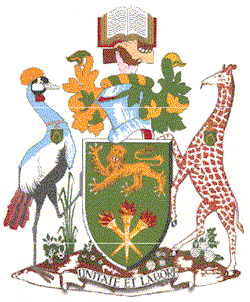
University Of Nairobi



Konza City Case Study Report

By

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Date

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Abstract

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**1.0 Introduction**

Konza Technology City is a business process outsourcing (BPO) project that was allowed by the Parliament Account Committee and endorsed by the Kenyan Government. It represents a strategic opportunity to invest in the growth of the ICT sector in Kenya as well as the country’s overall economy. The project will attract business process outsourcing, software development, data centres, disaster recovery centres, call centres and light assembly manufacturing industries. The Konza Technopolis Development Authority has advertised for investors to express interest in investing in the city.

Konza plays a critical role in technology transformation and knowledge-based economy which will enable Kenya to compete regionally and globally. It will contribute to the realization of vision 2030. Konza City is envisioned as a sustainable, world-class technology hub and a major economic driver, with a vibrant mix of businesses, workers, residents, and urban amenities. The management of Konza city was implemented using the four phases of project life cycle

**2.0 Initiation stage**

In the initiation stage a documentation was done where we came up with a Project charter. The project charter provided a clear delineation of roles and responsibilities, Project purpose, Project deliverables, milestone and date and estimated cost budget. The purpose of the charter was:

* To makes the project manager's role legit. The project charter formally recognized the project manager role and gave the project manager the authority to "get the job done."
* To makes the project legit. It authorized the konza cyber city to exist and continue in the given environment.
* To set the target for the project. It specified goals and objectives the project was to achieve with timeliness.

The content of the charter include:

**2.1 Project purpose**

The purpose of construction of Konza city was:

* attract businesses small and large, national and international.
* support and educate new and existing tech entrepreneurs.
* foster a technology ecosystem that will bring together a diverse population to provide solutions to local and global challenges.
* offer support to sectors that already play a key role in Kenya’s economy, such as Agriculture, Tourism, and Manufacturing.
* developed Innovative technologies that support Kenyan farmers

**2.2 Role and responsibilities**

Each participant of the project had a project managerial position from week 1 to week 6 as illustrated below with the suffix (WK PM). The decision was arrived at after the first initiation meeting which was documented in minutes and saved in our cloud archives.

|  |  |  |
| --- | --- | --- |
| Position | **Responsibilities** | **Participant(s)** |
| Top Management | Decision Making  Provision of finance  Monitor outsourcing activities | Directors  Unions  Community |
| Project Manager | Ultimate decision-maker and tie-breaker  Provide project oversight and guidance  Review/approve some project elements  Provide overall project direction  Direct/lead team members toward project objectives  Manages the project budget | VERONICAH OWINO  (WK 1 PM) |
| Project Participants | Act as consumer advocate in representing their area  Communicate project goals, status and progress throughout the project to personnel in their area  Review and approve project deliverables  Creates or helps create work products  Coordinates participation of work groups, individuals and stakeholders  Provide knowledge and recommendations  Helps identify and remove project barriers  Assure quality of products that will meet the project goals and objectives | PETER CHEGE  (WK 2 PM)  VINCENT ONSASE  (WK 3 PM)  JUSTIN NJERU  (WK 4 PM)  AMOS KOSGEI  (WK 5 PM)  VICTOR KADIMA  (WK 6 PM) |

**2.3 Project deliverables**

The key project deliverables were grouped into two:

* Materials
* Contractors

Materials

Water & Sewerage Equipment, Electrical Works, Computing &Networking Equipment:, Communications and Networking (Fiber-optic Materials), H/W Assembly Equipment

Contractors

Cloud Solutions Centre Works, Hardware Assembly Works, Broadband Infrastructure, Building and Industrial Parks, Data Centre, Security Systems, Office Fiber Optics Infrastructure.

