

# Assessment of the “Free Internet Access” Project on the Internet Market in Egypt: System Dynamics View

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## ABSTRACT

In January 2002 a major step was taken by the ministry of communication and Information Technology in Egypt towards increasing the penetration of the Internet through the launch of the “Free Internet” project. New Rules and regulations were imposed on the ISPs of which; sharing their revenue with TE from the Internet calls instead of the subscription fee. The research revealed that telephone and computer penetration has a positive effect on the penetration of the Internet in Egypt. Local content is another factor attracting the users, but e-commerce is not yet mature in Egypt, so it does not actually have a high effect. Although tariff is one of the factors limiting the number of users in Egypt, it is not the main factor. The research also revealed that competition between ISPs changed from a pricing competition to a competition over content and differentiation. Data gathered from interviews as well as secondary data were fed to a system dynamics model, in order to be able to predict the future of the Internet market in Egypt in the coming years.

## INTRODUCTION

In year 2001, the Ministry of Communications and Information Technology (MCIT) in Egypt announced a plan to increase the number of Internet users through transforming the Internet access to a “Free” one. Rules and regulations for the Internet market were completely changed imposing additional responsibilities on the different ISPs such as moving their equipment to TE premises, applying for one of the three new ISP licenses; A, B or C and finally having their revenue shared with TE from the Internet calls instead of the subscription fee relying on the concept of return sharing between Telecom Egypt (TE) and different Internet Service Providers (ISPs). The percentage agreed on was 70% to the ISPs and the other 30% to TE.

From even before its launch, The announcement made a lot of turbulence in the Internet market in Egypt both on the ISPs level and the users level; new users refrained from subscribing to different ISPs waiting for the Free model to be implemented soon, as for ISPs, they were considering the new model and its implications on their business, and the new arrangements required from them such as moving their equipments to different TE premises.

Even after implementation, controversy didn't end; while the project supporters believe it did cause an increase in Internet penetration, those who object to it believe it has caused a deterioration in both quality and service, and that although the number of users may have actually increased, the content still revolves around entertainment and does not include any valuable information that will leverage the capabilities of the Egyptian user. Another important issue was the effect of the project on the ISPs business, especially after being denied their subscription fee, which was their only source of revenue as well as the huge costs they incurred due to moving their equipment to different TE switches in different parts of Egypt.

The project was actually launched on January 2002. The Internet Market seemed to be hysterical; many ISPs closed down, others consolidated with each other and a lot of new ISPs started their new business. Competition increased; commercials on TV, in the streets, in magazines dramatically increased but did the number of Egyptian Internet users really increase? Did the MCIT achieve its goal?

As an Egyptian user of the Internet, watching what is going on in the market and facing quality and service problems in the new Internet model, the researchers want to analyze and study the new Internet model dynamics and its effect on the Internet market.

## **PROBLEM DEFINITION**

Signs and Symptoms diagnosed at the Internet Market in Egypt after the launch of the "Free Internet" Project suggest that the Project is responsible for the deterioration of both quality and service and the closure of many Egyptian ISPs. There is also a doubt that this project achieved its main objective, which was to increase the number of Internet users in Egypt.

## **STUDY OBJECTIVE**

The restructuring of the Internet service industry through the launch of the "Free Internet" Model in Egypt is a very controversial issue; some of the ISPs are furious and believe that the ministry deceived them and caused them a lot of losses while others (ISPs) believe that their business flourished more and more and increased their opportunities in attracting more users.

The Purpose of this Study is to assess and analyze the impact of the "Free Internet" Project on the Internet Market in Egypt by using quantitative research and support it by the system dynamics concept.

## **STATE OF THE ART**

### **INTERNET EVOLUTION IN EGYPT: An Overview**

Internet in Egypt started exclusively for academics and researchers within their academies and universities starting October 1993 when the Egyptian universities were linked for the first time to the European Academic and Research Network (EARN). The government, since then, always had the ambition to increase the number of Internet users in Egypt and this was translated through many steps; in December 1995, a decision was taken by the chairman of Telecom Egypt allowing commercial Internet services by establishing Internet gateways to twelve Internet Service Providers (ISPs) to begin operating. In the early 2001, the Ministry of Communications and Information Technology announced a plan to

implement the “Free Internet” model in Egypt in order to increase the penetration of the Internet into Egyptian homes.

#### **“FREE INTERNET” World-Wide Practice**

**“Free Internet” in Europe:** the revenue source is not anymore the direct one which is a subscription fee but the sources of revenue are indirect such as subscription to other services such as long distance calls with a specific company, permanent advertising, and minimum buying from e-commerce sites.

The advent of the Internet without subscription or “Free Internet” caused many ISPs and long-distance operators to cooperate and sometimes consolidate together. In the majority of the European countries applying this model, the principle ISPs were bought by long-distance operators. Little independent ISPs survived except the ones with European dimension; serving many European countries at once. (Buisson, Sergent & Frattaroli, 2000). In Europe “Free Internet” has had some recent successes. In the UK, “Free Internet” providers receive a portion of the call revenue paid by users to the telecom company. This revenue sharing has given “Free Internet” providers a leg up, but the advantage may be short lived. Analysts say that by 2002 the UK and the fledging European “Free Internet” market will have collapsed as call interconnection revenues fall by around 30%. At the same time, competing paid services have put pressure on the telecom companies, and industry analysts expect them to soon reclaim their market, (Ensoport Internetworks, 2001).

**“Free Internet” in Latin America:** “Free Internet” service in Latin America is concentrating on advertising revenues and a very small portion of this money is going to Internet marketing channels. This is in part because the number of Internet subscribers is low compared with more traditional media such as television and print publications. In Latin America the free providers have not made deals with the local telecom companies, so they do not have this extra revenue boost. And analysts report that the telecom companies are unlikely to volunteer a share of the revenue.

In Brazil, when the concept of free ISPs made an impact on Internet some of the bigger for-pay ISPs engaged in a sort of restricted, but free, net access. They all failed, and the companies closed the free access but maintained their paid subscription services. Free ISPs funded by advertising, have proven to be unrealistic business models. These Free connections in Brazil are always “dial-up” services that require a modem and a phone line, but connections are very slow and people always complain about that. In addition to this, phone costs are the most expensive issue for the Internet in Brazil; people may have money to buy a computer and even a subscription with a paid ISP, but they can’t afford to pay the monthly costs of the phone line if they use the Internet for many hours every day. That’s why Free-connection services in Brazil started to disappear last year. But Free ISPs do not rely solely on ad revenue from their free-access business. Besides minor paid services, their revenue also comes from different sources such as wireless broad content portal, online pizza delivery service, electronic boutique and high-speed connection services, etc... (Balancing Act News Update, 2001). The case is the same for some Free ISPs working in Mexico and Argentina; they too canceled their free access.

**“Free Internet” in the United States of America:** The model, since it emerged in USA in 1996, has proven insufficient. Several high profiles free ISPs have failed and survivors in the market are consolidating and looking for other revenue sources, (Ensoport

Internetworks, 2001). There are two types of “Free Internet” service providers in the USA; those that use advertising to pay for the service and those without advertisements. The most common free ISPs use advertisements to generate revenue. They work on the same principle as broadcast television stations. Internet advertising can take different forms. The most common advertisement techniques are banner ads and pop-up windows. The second type of free ISP is rarer. These services will generally be offered by companies as a benefit to their consumers such as the one offered by American Express On-line. Only American Express customers can use the service. Sometimes customers can’t access the service except after buying with a certain amount of money, an example of that type is the “Free Internet” offered by K-Mart the famous retailer, (Sloboda, 2001). Dealing with Free ISPs in USA is not very safe; some factors must be taken into consideration. Some of these factors are the quality of Technical Support, which sometimes lacks the same level of quality of customer service in traditional ISPs. Another factor is the speed, which is sometimes reduced because of the banner ads, which require more speed because the amount of data streaming into the user’s computer takes up bandwidth and may slow down other data flowing into the computer, (Sloboda, 2001).

