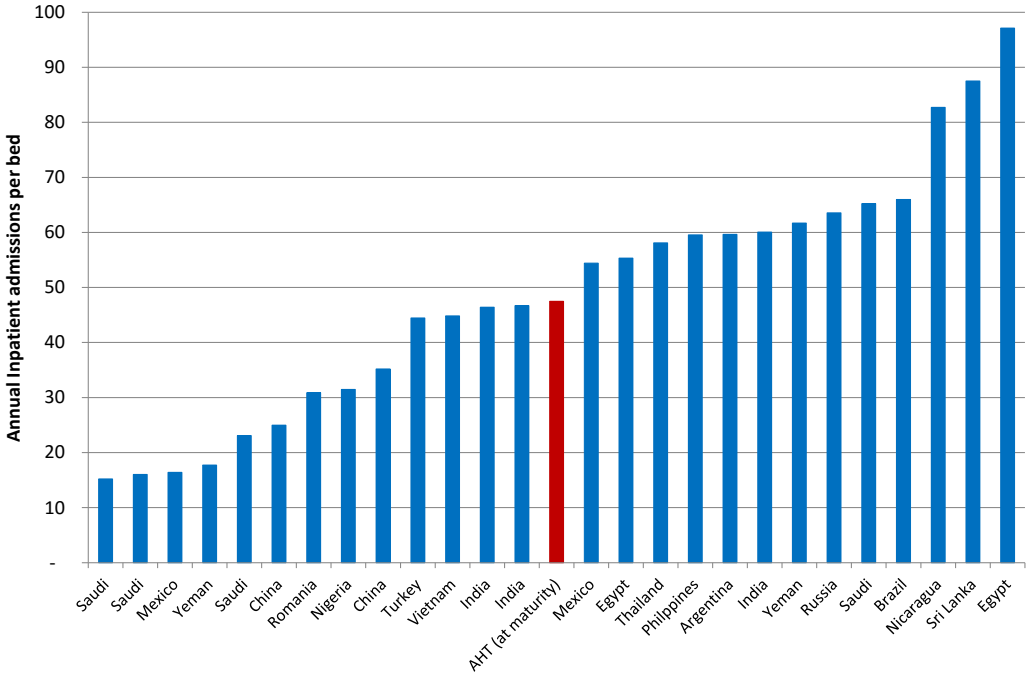
This section summarises the projections resulting from the assumptions described above. It also examines the validity of the projections – particularly by comparing them with the actual experience of private hospitals elsewhere.

Note: Per-bed ratios can vary widely due to many factors, but still can serve for useful "rule of thumb" comparison.

5.2.1 **Bed utilisation**

Based on the assumptions of AvLOS = 5.8 days and peak occupancy of 75% AHT is projected to achieve 47 admissions per bed annually at maturity. See Figure 3 below which shows how this compares with the performance of DFI-invested hospitals in other emerging markets.

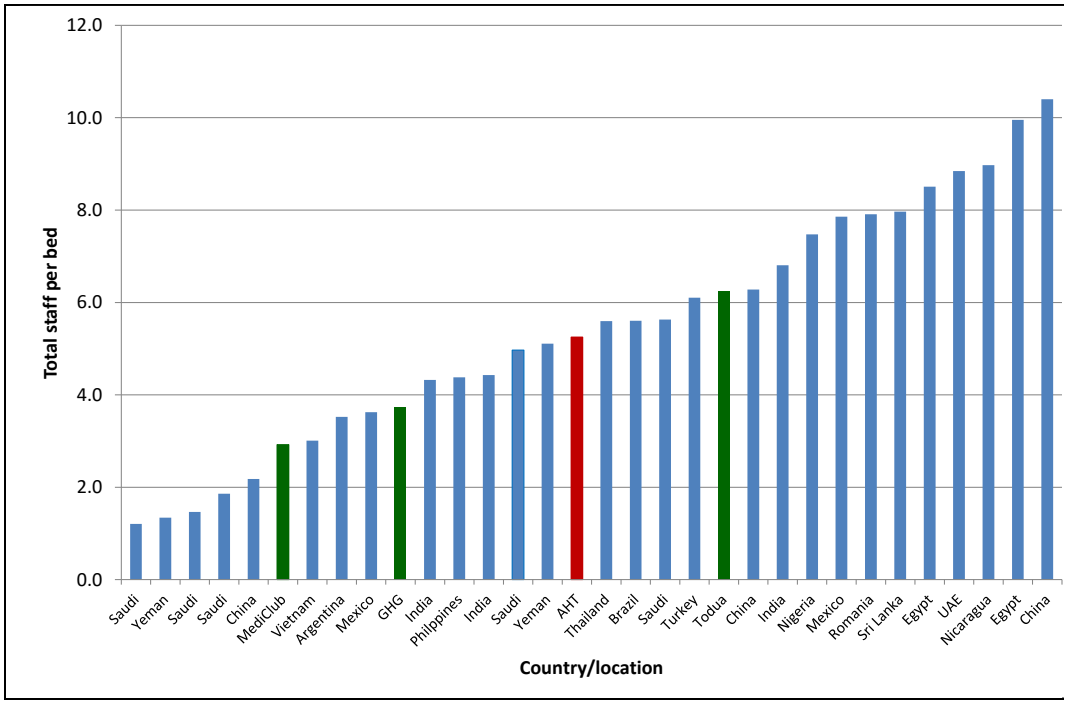
Figure 3: Comparison of hospital bed utilisation