**2.4 Project milestone and date and estimated cost budget.**

The major events which acted as a signpost through the project were identified. They ensured we stayed on track and monitoring of tasks was made easy for the project manager. The major milestones identified with duration is illustrated in **appendix 1.**

**2.5 Cost Budget**

A cost model was prepared which was just estimates of the project for purpose of project planning. Overtime was to be considered on critical path activities in order to finish the project on time and the budget cost was double rate of the normal rate.

**3.0 Project Planning**

The planning phase is where the project plans were documented on how team members will be organized, the key project deliverables and requirements were defined, and the project schedule was created. It involved creating a set of plans to help guide project team through the implementation and closure phases of the project. The plans created during this phase helped manage time, cost, quality, changes, risk, and related issues. They also helped to control staff and external suppliers to ensure that the project is delivered on time, within budget, and within schedule.

In this stage the major activities outlined are grouped into three:

* Project Team Planning and organization
* Procurement activites
* Utilisation of project management techniques

**3.1 Project Team Planning and organization**

In the planning of Konza city two major activities conducted were group into two which was sequential the first one had to complete in order for the second activity to kick off

Organization of the project and team members was critical in ensuring the smooth running of the project. From the project charter, each member played a critical role in every stage of the project. A project manager was appointed every week who spearheaded the team in ensuring the task and milestone of the week were achieved. This made possible by the weekly meeting we held to discuss the deliverables. It was documented by minutes where each member was a secretary appointed as the predecessor of the project manager. All the information, materials and article was stored in cloud storage for easier access by the team members. The preferred storage was dropbox which was agreed unanimous in the first meeting. The opportunity cost of drop box over Google drive was that dropbox facilitated real time collaboration of posting and editing data. . The organization of task in the dropbox was grouped and ranked from week 1 to week 6 with relevant materials for each week. During presentation a compiled copy was extracted with a PowerPoint presentation for easier illustration.

Crucial activities which required ample time for discussing and demonstration was made easier by online sessions we conducted. We could set a specific time preferable at weekends and perform a collaborative online discussion, editing and updating. We used Team viewer as the collaborative tool which had remote desktop capabilities. The benefit of the tool went in hand with Microsoft project 2010 which we used for project management. Since the tool was new for majority of team members, team viewer facilitated remote assistance whenever a team member faced a challenge in its operation. The project tool was ideal for management of the project since every activity was captured and it generated a relationship among various project activities. It kept track of project activities and monitoring was easy to ensure completion of project on time. Challenges encountered in the management process and use of the project tools include:

* Expiry of the Ms project 2010 trial version which made edits and updates difficult
* High cost of bandwidth when doing a collaborative online session
* Strict deadline to meet weekly deliverables

Despite the challenges and the need to deliver the project on time, we had alternative to the challenges. We installed a latest version of Microsoft project 2017 which gave us a grace period of 15 days which was ample to finish the project on time. Achieving the weekly deliverables was mandatory and project manager had to set strict timelines for delivering individual task assignment as documented in weekly minutes.

**3.2 Procurement activities**

The procurement process was initiated to select the desired supplier. A contract of agreement was formulated by the stakeholders which governed the tendering process. A request for proposal was made where potential bidders placed their bids. The responses collected were evaluated based on Quality, cost, delivery and location. Material Quality meet the required standards of the project. Total cost of ownership included the unit price of the material, licensing costs, training costs, ordering and carrying cost, logistics and maintenance costs. The costs were effective in accordance with the project budget. Delivery and supply of materials was in time since it could affect project timelines. The proximity of the vendor to the project was a key consideration since there was reduction of transport costs and delivery time.

A formulae was used for vendor selection including the above selection criteria to avoid biasness’s and to select the most suitable supplier. The notation of the formulae include:

The lowest cost among bidders is taken denoted as Cl,

the actual cost denoted as Ca, the delivery time denoted as T,

Vendor rating denoted as R

Location Denoted as L.

The location was given a number from 1 to 5 depending on proximity to the site.