**Conclusion:** although the model implemented in each country is some how different from that implemented in another, there are some commonalities among them, such as:

- The source of Revenue is not anymore the subscription fee.
- Other sources of revenue are exploited by the ISPs such as; subscription to other services like long distance calls with a specific company, advertising through banner ads and pop-up screens, minimum buying amounts from e-commerce sites, high speed connection services and/or revenue sharing with the telecom company. Not all Free ISPs in each country apply all these services, some may apply all and some may apply a combination of two or three of them.
- Problems associated with the new model are numerous, among which are the lack of good customer support since ISPs don’t know anymore who are their customers, the degradation of the quality and speed because of the huge amount of banner ads associated with the new model and also facing under-capacity because of the difficulty in assuming the number of users which will use a specific “Free Internet” number.
- In most of the countries that previously applied the “Free Internet” access model, ISPs either turned to the fee model after facing a loss or consolidated with other ISPs in order to be able to face the problems of the free model and that too didn’t save them from losing.
- Analysts in most of the countries applying the model expected the model to collapse, and by year 2003, almost all ISPs applying the model in different countries abandoned it.

### **The “Free Internet” Model in Egypt**

The “Free Internet” access model in Egypt is based on revenues from advertisement, in addition to a share of the revenue collected by Telecom Egypt. As agreed upon with TE, 70% of the revenue goes to the ISP and the other 30% goes to TE.

“Free Internet” services attract subscribers in large numbers, but it is difficult keeping and leveraging them. Since its launch in Egypt starting year 2002, some of the Internet users complain of the quality and service deterioration while others are happy with the diversity of choices among different ISPs and they think that the new project gives them more chance to select the best quality and speed regardless of the number they dial which represents a certain ISP. While some of the ISPs are furious and believe that the ministry

deceived them and caused them a lot of losses, others (ISPs) believe that their business flourished more and more and increased their opportunities in attracting more users.

The new project came with new regulations and rules among which was the distinction among ISPs according to a license class (Class A, B & C)

- **Class A ISPs:** there are only four Class A ISPs. These ISPs are characterized by the owning of the Infrastructure (equipment, network and ports) through which the Internet access is possible. They also have an exclusive contract with TE for international long distance gateways access (Bandwidth). They also have the right to lease their infrastructure and their international long distance gateways to class B & C ISPs plus their ability to sell their Internet service to end users via their free numbers.

**Internet services (Class A)**

Providing connection services with Internet network (excluding voice phone calls services)

For the final consumer through the licensed companies self-owned networks.

- Nile On Line
- Link Egypt
- TE Data
- Egynet

**Figure 1 Class A ISPs**  
(Source: TRA, 2001)

- **Class B ISPs:** there are only eight Class B ISPs, they also own the infrastructure but they can only access the international gateways via Class A ISPs. They sell their service to consumers and enterprises.

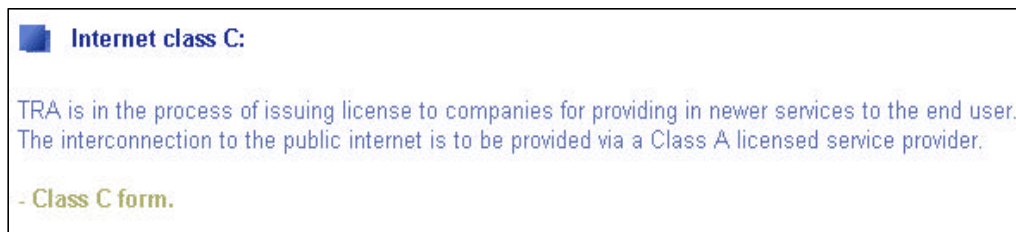
**Data communication & internet class B**

The interconnection to the public internet is to be established via a class A licensed service provider.

- EgyNet
- Yalla
- Global One
- Noor
- Raya Telecom
- Menanet
- Online
- Soficom

**Figure 2 Class B ISPs**  
(Source: TRA, 2001)

- **Class C ISPs:** there is a large number of this ISP class (approximately 50 to 60); they don't own the infrastructure or the international gateway access. They can only lease from class A ISPs and then sell to consumers (Etcheverry & Khalil, 2002).



**Figure 3 Class C ISPs**  
(Source: TRA, 2001)

### **Internet Market Speculation Before/After the Implementation of the “Free Internet” Model**

**Competition:** With the total cost of connecting now reduced by as much as 59 percent, “Free Internet” has heightened competition among ISPs, who must compete on quality of service, speed of connection, marketing strategy and brand recognition, according to Arab Advisors Group, the new scheme of competition would be tougher (Arab Advisors Group, 2001), (Hranjski, 2002).

This tough competition may cause consolidation and shakeout phase in the country that will reduce the number of infrastructure-based "real" ISPs to 9 by 2006 (Arab Advisors Group, 2002).

One result of this market consolidation is the emergence of the virtual ISP (Class C ISP), a company that takes lines and numbers from the class A and B ISPs and promotes them with their own access code numbers. Privately branded virtual ISPs, promoted by major brand names in Egypt in association with the big ISPs, are expected to increase to 145 by 2006, predicted Shanin Shanin, an analyst at Arab Advisors Group (Southwell, 2002).

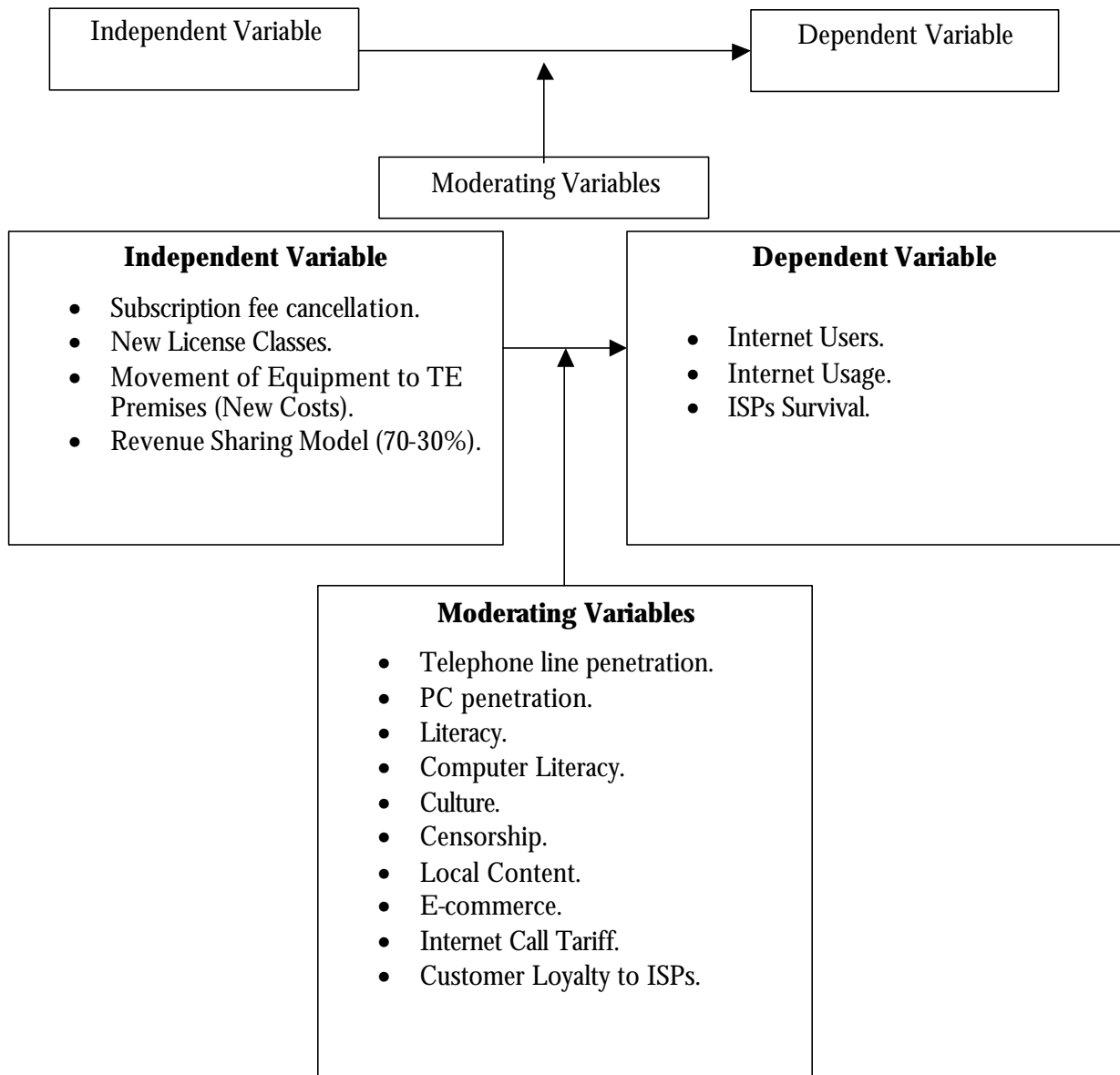
**Users:** When the MCIT announced its plans to implement the “Free Internet” model in Egypt, it hoped to see one million more Egyptians join the community of browsers on the same year of the implementation (Pyramid Research, 2002). The ministry along with TE took many steps among which was the decrease of the Internet call cost by 59% and reducing the rental fees for primary rate interface (PRI) ISDN services as well. Among the expectations of the number of Internet users increase after the implementation of the project was that of the Arab Advisors Group who concluded in its Research Note that the introduction of the “Free Internet” model in Egypt will result in a boost in the number of Internet users in the country and an increase in the revenues of the Egyptian ISPs (Arab Advisors Group, 2001).