5.2.2 Staff numbers and recruitment

Based on the assumptions described above, at maturity AHT will employ a total of 420 staff at maturity. This represents an overall ratio of 5.25 staff per bed - which is around the average ratio for hospitals in other emerging markets, and in Georgia – see Figure 4 below.

Figure 4: Staffing ratios in emerging markets hospitals, including Georgia



Source: Public data from DFI-invested hospitals; local hospital research.

This analysis shows AHT to be "mid-range" regarding staff numbers internationally, and among local hospitals.

5.2.3 **Revenues**

Based on the patient workload and pricing assumptions above, revenues are projected as in Table 9 below.

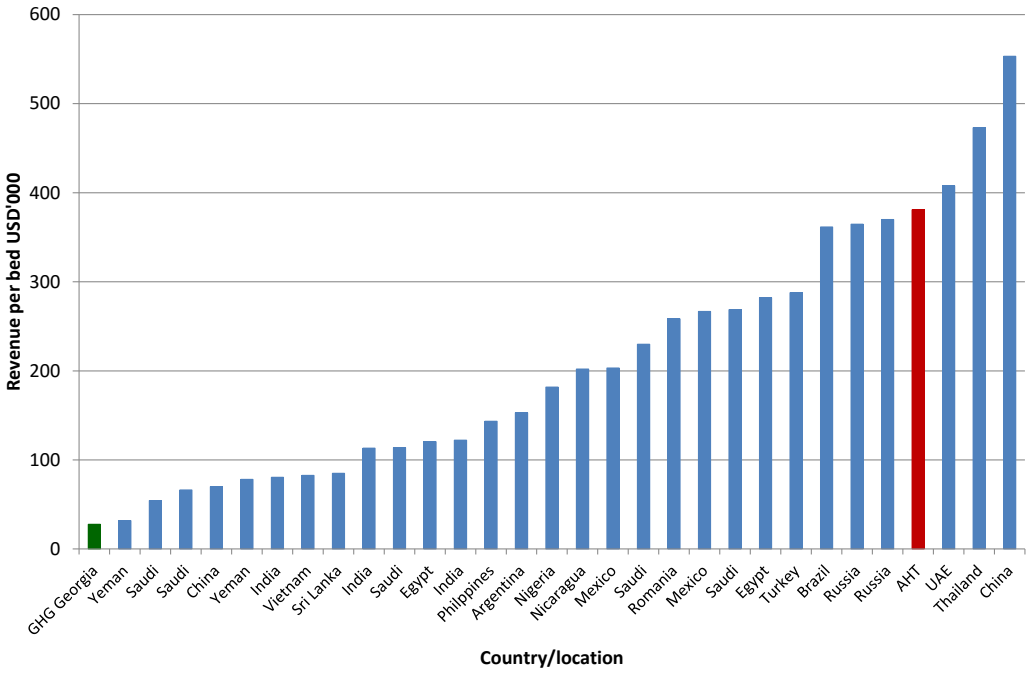
Table 9: Summary revenue projections

Thousand USD

Year of operation	1	2	3	4	5
Inpatient revenue	8,194	13,930	18,540	20,350	22,261
Ambulatory & Diagnostic Revenue	3,027	5,564	7,033	8,555	9,475
Total revenue	**11,221**	**19,494**	**25,573**	**28,905**	**31,736**

Thus, at maturity, represents an average revenue per bed of USD 380,852. **Error! eference source not found.**5 below shows how this compares with hospitals in emerging markets, including GHG (highlighted in green).

