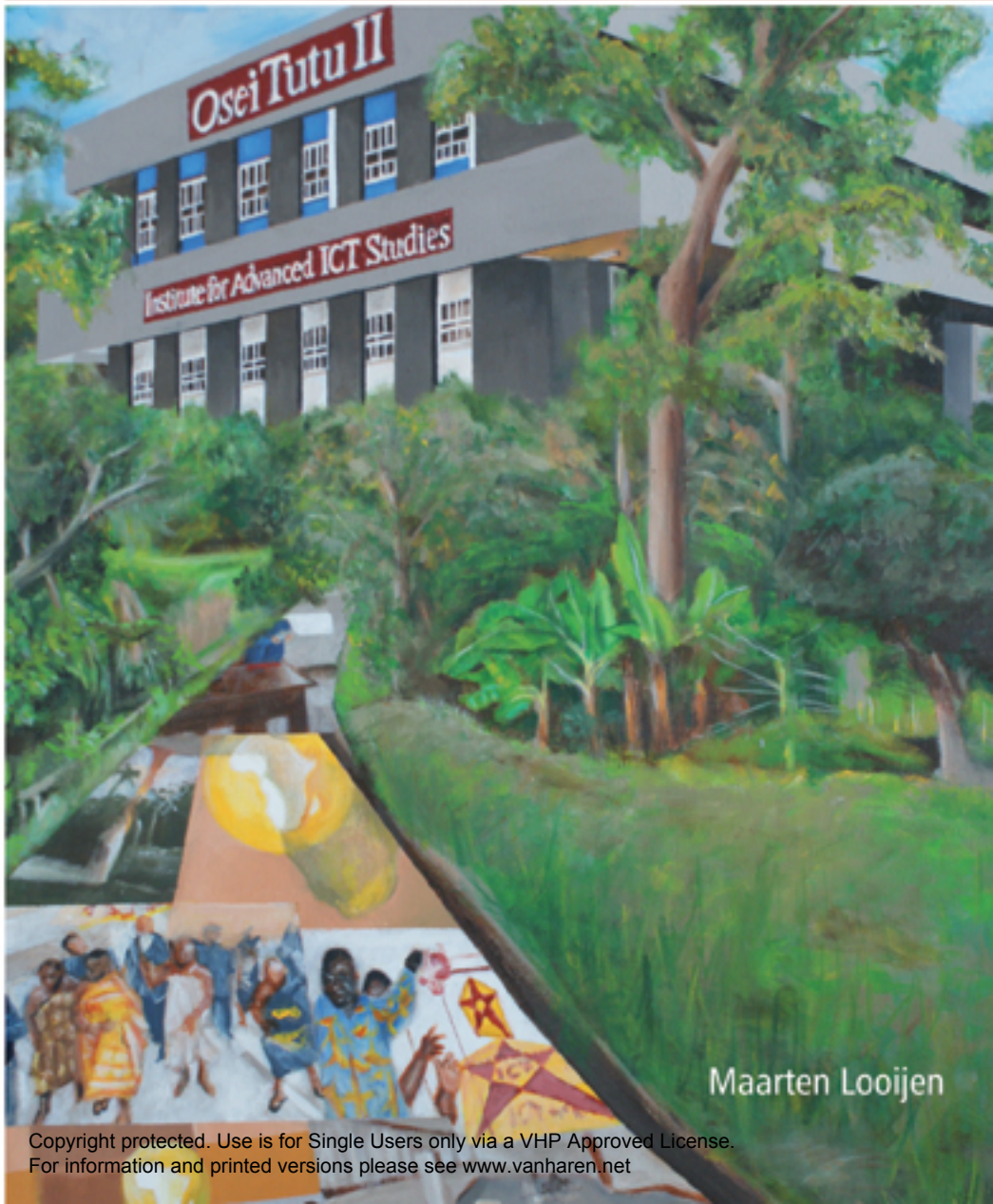


# Six years Ghana 2002 – 2008

*A tough and interesting journey*

From Zero to Osei Tutu II  
Institute for Advanced ICT Studies, Ghana



Maarten Looijen

SIX YEARS GHANA  
2002 - 2008

A TOUGH AND INTERESTING JOURNEY



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From Zero to Osei Tutu II

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Prof. Maarten Looijen

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# Foreword

It's my pleasure to write a Foreword to this book, entitled 'Six years Ghana'. More than six years ago the decision was made to explore the needs and the possibilities of developing an institute at Kumasi offering a Master of Science programme in advanced ICT studies, as well as an optional programme in different kinds of computer courses. The decision resulted in a project that was executed under tough and interesting conditions and circumstances and resulted in Osei Tutu II Institute for Advanced ICT Studies, known under the name The Institute.