They project Egypt to have 680,000 Internet accounts in 2006, a penetration rate of 0.93%, up from 0.18% in 2001. Their definition of "Internet Accounts" includes regular users of the “Free Internet” model" Shahin Shahin, Arab Advisors Group analyst said. "In 2006, Internet users are projected to exceed 2.6 million in Egypt, up from an estimated 540,000 in 2001(Arab Advisors Group, 2002). According to an announcement by the counselor of the minister of Communication and Information Technology, the number of Internet Users in Egypt reached 1,500,000 users as of January 2003. The number was assumed according

to statistics of the TE tracking 750,000 different telephone lines dialing the “Free Internet” non-geographic numbers, and assuming that two persons are using the same telephone line, we can reach the above number of Internet Users (Taha, 2003).

**MENTAL MODEL  
HIGH LEVEL FRAMEWORK**

As shown in the diagram below, the Framework of this current study was divided into Independent, Dependent and Moderating Variables. This higher-level framework is further divided into a lower level one represented by a causal loop, which is fed by information gathered from interviews.

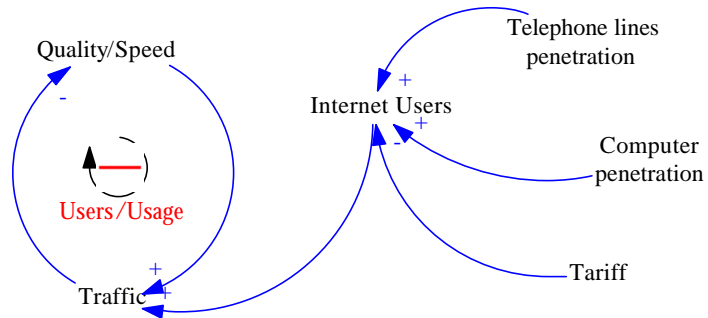






The above figure (figure 4) was that of the whole Internet Market Causal loop comprising all the relations gathered from primary as well as secondary data. The loop is composed of twenty-three different loops but only the description of the eight most important ones is to follow.

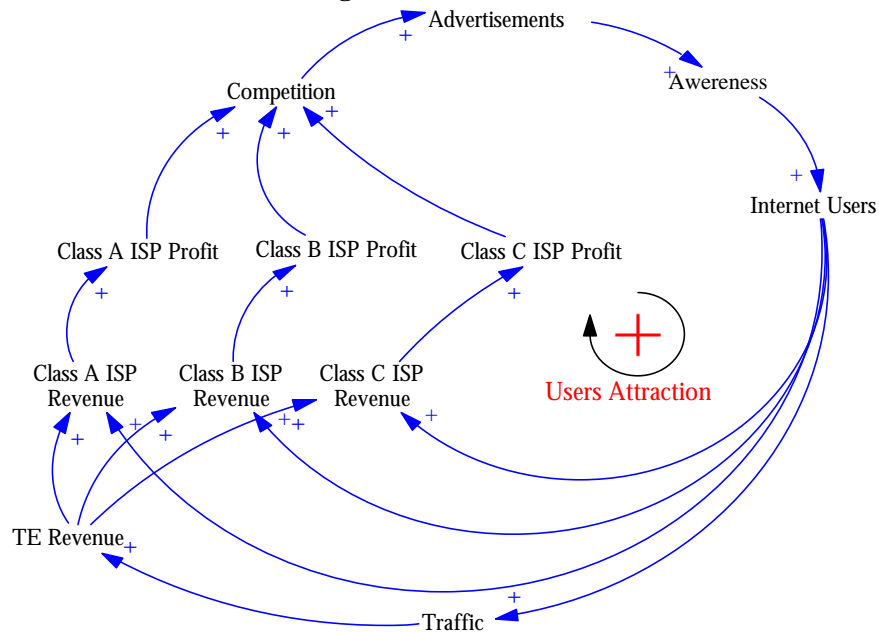
**Loop 1 (Users/Usage): Balancing**



**Figure 5 Loop 1: Users/Usage**

This loop shows the effect of telephone lines penetration, Computer penetration and Tariff on the Internet Users. Both telephone lines and computer penetration affect the Internet users in the same direction, which means that any increase in the telephone lines penetration and in the computer penetration lead to an increase in the number of Internet users too. This increase in the number of Internet users will increase the Traffic of the Internet (i.e. Internet Usage in minutes). An increase in traffic will in turn lead to a deterioration of both quality and speed, which will affect the traffic in the opposite direction. As for the Internet tariff, it affects the number of users in the opposite direction, which means that any decrease in the Internet tariff attracts more users.

**Loop 2 (Users Attraction): Reinforcing**

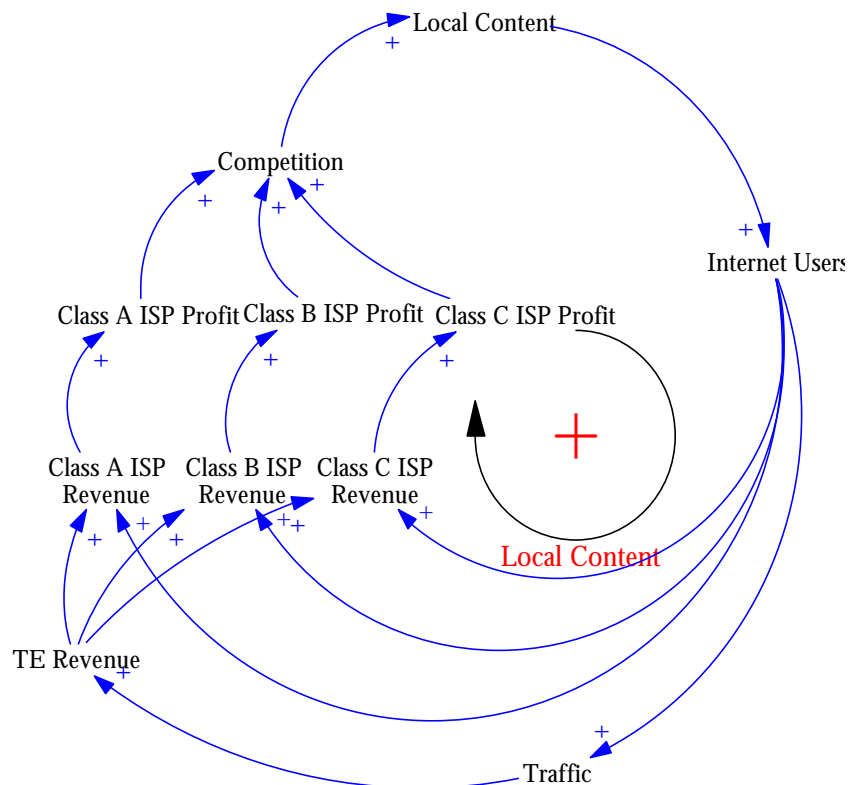


**Figure 6 Loop 2: Users Attraction**

This loop shows the effect of Internet Users increase on both TE Revenue and the ISPs Revenue. An important clarification must be mentioned here; before the “Free Internet” project launch, all ISPs were treated equally, there was no classes among them<sup>1</sup>. Another important issue is that the revenue of the ISPs was solely coming from the subscription fees of the users, which means that any increase in the Internet users signifies an increase in the ISPs revenue, while an increase in the traffic generated by the users signifies an increase in TE revenue only because it was used to collect 100% of the Internet call tariff.