Figure 5: Comparison of revenue ratios among selected emerging markets hospitals



Source: Public data from DFI-invested hospitals and from GHG.

This analysis shows mature AHT to be close to the top quartile of earners, and more than ten times higher than GHG (currently earning revenues of USD 28 per bed).

5.2.4 **Profitability**

Based on the assumptions, EBITDA projections are shown in Table 10 below.

Table 10: EBITDA projections for first 5 years

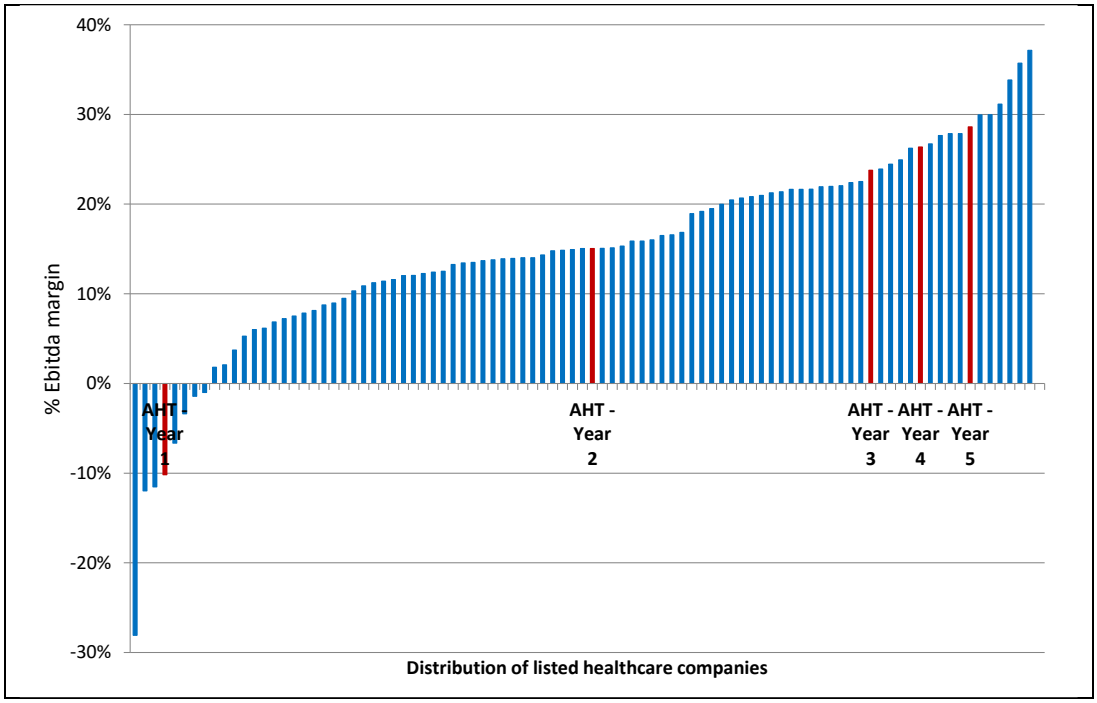
Thousand USD

Year	1	2	3	4	5
EBITDA	(1,021)	3,194	5,573	7,265	8,549
EBITDA margin	*(9.1%)*	*16.4%*	*21.8%*	*25.1%*	*26.9%*

These are broadly in line with performance of greenfield hospitals elsewhere – i.e. losses in Year 1, EBITDA breakeven in Year 2 and gradually increasing profitability to maturity around year 5.

A comparison with the actual EBITDA margins of listed healthcare companies worldwide is shown in Figure 6 below.