The formulae derived was:-

((Cl/Ca)/(T\*R)) \* L

The Suppliers selected based on the formulae above is illustrated in **appendix 2**

**3.3 Utilisation of project management techniques**

For the success of the project, various project management techniques were used with the aid of Ms Project 2010. The Techniques include:-

* Work Breakdown Structures – Work Packages -Cost Accounts
* Schedule Planning
* Financial Planning

**3.3.1 Work Breakdown Structures**

The Work Breakdown Structure (WBS) was essential for getting the project off the ground. It involved breaking down deliverables into manageable task. The most critical things we gathered was tasks, the scheduled start and end dates, estimated cost and required resources. The main purpose of using WBS was:

* It Provided a visual representation of all parts of a project
* It enabled us to identify dependencies among various tasks
* It enables us to define and track the project deliverables.
* It gave us an overview into how the entire project was progressing
* It gave a foundation for estimating costs and allocating human and other resources
* It ensured no overlap and no gaps in resources
* It minimized the chance of adding items outside the scope of work or forgetting a critical deliverable.

The WBS used in the project is illustrated in **appendix 3**

**3.3.2 Schedule Planning**

Schedule planning involved the preparation of project schedules and included the development of project master schedules and subordinate schedules. Based on the Work Breakdown Structure, it ensured that all elements of the project requirements including hardware, software, and support items were delivered on time.

The two basic scheduling techniques used were:

* Gantt
* PERT/CPM

Gantt

It showed the planned and actual performance for those resources that the project manager wished to control. The Gantt chart allowed us to do the following:

* See dependencies and track the relationship between tasks
* View the critical path of the project
* Display the percentage complete of tasks using tracking gantt
* Create summary rows for further organization of the project
* Mark the working and holiday days for purposes of computing overtime for various resources

PERT (Performance Evaluation and Review Technique)/CPM (Critical Path Method)

It provided a graphical illustration of events connected in logical sequence by activity lines that showed all the activities necessary to complete a project and the interrelationship and dependency between the events in the project. Networks were built from events, activities and activity time estimates.

Network Diagrams helped us justify our time estimate for the project. Network diagram showed how activities were interrelated with each other from the beginning of the project till the end. After the critical path of the project was determined, activities on the critical path gave us the total duration of the project.

Since all project activities were shown in sequence with relevant interrelationships, the network diagram of a project helped the project manager and team during planning and organizing. visibility of activites in the network diagram, made it easier to see which activity start before each other and which activity depends on each other, predecessors and successors of each activity. It was easier to see in the network diagram what has been accomplished and the remaining activities and their interdependencies with each other.

Network diagrams showed project progress, the order of activities and total path from the beginning of the project till the end.

The PERT chart is sometimes preferred over the Gantt chart, another popular project management charting method, because it clearly illustrates task dependencies. On the other hand, the PERT chart can be much more difficult to interpret, especially on complex projects. Frequently, project managers use both techniques.

3.3.3 Financial Planning

Financial Planning continued throughout the project. It involved the allocation of resources required for the project. Financial plans included project budgets, budgets for WBS elements and for subordinate cost accounts and work packages. The budget was to remain within the estimates and also to ensure project finished on time by allocating resources for overtime.

**4.0 Project Execution.**

The Project Execution Phase was the longest phase in the project management life cycle. It consumed the most energy and resources allocated. The primary objective was to construct deliverables as per the master project plan and consistently evaluate the processes and plans involved to deliver the output as per the agreed specifications. In this phase the deliverables were developed and completed. weekly meetings were held which prevented the project team from deviating from the important activities. Ms project 2017 was used as the software in these unlike the other stages where Ms project 2010 was used. The major reason for using a higher version was to ensure we continued with the project activities untill its closure. All the project progress was updated in the dropbox for easier access by the team members

The Execution Phase broadly involved the following actions.

* Acquire Develop & Manage the Team who worked on the project
* Execute Project Scope.
* Timely Communication with all stakeholders.
* Procurement management when a supplier or contractor was to be changed
* Hold Status Review meetings documented using minutes to ensure project is on track and any deviations are attended to.