Looking at the building, the modern ICT facilities, the MSc curriculum and the way of education, Kumasi and Ghana may be proud on having such an Institute. It offers an unique method of education that is focused on the one hand on a number of state-of-the-art subjects in scientific and applied ICT and on the other hand on courses to familiarize artisans with modern facilities. The lecturers come from international and national reputable universities.

The phenomenon Information and Communication Technology (ICT) has now entered all levels in industrial, business and educational areas. A full understanding of it is indispensable for what's going on in an increasingly globalized world. The Institute in Kumasi makes an essential academic contribution to get a good understanding of applying ICT in daily and future work. That contribution is not limited to Ghana but expands to include other African countries. The Institute was opened more than one and a half year ago. During the project and operational phases a lot of experience was obtained which is presented in this book. It shows both the ups and the downs that are inherent in completing the journey from Zero to Osei Tutu II Institute for Advanced ICT Studies. More than any other project, it offers the chance to look behind the scenes and to learn a variety of lessons concerning building construction, organisation, curriculum, education and many other topics.

Signed by ??????



# Prologue

The idea of writing this book came into my mind retrospectively. Only when the five-year project was behind me and I started telling people about everything that had happened during that time and noticed their interest, did I set myself the task of writing down and publishing my story. At the same time I realized, based on my experience with writing books and articles, that it would cost considerable time and effort. Writing is one thing, but illustrating and layout is another, not to mention critical text reviews.

Concerning the illustrations and layout I was lucky and happy to meet Harmien Dam who joined the project as expatriate at the end of December 2006 and is now Head of Administration at The Institute. Her enthusiasm to contribute to the publication of a book based on her 'Academy of Arts' education, skills and experience was a significant factor in taking the final decision. In the process I also met another essential contributor. Daniel Boyd was willing to review and 'anglicise' my English written text, a great job for which I want to thank him very much. And not to forget my wife Aria who took care of the computer input and numerous additions and modifications. Thanks to my daughter Ingrid who designed and made the huge external nameplate and logo and the many internal door-nameplates.

The initiative for the project 'From Zero to Osei Tutu II Institute for Advanced ICT Studies' was taken by Heineken International. It was Tom de Man, Regional President Africa & Middle East and Chairman of The Institute's Executive Council, who supported me from the start throughout the often challenging and frequently delayed project. I also want to thank the sponsors for their financial contribution and to acknowledge Nuffic for their positive attitude and support to a project which did not fit within the ordinary academic world with they are acquainted.

Before ending this prologue I must express special gratitude to Ivo van Haren, CEO of Van Haren Publishing, who sponsored the printing of the book that you now hold in your hands.



# 1. Introduction

The growing need for state-of-the-art ICT training and education in the stable West African state Ghana came into focus more than six years ago. At that time initial ideas and thoughts led to the concept of an Institute for Advanced ICT Studies, conceived at the level of Master of Science, as a post-Bachelor of Science educational curriculum.

When the project 'From Zero to an Institute for Advanced ICT Studies, Ghana' was launched in May 2002 it was surrounded by many questions. Five and a half years later The Institute launched a two-year Master of Science Programme in Advanced ICT Studies. This start was followed by the official commissioning on 14 November 2007.

In this book the author, the founder of The Institute, describes his journey from 22 May 2002 to 6 August 2007 as project manager and from 6 August 2007 to 2008 as Rector, with the following three-fold intention:

- a. to describe the route to and the issues of the project 'From Zero to an Institute for Advanced ICT Studies, Ghana' thus fostering understanding of such projects;
- b. to offer hints and describe pitfalls encountered en route to teach and to inform those who are interested in or involved (or become involved) in complex and long-term projects in developing countries;
- c. to illustrate the context of the project with pictures and windows including information about parts of Ghana.



## 2. Request

In May 2002 Heineken International took the initiative to explore the needs in Ghana for an ICT-Education Centre.

This initiative was on the one hand stimulated by Heineken's awareness of the continued gap between the need and demand for skills in applying information and communication technology (ICT) in industry and business and the supply of those skills by universities, institutes and the employment market. On the other hand Heineken had experienced the risks of sending selected people for education to other countries and schools not embedded in African culture, with the significant risk of them not coming back or being unable to reintegrate in their original working environment.