Figure 6: AHT profitability compared with listed healthcare companies worldwide



Source: Bloomberg

These data show that AHT projections, including at maturity are within the levels achieved by hospitals internationally, that we believe is achievable given the market segment and niche profile of the hospital.

6 Key success factors

Greenfield hospitals are complex and risky. AMT will maximise its probability of success by taking account of observed industry-wide key success factors.

Clarity and coherence of strategy

The project will be clearly defined, particularly regarding:

- Services profile – including core services, and what will and will not be provided,
- Facility scale and specification – including key equipment inventory
- Business model – defining how the facility will generate revenues and make profits.

The team will ensure that these aspects are aligned. This early planning will ensure that efforts are then focused on delivery and not distracted later by competing professional preferences and personal priorities.

Project oversight

An experienced and competent team will be charged with overseeing the project from concept stage through to hand-over of the facility to the operational team – ensuring project accountability and continuity. A development director/CEO will lead a team combining full-time staff and expert advisers. Key team skills will include: medical, nursing, engineering, architectural, and financial. Throughout the process, oversight will be maintained by the sponsors.

Quality proposition

Quality excellence will be core to AMT's philosophy. In contrast with many healthcare organisations which have loosely-stated aspirations towards quality, AMT will define its quality proposition. In addition to the "look and feel" of the facility, key aspects will include:

- Patient safety
- Clinical effectiveness
- Patient experience and satisfaction.

The QA philosophy will be institutionalised by early adoption of JCI standards.

The facility design will incorporate a positive therapeutic environment, eg through use of light, space and colour. Plans will take account of safety (eg infection control, fire) and efficient patient flows (eg to/from operating rooms).

JCI specialists will review the building designs prior to sign-off.

Professional management

In contrast to the "Chief Doctor" management model that is common in many local hospitals, AHT will recruit a professional CEO with commercial hospital management experience – in the USA and emerging markets (preferably including greenfield developments). The CEO will be supported by a CMO, CNO and professional management team.

Relationship with local medical community

A business critical success factor: from inception AHT will focus on cultivating a positive relationship with the local medical community, i.e. local doctors and clinics. AHT will consult with local medical leaders/influencers, e.g. as advisers to the project and aim to generate a sense of "excitement" about the opening of the facility. The management will work with (and not against) local doctors and clinics, e.g. by agreeing mutual transfer and support arrangements, cooperation agreements, and support/involvement in local healthcare trade associations. Local doctors will be invited on facility tours and for training/education seminars. Some local doctors will be awarded admitting rights.

7 Risks and risk management

7.1 International lessons

Greenfield hospital developments are complex and risky. Most greenfield hospital developments under-perform against expectations, particularly in the early years – usually as a result of construction going over-budget and/or timescale, and inadequate patient numbers/revenues (often as a result of over-optimistic "demand" scenarios).

Financial distress and failure are common as hospitals' fixed/staff costs are high, and with lower than expected patient numbers cash can run out quickly. (Hence the need for deep-pocketed sponsors).

Reasons for failure/distress include:

- inadequate planning,
- poor project management,
- construction of overly large facilities,
- over-estimating local ability/willingness to pay,
- over-optimistic expectations of patient numbers (often a result of not understanding informal/opaque referral systems),
- difficulties recruiting sufficient staff with required skills,
- inadequate consideration of early working capital requirements.

External factors, such as unforeseen economic slowdown and civil unrest can also impact. (Contrary to popular belief, healthcare usage and spending are affected by economic cycles).

7.2 **Key risks and risk management**

Risk	Description	Level	Mitigating actions
Project Cost over-run/time over-run	Affects most greenfield developments.	High	Specialist international hospital architect will be engaged. Building designs/specifications will be signed off by multi-disciplinary team of local and international medical advisers to ensure changes during construction are minimised. AHT will appoint specialist project management company to manage the construction project.
Over-investment in high-cost equipment.	Specialist high cost equipment can be expensive to operate/maintain and have unclear IRR/ROCE.	Med	Commercial CEO/project manager will maintain commercial discipline during planning. AHT will explore JVs with specialist partner organisations.
Slower than expected ramp-up of patient numbers	Affects most greenfield hospitals. Cash-flow problems/distress are common in early years.	High	AHT will pursue several avenues to actively generate referrals, including formal agreements with local clinics and physicians. Underpinning all of these will be a core strategy of cultivating positive relationships within the local medical community – ie working with and not against it. During construction the team will aim to generate a sense of excitement among local doctors regarding the imminent opening.
Staff recruitment	Healthcare staff in all cadres in short supply. Many will prefer to "wait and see" how AHT performs before committing to join.	High	AHT will offer a unique opportunity to work in an international healthcare environment and to learn new skills. Additionally competitive salaries with performance incentives will be offered.
US-doctor recruitment difficulties.	US medical market currently very attractive – and secure. Many doctors will prefer to "wait and see" how AHT performs before committing to join.	Med	AHT has access to an unrivalled network of US-trained Georgian doctors through its sponsors. Doctors will be identified during the construction period and agreements signed.