After the launch of the project, the revenue of the ISPs from the increase in the number of Internet Users is zero because there are no more subscription fees, while its revenue is coming now from the traffic; TE collects the Internet telephone fees and gives the ISPs 70% of the Internet traffic Revenue while TE takes up the other 30%. After the launch of the “Free Internet” project, the competition between the ISPs increased so they tended to create new means of attracting the subscribers to use their “Free” numbers. This is reflected in the increase in advertisement, which leads to an increase of awareness of the Internet and hence attracts new users as well as old users to use a specific “Free Internet” number.

**Loop 3 (Local Content): Reinforcing**

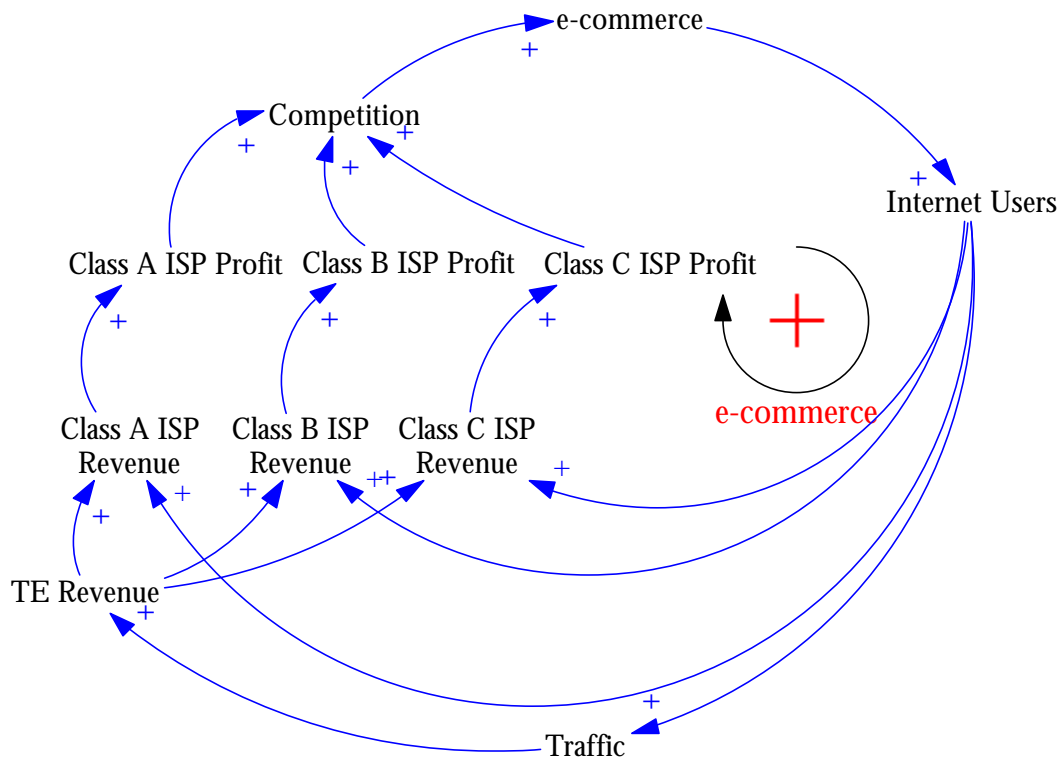


**Figure 7 Loop 3: Local Content**

This loop is exactly the same as the one above; the only difference between them is in the means of attracting the users, which is the increase in local content in this loop. By local content, the researcher means the WebPages in local language, which increased tremendously after the launch of the project.

<sup>1</sup> This point is taken into consideration in the Stock & Flow model

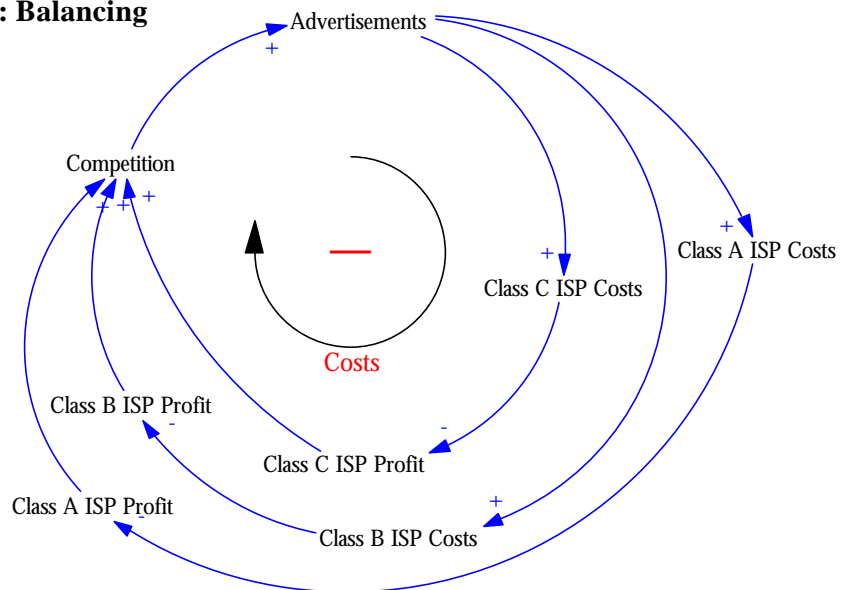
**Loop 4 (e-commerce): Reinforcing**



**Figure 8 Loop 4: e-commerce**

This loop is exactly the same as the one above; but the means of attracting the users is the increase in the availability of buying and selling through the e-commerce sites. But interviewees confirmed that the attraction of new users through e-commerce is almost negligible.

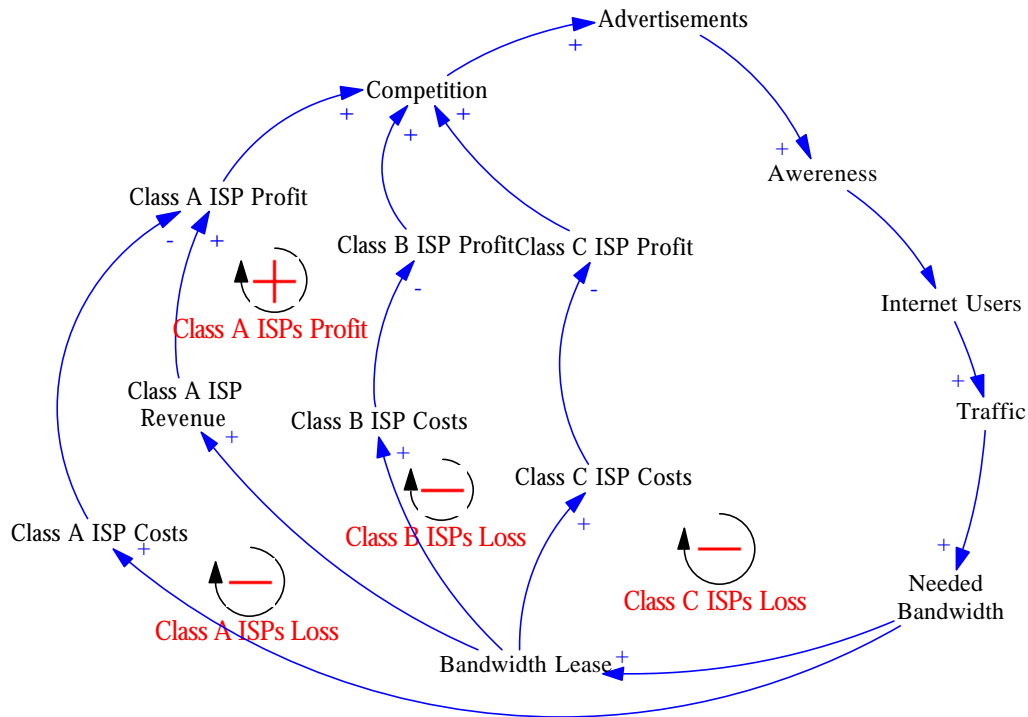
**Loop 5 (Costs): Balancing**



**Figure 9 Loop 5 Costs**

This loop represents the costs of advertising on all ISP classes, which in its turn decreases the profit of each class. The same also goes for the local content increase and the e-commerce websites increase, but the cost of advertising is much higher than that of the other two.