A further consideration for Heineken was that other companies would have the same experience and feeling about the best way to deal with lack of knowledge and education in state-of-the-art ICT subjects. To get a practical and broad confirmation concerning the reality of demand and supply of ICT skills, a thorough exploration was needed.

By telephone I was asked to perform such an exploration. The telephone call was made by the Managing Director Africa and Middle East of Heineken International Mr. Hans van Mameren who I had met several times during my 5-year visiting professorship at Kigali Institute for Science, Technology and Management in Rwanda. He was aware of my extensive and broad experience in education and research projects in many African countries including Mozambique, Tanzania, Kenya, Rwanda, Namibia, Botswana, Swaziland, Lesotho, South Africa and Zambia. At that time West Africa, including Ghana, was missing from the list.

The telephone call was followed by a meeting with the Managing Director at Heineken main office in Amsterdam. The final verbal request was concise but clear and ran as follows:

Heineken is interested in exploring a feasibility study;

Heineken offers a building, at this moment used for administration;

Heineken requires a Business Plan no later than November 2002.

A few days later, having accepted the challenge, I set off for Ghana. Ticket and visa had been arranged by Heineken in less than no time. It was to be the start of a complicated project.





### 3. Feasibility Study

During three 4-day missions to Ghana meetings were organized with managing directors, staff members, financial managers and ICT managers from a number of institutes and organizations such as:

- Ghana Breweries Limited Accra/Kumasi
- Kwame Nkrumah University of Science and Technology, Kumasi
- Royal Netherlands Embassy
- University of Ghana Legon
- Coca-Cola
- Ghana Telecom
- Barclays
- Visco Ghana Group
- NIIT Education & Training Centre
- Ministry of Education and Sports
- National Accreditation Board Ghana
- Kofi Annan Centre of Excellence

During these meetings many questions were addressed to fully understand the needs for educational study programmes in the field of ICT. Interviews focused on the strengths, the weaknesses, the opportunities and the threats of the present and future ICT. A questionnaire was handled including questions such as:

- How is your ICT management operating?
- Are the security measures on the right levels?
- Does your project management include all relevant steps and routes with full dedication of personnel, technical and financial resources?
- Are pro's and cons concerning access to Internet thoroughly understood?
- Does knowledge and experience exist to understand the available communication facilities and to explore trends in communication and networks?
- What are the relationships between your business and ICT?
- Do you know your ICT costs?
- Are probabilities, risk analysis and statistics part of your business?
- Are you familiar to industrial automation?

Following these questions and answers, the main line of a two-year Master of Science Programme in ICT subjects was presented and discussed. The reactions emphasised the necessity for the establishment of a two-year MSc Programme with a first year including a number of state-of-

the-art modules and a second practical year including the realization of a project in a company or institute.

Suggestions were made to spread the first year over 2 or 3 years by offering certificates for those who are not able to get an agreement to leave their working environment. These students were to be called Category 2 students and distinguished from the Category 1 students doing all the modules in one year. Another suggestion concerned the acceptance of students without a BSc degree. Both suggestions were taken seriously under consideration and elaborated in the Business Plan. Later on the National Accreditation Board Ghana rejected the latter suggestion and limited admission to BSc graduates.

The meetings also focused on the issue of funding. Several organizations reacted positively concerning financial support should the ideas for a MSc Programme be transformed into the start of a real institute. At that moment this was a hopeful signal, but fulfilment of this promise later proved tough.

Based on these practical observations within a variety of companies and industries in Ghana a Business Plan was written concerning the institution of an ICT-Education Centre.

## 4. Business Plan

The Business Plan was sent to Heineken International at 8 November 2002 based on the following findings:

- Organizations and institutes are positive concerning educational programmes that focus on awareness and capacity building for applying and maintaining ICT in an effective way in their daily processes and business.
- Artisans must have the opportunity to familiarise themselves with the utilization and application of state-of-the-art computer programmes and facilities.
- The present academic ICT curricula do not include a number of relevant ICT subjects that reflect the present status of ICT as an essential part of today's and future business. Furthermore, all academic educational programmes are concluded at the BSc level. There is a general lack of professionally qualified lecturers. Based on the author's experience this situation is not specific to Ghana but also prevalent in the Universities in Kenya, Tanzania, Rwanda, Namibia, Botswana, Zambia, Lesotho, Swaziland and Mozambique.
- In view of the plans and projects of national and international organizations with respect to the implementation, utilization and maintenance of ICT, more and more skills and experience are needed and must become available.
- Graduates who get the opportunity (e.g. by means of scholarship) to do a MSc study in Information Science or Computer Science currently have to leave their country. On finishing their study they then have the opportunity to get a job anywhere in the world. Returning to their home country is then a less obvious choice and brain drain is the result.
- Heineken had offered an existing administration building on their plant in Kumasi, capital of the Ashanti Region, to be transformed into a public educational facility.