**4.1 Project Baseline**

The project baseline was used to measure how performance deviated from the plan. The plan was­ defined as the original scope, cost and schedule. The project’s baseline was completely defined and documented before the project execution and control activities began. When the project execution started, the project’s baseline was put under change control to help us evaluate any further change and its impact on the project.

A baseline had a clear starting point for the project plan. This allowed us to assess the performance of the project over time. The project started on 03/June/2019 which was week 45 of the project. This formed the basis of our baseline for the project.

The three benefits of having a project baseline was:

* Improved estimates. We could be able to measure actual schedule or scope against a baseline and identify where a project is under- or over-performed. This helped us to report progress and improve project plans and estimates.
* Calculating earned value. Earned Value (EV) allowed us to compare actual performance against plan. It allowed us to analyze project trends and forecast whether a project is expected to run into problems in the future.
* Proper change management. With baseline in place we could be able to track and manage changes since we had a yardstick to measure against.

On the change management a hypothetical situation did arise. We were allowed to change suppliers and we had to come up with a proposal on the change and describe how it fit with the vendor selection policy. Our project team had to come up with a proposal and a slippage analysis of the project as illustrated in appendix 4 and an initial baseline of the project as illustrated in appendix 4.

**5.0 Project Closure.**

This was the final stage of the project management cycle. Project Closure involved handing over the deliverables, passing the documentation to the business, cancelling supplier contracts, releasing staff and equipment, and informing stakeholders of the closure of the project. The final performance of the project was calculated and recorded. Project Finish Status: Wednesday 2 Feb 2022 and Cost of the projects: $434,869,340.29. The following activities were conducted upon closure:

* All necessary documents about the project were archived in the dropbox from week 1 to week 6.
* The project was handed off to the government with details on how to operate with the product.
* All the assignments of the project resources were closed, lessons learned, inputs from the project resources were collected and then released.

After the project was closed, a Post Implementation Review was completed to determine the project success and identify the lessons learnt as below

**5.1 Lessons learnt**

Key Lessons

The management of the project made the completion a success. The peer reviews in each stage were educative where we could work within the project scope and requirement. The role of the project manager in each stage enabled us to acquire the managerial practical skills. We worked us a team and the attendance as documented in the minutes was at 99% attendance rate.

Key challenges

Despite the challenges encountered when using Ms project 2010 as the tool for the project management, we come up with alternatives and suggestion for future considerations. The alternative was installing a higher version of ms project while the future suggestion was for the university to purchase a full version of Ms project 2010. Other tools used in the management including drop box, team viewer which met the groups expectations even though with limited number of functionalities.

**6.0 Conclusion**

In conclusion the project finished as scheduled on Wednesday 2 Feb 2022 and the Cost of the projects $434,869,340.29. Utilization of overtime in the critical activities ensured the deviation of scheduled time is manageable. Even though it affected the total resources used due to double rate payment above normal rate the project finished within the set schedule. The contracted suppliers and contractors delivered their services as required and no any change management plan was conducted. Suppliers and contractor who submitted their proposal later after the bid was closed were automatically disqualified. On the issue of merit they had the best offer compared to the selected but we were bound by the contract agreement of vendor selection criteria.