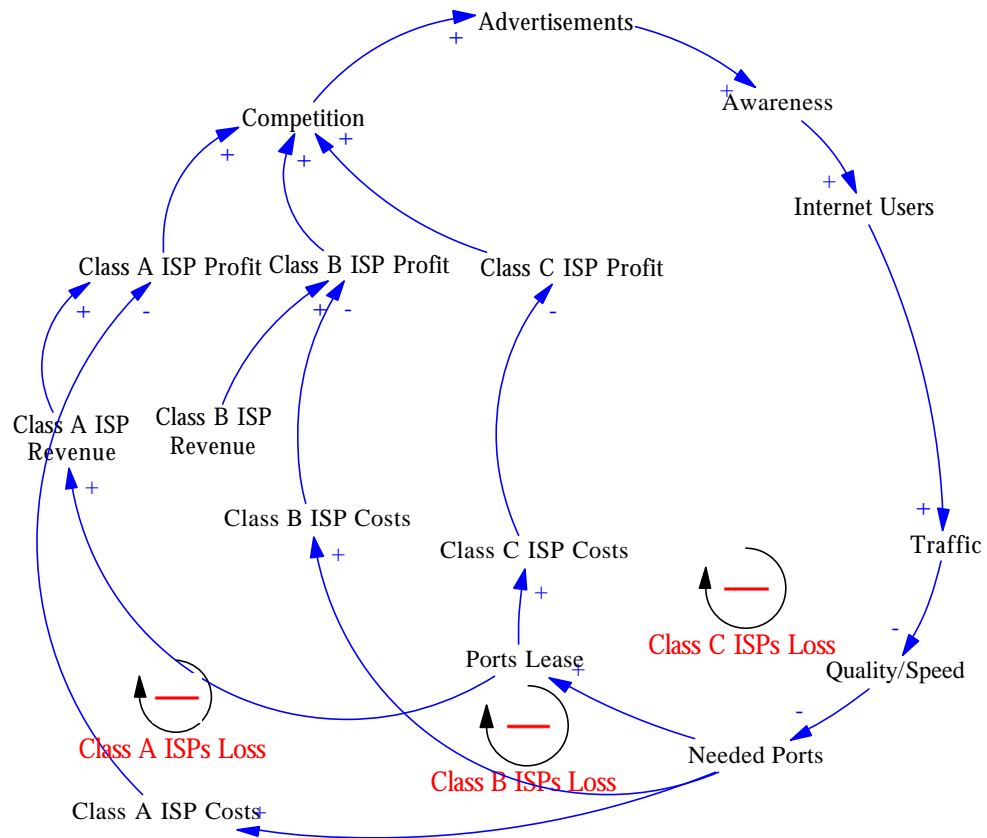
**Loop 6 (Bandwidth /International Access Lines): Balancing/Reinforcing**



**Figure 10 Loop 6: International Access**

The increase in Internet usage, which is represented in this loop by the word “Traffic” will require at a certain point an increase in Bandwidth. Before the implementation of the “Free Internet” project, TE was responsible for the bandwidth and it was monopolizing the market and rent these lines to different ISPs. After the project, this responsibility was shifted to Class A ISPs which in their turn lease these lines to ISPs from Classes B & C. So, any increase in bandwidth will add a cost on Class A ISPs, because it is the class responsible for that increase, and after increasing those lines, Class A ISPs will lease them to Class B & C ISPs and hence this item will constitute a cost for them but a source of revenue for Class A ISPs.

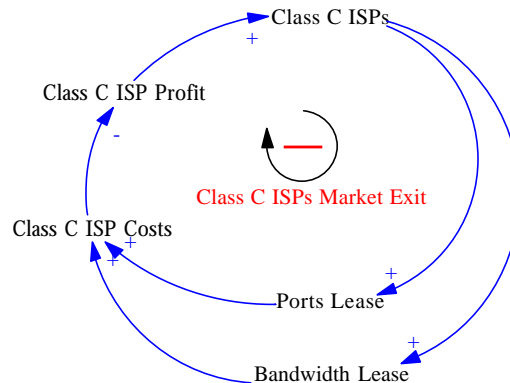
## Loop 7 (Ports/ Infrastructure): Balancing



**Figure 11 Loop 7: Infrastructure**

This loop is exactly the same as loop 6, except that the bandwidth is substituted by the Ports (Infrastructure). Another difference from loop 6 is that the Ports expansion is the responsibility of both Class A and Class B ISPs while Class C ISPs lease the needed ports from class A ISPs.

## Loop 8 (Class C ISPs): Balancing



**Figure 12 Loop 8: Class C ISPs**

This loop called the “class C ISPs Market exit” represents the attraction of new entrants (Class C ISPs) to the Internet market due to the increase in the profits of the Internet business and the low entry barrier. These ISPs have then to lease some ports and a certain bandwidth and this will increase their costs, which if not covered by the revenue will lead to an exit from this market.