Risk	Description	Level	Mitigating actions
			AHT will also seek advance evidence/proof that Georgian doctors are genuinely interested in joining the hospital at opening.
Friction between local and US-trained staff	Tensions may be accentuated by differences in culture, perceived relative value, and significantly different levels of remuneration.	High	A culture of team-working and buy-in to the international model of working will be instilled by the management team from inception.
Pricing pressures	During early years of operation AHT will have unproven brand; may experience difficulty justifying higher prices.	High	AHT will develop a clear value proposition to differentiate its services. Downward pressure on prices will be mitigated by partially aligning key staff salaries with revenue generated. The business model also allows for a potential trade-off between less complex (cheaper) procedures and higher patient volumes (eg through lower lengths of stay).
Economic slow-down	Some evidence of economy slowing. May cause demand to decline, pressure on prices.	High	(as above)
Adverse publicity from patient deaths/adverse clinical events.	AHT will provide services that have higher inherent clinical risk and high mortality rates (eg cancer). Local competitors and press may draw attention to perceived short-comings.	Med	AHT will implement JCI-style patient safety procedures in preparation for full JCI accreditation. Quality and Patient Safety indicators will be routinely monitored by management and reported to the supervisory Board.
Execution risks – considering immense change	Many significant tasks need to go right at same time – eg training/up-skilling, team-working, equipment operation,	High	A professional commercial healthcare CEO with specific experience of emerging markets will be recruited to oversee the hospital opening and early years of operation. (International affiliation/partnership with a US institution will also be considered).

Risk	Description	Level	Mitigating actions
management agenda involved.	customer care etc etc. Most staff will never have worked together before.		
Medical tourism does not "reverse"	Patient referral patterns are usually deeply engrained and take time to change. Most patients travel due to perceived higher quality (not lower cost).	High	AHT will initially focus on attracting patients seeking local healthcare, and build a reputation for quality and reliability over time.
Change of regulation.	Populist measure may include price control, lower cost access etc.	Low	AHT will cultivate positive working relationships with MoH and local influencers.

7.3 **Hospital management**

A key execution risk mitigant, and critical success factor, relates to identifying a high calibre management team. AHT is considering two options regarding this:

Engage an international hospital management organisation.

Preliminary discussions have been held with prominent organisations:

- Houston Methodist International
- HCCA
- International Hospitals Group (UK)
- American Hospital Management Company
- University of Pittsburgh Medical Center
- Johns Hopkins International

Following these, an RFP has been prepared to be sent to the first three listed. Proposed selection criteria are set out below.

Criterion	**Points**
Organizational understanding of project requirements and scope.	10
Organizational capabilities and experience to undertake the project successfully.	10
Appropriateness of Project Approach and Methodology.	10
Organizational staff qualifications and experience.	20
Hospital Start-up Experience.	15
Experience in emerging market countries	15
Cost and Financial Proposal Structure.	20
Total points available	***100***

Employ a US hospital CEO – preferably with emerging markets experience.