Appendix 1

Workbreadkown structure

| **TASKS** | **PRECEDENCE** | **DURATION** |
| --- | --- | --- |
| **HEAD OFFICE WORKS:**   * All design work (except H/W Assembly Park and Cloud Solutions Centre design) * Tendering * Choosing Suppliers |  | 10 weeks  3 weeks  3 weeks |
| **BOARD APPROVALS:** | Head Office Works |  |
| **ALL MATERIAL SUPPLIES:**   * Water and Sewerage Equipment: Water Pipes, Valves, Sewer Pipes, Pumps, Tanks * Electrical Equipment * Computing and network Equipment: Servers, Data center equipment, Laptops, Tablets, Routers, Switches, CCTV Equipment, fire fighting * Communications and Networking Equipment: Fibre-optic Materials * Hardware Assembly Equipment | Board Approvals  Board Approvals  Board Approvals  Board Approvals  Board Approvals | 21 weeks  24 weeks  24 weeks  22 weeks  24 weeks |
| **CIVIL WORKS:**   * Road network and helipad * Railway network (both city-wide light rail network and high-speed connectivity to the SGR) * Services Duct Works * Water and Sewerage works (boreholes, rain water harvesting, pipeline from Mt. Kilimanjaro, Water treatment plant and Sewerage treatment works) * Environment and landscaping | -Board Approvals  -Road network 60% complete  -Railway network  -Road network  -Water and Sewerage works | 24 weeks  24 weeks  12 weeks  24 weeks  12 weeks |
| **BUILDING WORKS:**   * Office and Industrial Parks Building * Electrical Works * University and Colleges Building | Board Approvals  -Road network (50%)  -Office and Industrial Parks Building, University and Colleges Building, Service Duct  -Road network (50%) | 24 weeks  12 weeks  24 weeks |
| **Hardware Assembly Plant Parks**   * Assembly line designs * Fabrication * Testing and Simulation | -Office and Industrial Parks Building  -Hardware Assembly Equipment supply, Assembly Line designs  -Fabrication, Electrical Works | 10 weeks  15 weeks  15 weeks |
| **Broadband Infrastructure Works:**   * Citywide fiber broadband infrastructure * Connection to the national fibre backbone | -Supply of Fiber optic materials, Services Duct Works  -City fiber broadband infrastructure | 12 weeks  5 weeks |
| **Konza City BPO Park:** | -Broadband Infrastructure Works | 18 weeks |
| **Office Fiber optic Infrastructure** | -BPO Park, and Testing and Simulation (H/W Assembly) | 12 weeks |
| **Data Centre Works:**   * Installation and Testing * Commissioning | -Office Fiber optic Infrastructure, Computing and network Equipment, Connection to the national fibre backbone  -Installation and Testing | 16 weeks  8 weeks |
| **Cloud Solutions Centre**   * Cloud Design * Cloud Infrastructure Sourcing * Cloud Implementation * System Solutions design * System Solutions Implementation (installation, testing and commissioning) | -Data Centre commissioning  -Cloud Design  -Cloud Infrastructure Sourcing  -Cloud Implementation  -System Solutions design | 16 weeks  12 weeks  12 weeks  12 weeks  12 weeks |
| **Security Systems**   * Security fencing and Fire Fighting works * CCTV Systems * Rapid-response System | -Data Centre Installation  -Security fencing  -CCTV Systems | 24 weeks  12 weeks  24 weeks |
| **Cyber City Systems Commissioning**   * Testing and Training * Handover | -Environment and landscaping, Rapid-response System, System Solutions Implementation  -Testing and Training | 12 weeks  8 weeks |
|  |  |  |

Appendix 2

|  |  |
| --- | --- |
| **Water & Sewerage Equipment** | Vierech GmbH-Germany |
| **Electrical Works** | Stockist D-Germany |
| **Computing &Networking Equipment** | IBM-USA |
| **Communications and Networking (Fiber-optic Materials)** | Erickson-sweden |
| **H/W Assembly Equipment** | RTBL-France |

Contractors

|  |  |
| --- | --- |
| **Cloud Solutions Centre Works** | HP-US |
| **Hardware Assembly Works** | Jiang Su H/W-china |
| **Broadband Infrastructure** | Data Optics-UK |
| **Building and Industrial Parks** | Highway and Bridge Co.-china |
| **Data Centre** | Computech-Kenya |
| **Security Systems** | Trudeau-France |
| **Office Fiber Optics Infrastructure** | IBM |
| **Civil Works** | Shanghai Steel-china |
| **BPO Park** | Kimberly Furniture-SA |
| **Commissioning** | Future Technopolis-Australia |