# STOCK & FLOW

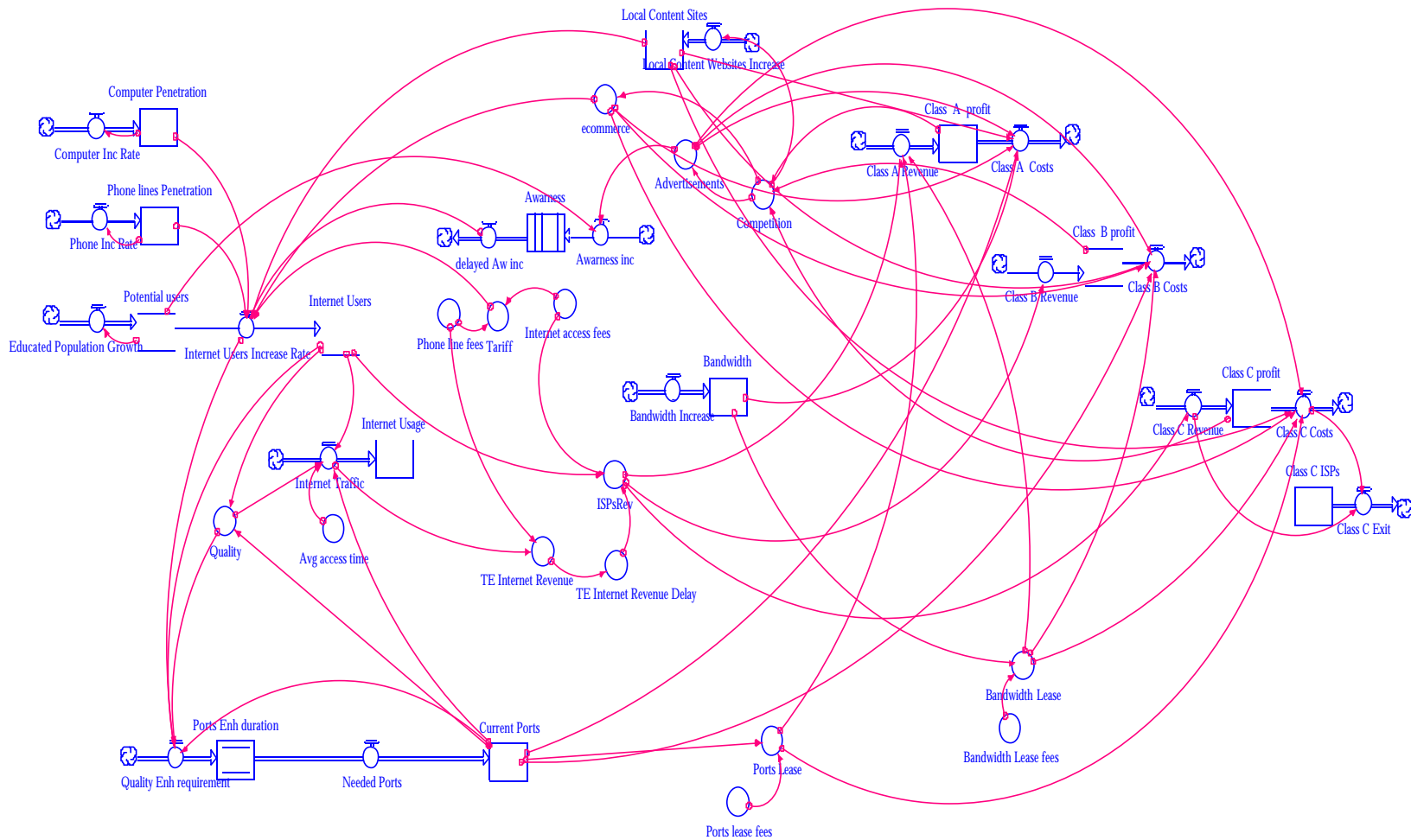


Figure 13 Stock & Flow Diagram

## Input to Stock and Flow

Table 1 Stock & Flow Input

Variables	Status	Equation	Units	Notes & Assumptions
Awareness	Conveyor	TRANSIT TIME = 3	Unitless	It takes 3 month for a person to become a user after being aware of the Internet
Awareness Increase	Flow	Advertisements*Potential Users*0.0000001/12	Unitless/Month	Advertisement increases Awareness
Delayed Awareness Increase	Flow	CONVEYOR OUTFLOW	-	3 Months delay
Bandwidth	Stock	INITIAL Bandwidth = 150 Mbit/s	Mbit/s	(TRA, 2001)
Bandwidth Increase	Flow	GRAPH	Mbit/s per Month	(Taha, 2003)
Class A Profit	Stock	Revenue – Costs	EGP	-
Class A Revenue	Flow	if TIME<=24 then ISPs Rev*0.55 else ISPs Rev*0.65+Bandwidth Lease+0.75*Ports Lease	EGP	Market share from (Etchevery & Khalil, 2002)
Class A Costs	Flow	Advertisements*0.65+(Current Ports*0.75*3000/12)+Bandwidth*5000/12+e-commerce*0.65/3+Local Content Sites*0.65/2	EGP	Market share from (Etchevery & Khalil, 2002), Ports distribution from TE Interview, else is assumed
Class B Profit	Stock	Revenue – Costs	EGP	-
Class B Revenue	Flow	if TIME<=24 then ISPs Rev*0.3 else ISPs Rev*0.15	EGP	Market share from (Etchevery & Khalil, 2002)



Class B Costs	Flow	Advertisements*0.1+(Current Ports*0.25*3000/12)+Bandwidth Lease*0.25 +e-commerce*0.15/3+Local Content Sites*0.15/2	EGP	Market share from (Etchevery & Khalil, 2002), Ports distribution from TE Interview, else is assumed
Class C Profit	Stock	Revenue – Costs	EGP	-
Class C Revenue	Flow	if TIME<=24 then ISPs Rev*0.15 else ISPs Rev*0.2	EGP	Market share from (Etchevery & Khalil, 2002)
Class C Costs	Flow	Advertisements*0.25+(Ports Lease*0.3)+Bandwidth Lease*0.25+e-commerce*0.2/3+Local Content Sites*0.2/2	EGP	Market share from (Etchevery & Khalil, 2002), else is assumed
Class C ISPs	Stock	Initial Value = 60	Units	Gathered from Interviews
Class C Market Exit	Flow	if (Class C Revenue - Class C Costs) <=0 then 1 else 0	Units	At each time the revenue does not cover costs one ISP will go out of business
Computer Penetration	Stock	INIT Computer Penetration = 700,000	Units	IDSC Interview
Computer Increase Rate	Flow	Computer Penetration*0.24/12	Units/Month	IDSC Interview
Current Ports	Stock	INIT Current Ports = 65,000	Number of Ports	IDSC Interview
Internet Usage	Stock	INIT Internet Usage = 0	Minutes/Month	Accumulated Minutes
Internet Traffic	Flow	(Internet Users*Average Access time)>(Current Ports*24*30*60) then (Current Ports*24*30*60) else (Internet Users*Average Access time*Quality/100)	Minutes/Month	Traffic will never exceed Capacity and it will be affected by the quality
Internet Users	Stock	INIT Internet Users = 500,000	People	(TRA, 2001)
Potential Users	Stock	INIT Potential users = 32,000,000	Number	Assumed to be equal to the educated population

Educated Population Growth	Flow	Potential users*0.0166/12	Person/Month	(The World FactBook, 2002)
Internet Users Increase Rate	Flow	(min(Computer Penetration, Phone lines Penetration)*0.03/(Tariff*0.5)) +delayed Awareness increase Local Content Sites+e-commerce	Person/Month	Assumed
Local Content	Stock	Initial Value = 1700	Units	(Tucker, Younis & Shalaby, 2002)
Local Content Websites Increase	Flow	if TIME <20 then 0 else Competition*0.00000001	Units/Month	Competition over websites intensified before the project launch
Phone Lines Penetration	Stock	INIT Phone lines Penetration = 5,820,000	Units	(TRA, 2001)
Phones Increase Rate	Flow	Phone lines Penetration+(500,000/12)	Units/Month	TE Interview
Ports Enhancement Duration	Oven	Cook Time = 4	Unitless	IDSC Interview
Quality	Converter	if Current Ports< (Internet Users/10) then (100-(((Internet Users/10)- Current Ports))/Current Ports*100) else 100	Unitless	IDSC Interview (1 Port Capacity assumed to be = 10 Users)
Quality Enhancement Requirement	Flow	if Quality<100 then ((Internet Users+(Internet Users Increase Rate*4))/10)- Current Ports else 0	Number of Ports	Assumed
Needed Ports	Flow	Content of Oven after Cook	Number of Ports	-
Advertisements	Converter	if time <=24 then 0 else if Competition<0 then 50000 else if Competition< 30*1000*1000 then Competition*0.001 else 100,000	EGP	Assumed

Average Access Time/user	Converter	if TIME<24 then 450 else if (TIME>=24 and TIME <28) then 500 else (if TIME>=28 and TIME <36 then 600 else 750)	Minutes/Month per User	Average Value From Interviews
Competition	Converter	ClassC profit+ClassA profit+ClassB profit	EGP	Assumed
e-commerce	Converter	if TIME <20 then 0 else Competition*0.000000001	EGP	Assumed
Ports Lease	Converter	Current Ports*Ports lease fees	EGP	-
Ports Lease Fees	Converter	3000/12	EGP/Month	TE Prices Brochure from Interview
Bandwidth Lease Fees	Converter	5000/12	EGP/Month	TE Prices Brochure from Interview
Bandwidth lease	Converter	Bandwidth*Bandwidth Lease fees	EGP	-
Internet Access Fees	Converter	IF Time <=24 then 100 else 0	EGP	Actual Data
ISPs Revenue	Converter	if Time>24 then TE Internet Revenue Delay*0.7/0.3 else Internet Users*Internet access fees	EGP	Actual Data
Phone Lines Fees	Converter	IF Time <=24 then 1.8 else 1.23	EGP/Hour	Actual Data
Tariff	Converter	Internet Access fees+Phone line fees	EGP	-
TE Internet Revenue	Converter	if TIME<=24 then Internet Traffic*Phone line fees/60 else Internet Traffic*Phone line fees*0.3/60	EGP/Month	Actual Data
TE Internet Revenue Delay	Converter	DELAY(TE Internet Revenue,3)	EGP/Month	Telephone bill cycle is 3 months

### Model Validation

In order to make sure that the model is representative of the Internet market in Egypt, it is essential to regenerate the actual historical data given when running the Stock and Flow model under the same conditions.