The plan focused on the development and the exploitation of an ICT-Education Centre at Kumasi, 270 km northwest of Accra, capital of Ghana and situated in the south. The plan addressed personnel, technical and organizational issues and emphasized a number of critical success factors.

The position of the Centre was defined as follows:

- the Centre should be supplementary to current education programmes;
- the education programme must be classified at MSc level;

- the Centre should operate non-competitively with respect to the existing national educational structure;
- the Centre should be independent of any institute but must have an agreement with a Ghanaian university on account of the need for academic accreditation and cooperation on specific academic issues;
- the Centre should be supervised by a Board of stakeholders.
- Three periods were distinguished, namely:
  - Period 1: initial period from Business Plan acceptance until September 200x.
  - Period 2: first year education from September 200x until September 200x + 1.
  - Period 3: first year and second year education from September 200x + 1 until September 200x + 2.

After period 3 the ICT-Education Centre is intended to operate as a fully fledged Ghanaian Centre mainly supervised by local (African) staff members.

At first 200x was filled in with 2003 but this planning was immediately considered as unrealistic and unfeasible. A more detailed planning changed 200x into 2006. The planning elaborated the following main subjects into 107 sub-items:

- Official documents
- Education Programmes
- Funding
- Organization
- Building
- Infrastructure
- Facilities
- Recruitment
- Administration
- Possible tender
- Student affairs
- Official opening
- Critical Success Factors

This second planning was mainly based on my own ideas, estimations and experience but was not based on knowledge and experience about formal procedures in Ghana. Moreover there was at that time no indication of the slow procedures and future events that would have a large impact on the planning, see chapters 7 Formalities, 16 Full Accreditation and 24 Unexpected Events.

For each Period the general overview was worked out in detail including all the items and activities to be considered. Based on that an estimate of the costs was made. Since prices for some items and activities were not available, it was not possible to make an estimation of all costs. Nevertheless a total but tentative expenditure per Period was presented.

- Financial overview for Period 1  
Total expected expenditure includes building refurbishment, hardware, software, communication facilities, furniture, salaries for three staff members and project management and unforeseen. Expected income: sponsorship (unknown).

- Financial overview for Period 2  
Total expected expenditure is, including 16 lecturers, salary staff members, additional hard- and software, electricity, water, telephone, cleaning, maintenance, management, unforeseen. Expected income: tuition fee (€ 190.000) + sponsorship
- Financial overview for Period 3  
Total expected expenditure is equal to Period 2 but including increases and decreases in a number of items and activities.

In the course of the project the following conclusions could be drawn:

- The building refurbishment budget was reasonable.
- The Information and Communication Technology budget was reasonable.
- The staff member salary budget was far too low due to a mixture of local people and unknown tax rules.
- The lecturers budget had to be completely changed because of a tender procedure in 2005/2006 that led to the involvement of a consortium of the Free University Amsterdam and Pretoria University South Africa.
- The Project Management budget was too high and unforeseen budget was too low.
- The estimated income from tuition fees proved to be unrealistic because of both the limited number of students (due to delayed accreditation) and a drastic reduction of the tuition fee.
- The income via sponsorships turned out to be a tough issue despite many promises and initial enthusiasm!

Broadly speaking the various budgets proved to be quite acceptable although it is important to realise that I would later be confronted with several surprises. The budget framework presented constituted the financial boundaries of the project.

The Business Plan concluded with a list of Critical Success Factors such as:

- a guaranteed yearly income to finance the operation;
- continuity in the number of students and an acceptable ratio of Category 1 and Category 2 students;
- availability of lecturers within a flexible schedule.

Besides this practical approach it is important to mention and to understand three main causes for inaccuracy in forecasts of costs and benefits (slightly modified from the inaugural speech Bert Flyvbjerg September 26, 2007 TU Delft):

- Technical: unreliable or outdated data, using inappropriate forecasting models, honest mistakes, lack of experience on the part of the forecaster.
- Psychological: planning fallacy and optimistic bias. Planners make decisions based on wishful thinking rather than on a rational weighting of gains, losses and probabilities.
- Political-economic: planners and promoters may deliberately and strategically overestimate benefits and underestimate costs when forecasting outcomes of projects. They do this in order to increase the likelihood that it is their project, and not that of competitors, that gain approval and funding.