Appendix 3

Appendix 3

|  |
| --- |
| Task Name |
| **START PROJECT** |
| **HEAD OFFICE WORKS** |
| Design work |
| Tender bids |
| Choosing Suppliers |
| Board Approval |
| **MATERIALS SUPPLIES** |
| Water and Sewerage Equipment |
| Electrical Equipment |
| supply of Fiber optic materials |
| **CIVIL WORKS** |
| Civil works mobilization |
| Road network |
| Railway Network |
| Service Ducts |
| Water and Sewerage works |
| Environment and landscaping |
| **BUILDING WORKS** |
| Buillding works mobilization |
| Office and industrial parks buildings |
| University and college Buildings |
| Electrical works |
| **HARDWARE ASSEMBLY PARK WORKS** |
| Hardware Assembly park mobilization |
| Hardware Assembly Equipment |
| Assembly lines designs |
| Hardware Assembly Fabrication |
| Testing and Simulation |
| **BROADBAND INFRASTRUCTURE WORKS** |
| Broadband infrastructure works |
| Connection to national fiber backbone |
| **BPO PARK** |
| BPO Park |
| **Office Fiber optic Infrastructure** |
| Office fiber optic Infrastructure |
| **DATA CENTER WORKS** |
| Data Center installation and testing works |
| Data Centre Commissioning |
| **CLOUD SOLUTIONS CENTER** |
| **Computing and network Equipment** |
| Laptops, Tablets, Servers and CCTV Cameras |
| Networking Infrastructure, CCTV Systems and Fire fighting equipement |
| Cloud Design |
| Cloud Infrastructure Sourcing |
| Cloud Implementation |
| System Solutions design |
| cloud system solutions implementation |
| **SECURITY SYSTEMS** |
| Security fencing and fire fighting works |
| CCTV Systems |
| Rapid-Response System |
| **CYBER CITY SYSTEMS COMMISSION** |
| Testing and Training |
| Handover |
| **END PROJECT** |

Appendix 4

The proposal made by our team was based:

On Water & Sewerage Equipment: Vierech GmbH of Germany was selected with a rating of 1. Some of the key consideration made was Cost and delivery time. Since it did not fall in the critical path delivering time increasing from 16 to 22 did not affect the project completion date. The Spiral costs of 12% which was not inclusive in the quotation, made the quoted cost to rise to 1120 from 1000. The quotation was still low compared with the rest of the suppliers.

On Electrical Works: Stockist A of UK was selected with a rating of 4. Some of the key consideration made were Average cost, low delivery time and good rating. Advantage of this supplier delivery time was less 5 weeks making the delivery time to reduce from 20 to 15 weeks.

On Computing &Networking Equipment: IBM of US was selected with a rating of 4. Some of the key consideration made were Average cost, low delivery time and good rating. Advantage of this supplier delivery time was less 5 weeks making the delivery to reduce from 20 to 15 weeks.

On Communications and Networking (Fiber-optic Materials): Pensou of France was selected with a rating of 4. Some of the key consideration made were low delivery time and good rating. Advantage of this supplier delivery time was less 5 weeks making the delivery to reduce from 15 to 10 weeks.

On H/W Assembly Equipment: Mindorf of Germany was selected with a rating of 4. Some of the key consideration made were low delivery time and good rating. Advantage of this supplier delivery time was less 5 weeks making the delivery to reduce from 20 to 15 weeks.

On Civil Works, no contractor had a rating of 4 and above meaning all other vendors will be 6 weeks late as follows: initial selection was Shanghai Steel contractor

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Contractor | Cost | Initial Delivery | Slippage Delivery | Rating |
| Shanghai Steel | 45000 | 78 | 84 | 2 |
| China Jiangsu | 46000 | 76 | 82 | 2 |
| Beijing Engineering | 43000 | 80 | 86 | 1 |
| Bethlehem Steel | 50000 | 70 | 76 | 3 |
| Thames Concrete | 48000 | 80 | 86 | 2 |

Since civil works falls in the critical path, duration was a key element of consideration. All contractor were late in delivery by 6 weeks as follows and if contractor were to be changed at this stage we would select Bethlehem steel with a rating of 3 and cost $50000. Even though high resources would be required to finance the project it was ideal to complete the project on time. The implication of selecting this contractor was that it contradicted the vendor selection agreement which was protected by law.

Appendix 5

Baseline plan

Appendix 6

Project closure