8 SWOT analysis

Strengths Strong local and international sponsors who have previously worked together. Positive market environment. Plans take account of lessons learned from greenfield developments elsewhere. Projections/performance metrics are evidence-based on actual performance levels achieved elsewhere. Projections allow for significant upside potential. Site identified with utilities, adequate space, and close to road (and air) transport. Phased opening over 5 years assumed (or faster as demand justifies).
Weaknesses Inherent risks of greenfield development – eg no sector experience or track record. Significant up-front investment in building and equipment. Financial structure – high level of leverage/debt. Reliance on foreign-based doctors. Specialist services profile (lower patient volumes, less affordable, expensive to operate and maintain). Focus on reversing outward medical tourism (usually takes years). Unclear arrangements re continuous ownership/oversight of project. (May lead to perception as "orphan project"). Possible dependence on overseas management organisation.
Opportunities First mover re international standard healthcare in Georgia. Ability to leverage leverage position and scale up operations faster than projected. Scope to diversify into related services. Inward medical tourism (from neighbouring countries).
Threats

Economic downturn.

Pricing pressures.

Negative reaction/publicity from market competitors/local medical community.

New entrants.

9 Appendices

9.1 Appendix I: Service model

Services	Phase 1	Phase 2	Not included	Notes
Medical				
General medicine			✓	Not for inpatients. Include Outpatient consultation provision.
Endocrinology			✓	Not for inpatients. Include Outpatient consultation provision.
Rheumatology			✓	Not for inpatients. Include Outpatient consultation provision.
Nephrology/Renal Dialysis	✓			
Neurology			✓	Include Outpatient consultation provision. Some services needed to support Neurosurgery.
Gastroenterology			✓	Not for inpatients. Include Outpatient consultation provision.
Cardiology	✓			
Respiratory Medicine			✓	Not for inpatients. Include Outpatient consultation provision.
Medical Oncology	✓			Chemotherapy
Geriatric medicine/Care of Elderly			✓	
Interventional cardiology	✓			

Services	Phase 1	Phase 2	Not included	Notes
Clinical Haematology			✓	
Mental health			✓	
Counselling services			✓	
Drug/alcohol rehab			✓	
GUM/STI treatment			✓	
Radiotherapy	✓			
Stroke care			✓	Some care will be required to support Neurosurgery.
Surgical				
General surgery	✓			
ENT	✓			
GI surgery	✓			Gastro-intestinal surgery
Urology	✓			
Dentistry/Oral surgery/Max Fax			✓	
Orthopaedics	✓			
Ophthalmology			✓	
LASIK			✓	
Vascular surgery	✓			
Cardiothoracic surgery		✓		Back-up/transfer arrangements will be required to support interventional cardiology.
Neurosurgery	✓			
Oncology surgery	✓			

Services	Phase 1	Phase 2	Not included	Notes
Transplant surgery			✓	
Plastic/cosmetic surgery			✓	
Obstetrics & Gynaecology				
Gynaecology	✓			
Obstetrics/delivery			✓	
Fertility/IVF			✓	
Paediatrics				
General Paediatrics			✓	
Paediatric Surgery			✓	
Neonatal care			✓	
Imaging				
X-ray	✓			
CT	✓			
Mammography	✓			
Ultrasound	✓			
PACS	✓			Increasingly regarded as routine radiology support.
Nuclear medicine		✓		To be considered for Phase 1. Subject to investment analysis and discussions with specialist providers.
PET		✓		As above.
Fluoroscopy	✓			
Bone densitometry	✓			
MRI	✓			

Services	Phase 1	Phase 2	Not included	Notes
Laboratory				
Haematology	✓			
Biochemistry	✓			
Microbiology	✓			
Histopathology	✓			
Cytology	✓			
Blood bank			✓	Blood storage/blood bank.
PCR			✓	
Other				
Physiotherapy	✓			Required to support orthopaedic surgery.
Physical rehabilitation	✓			Some rehab services will be required to support orthopaedic surgery.
Pharmacy	✓			
Incinerator			✓	Outsource
Occupational therapy			✓	
Speech therapy			✓	Some provision required to support Neurosurgery.