**Table 2 Stock & Flow Model Validation**

<b>Start of Year 2003</b>	<b>Output from Stock &amp; Flow</b>	<b>Actual Data</b>	<b>Error</b>
Internet Users	1,575,708	1,500,000	-5.05%
Ports (Infrastructure)	163,448	170,000	3.85%
Average Usage/Month	437,559,645	520,000,000	15.85%

The above table compares some of the Stock and Flow model outputs with the actual ones. The number of Internet users at the start of year 2003 was 1,500,000 and the average usage per month is around 520,000,000 minute per month as stated by the assistant of the minister of Communications and Information Technology, (Taha, 2003).

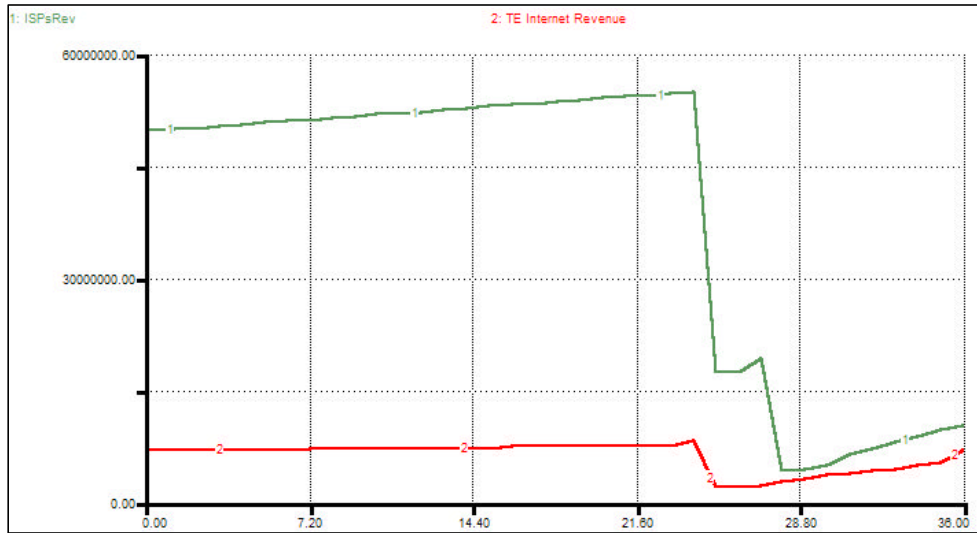
As for the number of ports, it reached 170,000 ports by the start of 2003; this information was gathered through interviews. The error of the model in both the Internet Users and the Ports number is 5% and almost 4% respectively, as for that of the average usage per month; it's almost 16%. This high error in the average usage per month is due to the fact that the researcher was not able to have accurate statistics about that number, and the information gathered through interviews were so diverse so the researcher had to assume an average usage per subscriber which differs from period to period<sup>2</sup>.

### FINDINGS

Concerning revenue, the elimination of the subscription fee affected the ISPs to a great extent, as many of them were solely dependent on this fee. TE also had a revenue decrease because since the project launch, it gives 70% of the revenue to the ISPs in addition to the decrease of the call tariff from 1.8 EGP per hour to only 1.23 EGP per hour. The following graph clarifies this point, although the numbers may not be very accurate but the slope and shape of the graph is correct to a good extent.

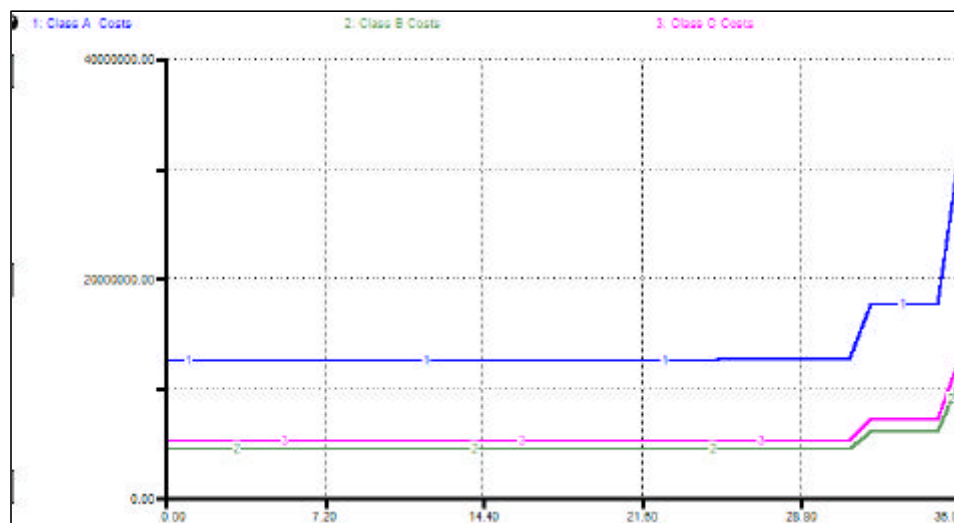
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<sup>2</sup> See above table of Stock & Flow Input



**Figure 14 TE & ISPs Revenue**

Concerning costs; as infrastructure constitutes to all ISPs more than 50% of the total cost according to ISPs interviews, it increased tremendously for all classes due to the increase in infrastructure before and throughout the launch of the project. For classes A and B, their costs increased in order to build a better network capable of supporting the new traffic all over Egypt and not only in Cairo, and they also increased their bandwidth in order to enhance speed and to conform with the MCIT/TRA new rules. For class C, they too had to lease more bandwidth and ports in order to enhance their performance. For all classes and especially class C ISPs, (who were originally either small portals or small ISPs providing the Internet Access service for a fee), they all had to increase their marketing and sales budget which was almost nothing before the implementation of the “Free Internet” Project. The only cost that decreased a little for many of the ISPs is the customer service cost part responsible for customer’s access problems. This service is no longer important for dial-up users because if the user confronts any problem during access, he/she simply switches to another number, but some of the respondents said that they are keeping this customer service as a value added for users of their dial-up free number.



**Figure 15 ISPs Costs**

Concerning rules and regulations, all ISPs suffer from the lack of information about the new rules and regulations they get from the ministry or from the TRA and they also complain from not taking part in the decision making of the new rules and regulations. Most of the respondents also said that the new licenses are not fair; the condition that has been taken in order to be a class A ISP was that the ISP must be in the market since 1997. For many of the ISPs this prerequisite was not fair, but anyway this exclusivity that the class A ISPs have now will end by 2005, but the deterrent then will not be the license as it will be the high entry barrier.

### Market Predictions

The following market predictions are based on both data gathered from interviews and output from Stock & Flow model.

The number of Internet Users in Egypt will continue to grow reaching almost 4,000,000 users by the end of 2004 (month 60). The following graph shows the output from the Stock & Flow model.

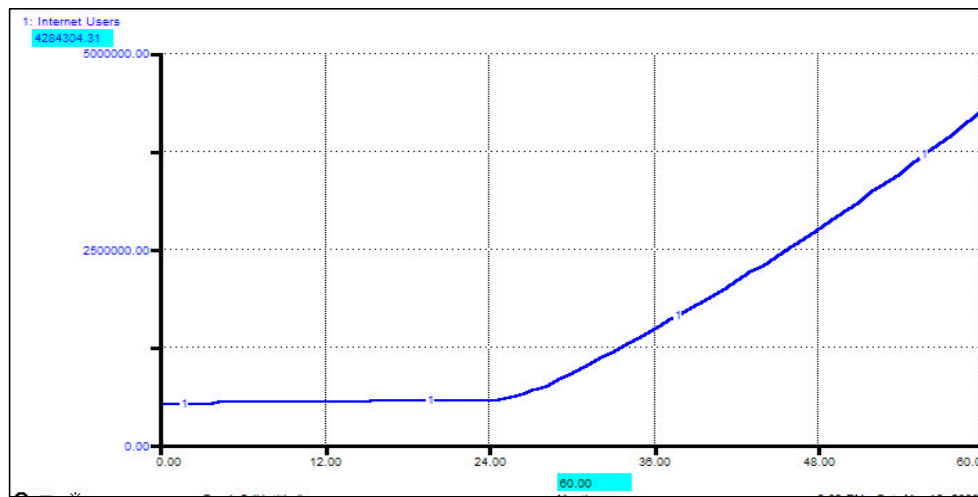


Figure 16 Internet Users projection

Quality and Infrastructure must always be ameliorated by ISPs in accordance with the MCIT/TRA rules and regulations and as a response to the increase in the number of users.