To the above-mentioned three types of explanation it is worth adding the following statement of a planner on cost underestimation:

‘You will often as a planner know the real costs. You know that the budget is too low but it is difficult to pass such a message to the counsellors (politicians) and the private actors. They know that high costs reduce the chances of national funding’.

I will end this chapter on the Business Plan with a fourth cause of inaccuracy in forecasts of costs and benefits based on own practical experience:

- Cultural transformation: there are several differences in the way in which time aspects, present and future expectations and financial estimations are made in the Netherlands and Ghana.

## Ghana

<b>Name</b>	Republic of Ghana Capital Accra
<b>Geography</b>	Located in West Africa Bordered by Burkina-Faso, Togo and La Cote d'Ivoire Land area of 239.460 sq km. 10 regions
<b>Climate</b>	Tropical Temperature range between 21° C and 32° C
<b>The people</b>	Population approximately 20 million 60 different ethnic groups (Akans: 47% Mole-Dagbani: 16%, Ewes: 10%)
<b>Language</b>	Official language English Akan language several dialects: Twi, Fanti, Accra (Capital): Ga
<b>Currency</b>	Ghana Cedi (GHc) and Ghana Pesewas (Gp) (€ = appr. GHc 1.6)
<b>Religion</b>	Christians: 62%, Muslim: 12% Attention to old traditional beliefs
<b>Products</b>	Gold, Cocoa, Timber, Tuna, Bauxite are important export articles Oil discovery is from recent date
<b>Life Expectancy</b>	Female-59, Male-56





## 5. The Challenge

Shortly after the presentation of the Business Plan to Heineken International the commission of the project 'From Zero to Institute for Advanced ICT Studies, Ghana' was given to the person responsible for the Feasibility Study and Business Plan.

From that moment Heineken became the main promoter of the project.

In the course of the project (2004/2005) Diageo Africa and in particular Guinness Ghana Breweries (a Diageo/Heineken joint venture) joined the promotion of the project, followed later by other sponsors.

The challenge was to derive two educational programmes from six clear Mission Statements:

1. A two-year Master of Science Programme in advanced ICT studies.
2. An Optional Programme on an intermediate vocational education level.

The six underlying Mission Statements are:

1. To educate students from Ghana and other African countries to become professionals in ICT who have the knowledge, capabilities and attitudes needed to take part, alone or in cooperation with other specialists, in developing, applying and maintaining ICT and solving ICT-related problems in industry, business, banking, insurance, hospitals, society, education and science. This statement is summed up as: Capacity building in applied ICT.
2. To educate students from Ghana and other African countries to become professionals in ICT who have the knowledge, capabilities and attitudes needed to play a principal part in ICT applied research programmes. This statement is summed up as: Capacity building in ICT education and ICT applied research.
3. To educate individuals in Ghana and Africa to become familiar in utilizing and applying computing and communication facilities and software packages in a wide diversity of work environments. This statement is summed up as: Familiarization with ICT.
4. To explore additional and new education needs and to analyze the utility and feasibility of implementing programmes which meet these needs. This statement is summed up as: ICT education exploration.
5. To educate and to motivate students to develop new ICT oriented activities and jobs after graduation on their own or in cooperation with others and to influence small and medium-sized business to apply ICT in business in a most effective and efficient way. This statement is summed up as: ICT stimulation.

- 6. To initiate cooperation between scientific ICT programmes and activate the establishment of new scientific ICT programmes taking into account utility, feasibility and national rules such as national ICT policy and strategic plans and to initiate PhD programmes in theoretical and practical research. This statement is summed up as: ICT scientific challenge.

A further challenge was to reflect this mission in the logo (coat of arms) of The Institute (the abbreviated name for The Institute for Advanced ICT Studies, Ghana). This resulted in the combination of a pentagram star within a pentagon, with the text 'ICT' in the centre.

The challenge in the past was to draw a pentagram using only a non-marked ruler and a compass. The pentagram is a mathematical beauty, being the diagonals of a pentagon. The intersection of the diagonals follows the famous Golden Section. This Golden Section divides a line (here diagonal) into two parts with the proportion 1.61803... A mathematical approach of this proportion was already presented by Euclid in 300 B.C.... Since then the Golden Section has appeared in numerous architectural and other constructions.

An extension of this approach and meaning defines the challenge of The Institute: to teach and to graduate in advanced ICT studies and building sustainable capacity in developing and applying ICT in industry, business, administration, education and research.

A logo is born.....