9.2 Appendix II: Facilities and capacity

9.2.1 Key facilities

Facilities	Phase 1	Phase 2	Not included	Notes
Single rooms	✓			Will be designed with flexibility to accommodate 2 beds.
Multi-bed wards			✓	
Day case surgical unit			✓	
Dialysis unit	✓			
Chemotherapy unit	✓			
Ambulances (car, motorcycle, air)	✓			2 ambulance.
Isolation facilities			✓	
CT scanner	✓			
Tele-monitoring	✓			Will be required for single rooms, especially for higher dependency patients.
Colposcopy suite	✓			Required for gynaecology.
Endoscopy suite (diagnostic, therapeutic)	✓			
Labour/delivery suite			✓	
Laparoscopy suite		✓		May be included in Phase 1 to support general surgical dept.
Dentistry unit			✓	
Suction, gases	✓			Required at beds.
Pharmacy	✓			

Facilities	Phase 1	Phase 2	Not included	Notes
Laundry	✓			Included in physical specification. Will consider outsourcing.
CSSD	✓			Included in physical specification. Will consider outsourcing.
Kitchen	✓			Included in physical specification.
Staff restaurant	✓			For staff and guests. Consider outsourcing.
Training centre				To include meeting room, auditorium, and library.
Mortuary/cold room	✓			
Outpatient suite	✓			20 rooms (including minor procedures and ER consultations).
Negative pressure operating theatres	✓			
Dedicated emergency theatre			✓	No emergency/trauma care planned.
Telemedicine	✓			
IVF unit			✓	
Cardiac catheterization suite	✓			
Lithotripter			✓	
LASIK			✓	
Cyclotron unit	✓			
PET scanner			✓	
PET/CT scanner	✓			
Gamma camera			✓	

Facilities	Phase 1	Phase 2	Not included	Notes
Gamma knife			✓	May be provided instead of linac.
Brachytherapy (or "after-loading" suite)		✓		
Linac Simulator	✓			
Linear accelerator(s) or "Linac"	✓			One linac (or gamma knife) in Phase 1.
MRI scanner	✓			
Staff housing/accommodation			✓	
NICU cots			✓	
Incinerator			✓	Outsource.

9.2.2 **Capacity/scale**

Number of Beds

Type of beds	No of beds	Notes
Surgery – General	20	Indicative numbers; in practice the 50 surgical beds will be used flexibly across specialties.
Surgery - Neuro	15	
Surgery – Orthopaedic	15	
Surgery – Oncology	10	
High dependency	5	Will be used for trauma transfers from other hospitals
Interventional cardiology/Coronary care unit (CCU)	15	
General Medical	0	
Maternity	0	
Paediatric	0	

Type of beds	No of beds	Notes
Other beds	0	
Total inpatient beds		
"Shell space"	0	No empty shell space in specification.
Total physical beds capacity (with shell)	**80**	

Other facilities:

Facility	Number	Notes
Outpatient consultation rooms	20	Including minor procedure rooms and ER consultation rooms.
Emergency room bays/couches.	5	No major trauma. Mainly walk-ins and transfers from trauma centres.
Operating theatres	4	
Day case operating rooms	0	No dedicated surgical day-case unit planned.
Day Case Unit beds/couches	0	
Dialysis stations	10	
Chemotherapy couches	10	
A&E suture room	-	Included in outpatient consultation rooms.
Endoscopy room	2	
Colposcopy suite	1	
Dental chair	1	
Meeting/training room	1	Meeting room and auditorium (80 person capacity).
Labour/delivery rooms	0	No maternity services planned.
Baby cots (for new-borns)	0	No services for children planned.
NICU costs	0	
Car-parking spaces	200	

9.3 **Appendix III: Outsourced services**

Services that will be considered for outsourcing include:

Service	**Outsource**	**Notes**
Specialist surgical & medical staff	Yes	Specialist opinion and services will be sought when required. Admitting rights may be awarded to selected external doctors.
Anaesthetist	*No*	May be considered if part of admitting surgeon's team.
Security	Yes	
Gardening	Yes	
Laundry and linen	Yes	
Internal Audit	*No*	
Histopathology	*No*	Will outsource if AHT cannot recruit qualified histopathologist.
Cleaning	Yes	
Pest control	Yes	
Waste management	Yes	
Blood bank	Yes	
Buildings Maintenance	Yes	
Payroll	*No*	
Nuclear medicine	*No*	Will discuss with specialist providers.
Radiology	*No*	Will discuss with specialist providers regarding PET.
Laboratory	*No*	Will outsource specialist/esoteric tests only as required.
Sterilisation	Yes	Check if adequate local market provision.
Equipment maintenance	Yes	Mix of equipment manufacturer cover and employed physicists and technicians.

Service	Outsource	Notes
Debt collection	*No*	
Radiologist opinion	*No*	May occasionally require external expert opinion.
Infection control	*No*	
Ambulance	*No*	
IT	*No*	
Management services	Yes	Will explore contracts with US/international hospital management organisations.

9.4 **Appendix IV: Capex schedule**

Capex Item	**Qty**	**UOM**		**Unit Cost**		**Total Cost**
Land Procurement	2.5	HA		$ 500,000		**$ 1,250,000**
AP Building and Land Development: Complete Construction Cost (EPC) - Turnkey	**8,977**	SQM		$ 1,250		$ 11,221,250
Management Development Fee	**3.0%**			$ 38		$ 336,637
				$ 1,545		
Capitalized Interest - Debt						$ 1,032,044
EPC- Land Dev.+Building / Depreciation						**$ 12,589,932**
Medical Equipment						
Capex Equipment	**Unit**	**Unit Price**	**Discount**	**Total Capex**	**Monthly Maintenance Per Machine**	**Annual Maintenance**
Diagnostic Radiology						
CT Scan	1	$800,000	10%	$720,000	$5,000	$42,000
MRI	1	$1,200,000	10%	$1,080,000	$8,000	$60,000
Cyclotron	1	$2,000,000	10%	$1,800,000		
PET Scan	1	$1,800,000	10%	$1,620,000		$ -
ECG/Stress Test	1	$45,000	10%	$40,500	$ -	$ -
EEG	1	$25,000	10%	$22,500	$ -	$ -
Plain X-ray	1	$200,000	10%	$180,000	$ -	$ -
Fluoro/ GI Series	1	$250,000	10%	$225,000	$ -	$ -
DEXA Scan	1	$70,000	10%	$63,000	$ -	$ -
Digital Mammography	1	$200,000	10%	$180,000	$ -	$ -
US Full Body	2	$120,000	10%	$216,000	$ -	$ -
US	6	$60,000	10%	$324,000	$ -	$ -
Portable X-Ray incl. Kodak digitizer	3	$70,000	10%	$189,000	$ -	$ -
Gastroscopy/Colonoscopy	2	$70,000	10%	$126,000	$ -	$ -
OR Equipment (including negative pressure)	4	$700,000	10%	$2,520,000	$ -	$20,000
DaVinci Robotics	1	$1,000,000	10%	$900,000	$ -	
Dialysis Machines	12	$80,000	10%	$864,000	$ -	$ -
CT Scan	1	$800,000	10%	$720,000	$5,000	$42,000

Capex Item	Qty	UOM		Unit Cost		Total Cost
Depreciation				**$11,070,000**		
Maintenance						**$ 122,000**
Oncological Treatment						
Linac	1	$2,200,000	10%	$1,980,000		
Simulator - Planning Machine	1	$500,000	10%	$450,000		
Depreciation				**$2,430,000**		
Maintenance						**$ 40,000**
Express Laboratory	1	$200,000	10%	$180,000		
Laboratory	1	$750,000	10%	$675,000		
Cath Lab	1	$450,000	10%	$405,000		
EPG Lab	1	$150,000	10%	$135,000		
Depreciation				**$1,395,000**		
Maintenance						**$ -**
IP Beds	80	$5,000	10%	$360,000		
				$360,000		**$ -**
Vehicles						
Ambulance	2	$120,000	10%	$216,000		$2,000
Other vehicles	3	$35,000	10%	$94,500		$6,000
Depreciation				**$310,500**		
Maintenance						**$8,000**
Administrative & Support						
Morgue	1	$200,000	10%	$180,000		
Sterilization	1	$150,000	10%	$135,000		
Laundry	1	$120,000	10%	$108,000		
Kitchen	1	$120,000	10%	$108,000		
Waste Management	1	$50,000	10%	$45,000		
Generator System	1	$500,000	10%	$450,000		
IT Systems	1	$500,000	10%	$450,000		
Equipment & Furniture	1	$2,600,000	10%	$2,340,000		
Dentistry Unit	1	$35,000	10%	$31,500		
Depreciation				**$3,847,500**		
Total EQUIPMENT				**$19,413,000**		
Man Co. - Development Fee				$582,390.00		
GRAND TOTAL ALL EQUIPMENT				**$19,995,390**		