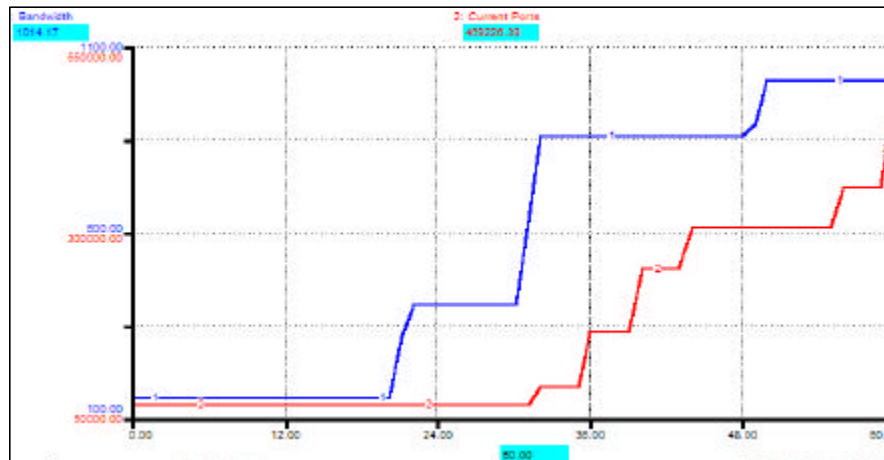


Figure 17 Bandwidth & Infrastructure Projection

The above graph shows the projection of the increase in ports and bandwidth till end of year 2004. Note that the bandwidth graph is an input gathered from interviews as well as MCIT announcements in the newspapers, which says that the total bandwidth will reach 1Gbit/s soon (MENA, 2003).

As a result of users increase and hence competition, more local content sites will be developed by ISPs trying to attract the users to use their free numbers. e-commerce will increase too but not with the same pace as that of the local content. The increase of the local content along with advertisements will increase awareness.

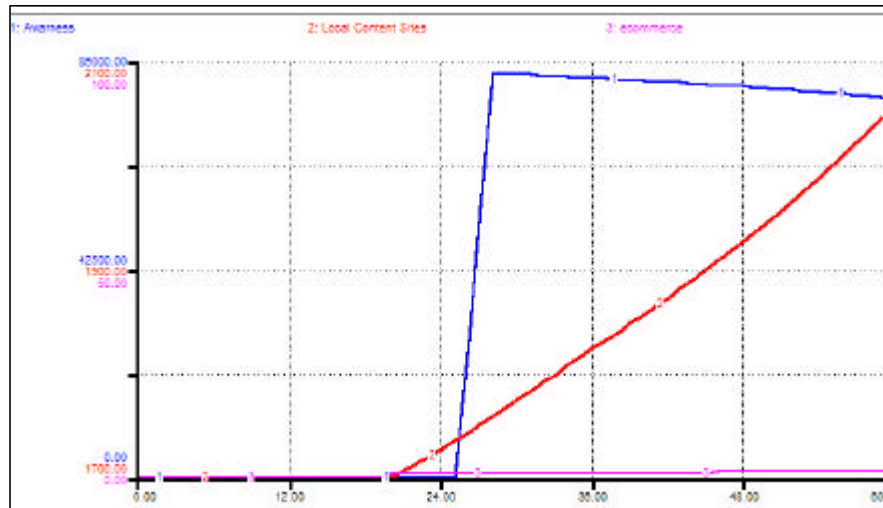


Figure 18 Awareness, Local Content Sites & e-commerce projections

Predictions for the future of the ISPs as gathered from interviews, qualitative and quantitative analysis is that consolidations and mergers will continue to exist. Big ISPs with large capabilities and size will buy smaller ones whether ISPs or portals. Class A ISPs are not to be worried about because of their relations with the ministry and because of their size. Many of the interviewees stated that class A ISPs survival is a political issue, in addition that they have quiet steady revenue, if not from the “Free Internet” dial-up, it is coming from the bandwidth and ports rental business. Class B ISPs future is not as good as class A but some of them have the advantages that class A has and some of them also enjoy the big size and diversity which may guarantee a long life for them.

For these two classes, ISPs must go for consolidation which is confirmed by many of the interviewees who stated that the only advantage of this “Free Internet” model if there are any, is that it brought ISPs together; many of the ISPs are now holding meetings and discussing their problems trying to solve them together and help each other by pushing on the MCIT.

As for class C ISPs, their future will not be very bright especially for those who don’t have a good marketing strategy to follow or who are not backed by good brand named companies or advertising agencies. For this class, either it will fall as an easy target for competition or it will be bought by bigger successful ISPs from class A or B. In the graph below, starting with a number of sixty class C ISPs in 2000, the number is 50 by week 36 (end of year 2002), which is almost true. By the end of 2004, there will be only 25 class C ISPs

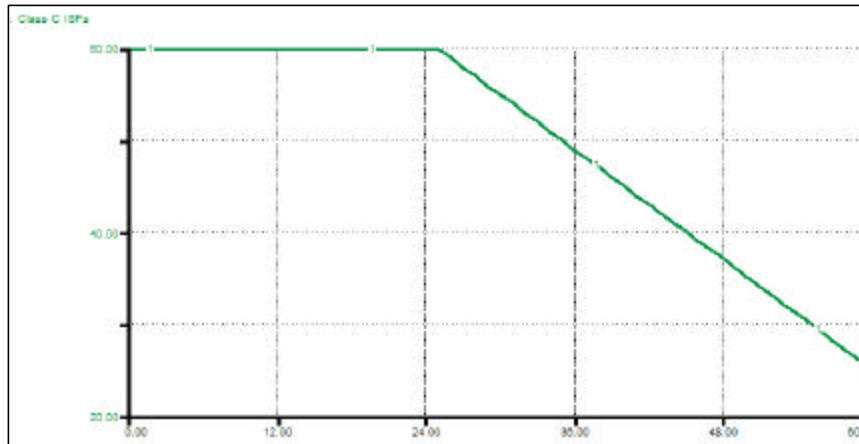


Figure 19 Class C ISPs

## CONCLUSION

The “Free Internet” Project achieved its main aim of increasing the penetration of the Internet in Egypt to a great extent but there were some side effects that could have been eliminated or decreased if the ministry had taken some more steps before the launch of the project, these steps would have increased the penetration of the Internet even more. It is true that the Internet tariff and the subscription fee were an obstacle for many to use the Internet but another more important deterrent was the computer penetration.

The usage of the Internet seems to be increasing too, but with the new telephone bill presenting the Internet usage explicitly and the required amount of money owed for this usage; this could have a negative effect on usage in the coming months.

The “Free Internet” project also had a bad effect on the survivability of the ISPs. Some of them lost their business completely while others still in the market suffer from high costs and low revenue. Very few interviewees, only two out of ten ISP interviewees, said that their revenues are covering their costs; they represented two big ISPs only. The project didn’t only affect ISPs after its launch, but the announcement of the intentions of the Ministry to launch the project almost a year before the actual implementation had the worst effect on the market. Even before the cancellation of the subscription fee, people did not want to pay or renew their subscription because they were confused about the announcement and thought the “Free Internet” project already started at that time during year 2001.

Problems raised before, during and after the project are not only the responsibility of the MCIT but also the ISPs could have eliminated some of the problems they are facing now. As for the MCIT, a deeper study of the market and its determinants as well as the study of the “Free Internet” model implemented in other countries would have helped the ministry avoid the problems faced by others. Also, consulting the ISPs with all the experience they had in the Egyptian Internet market since the 1990’s would have had a lot of benefit for both sides especially that ISPs would have been less resistant to the project. Also, the condition that class A and B ISPs must co-locate their equipment inside TE premises was totally unfair for the ISPs because it costs them more than originally budgeted for, causing an irrecoverable loss in revenue in the short run.



As for the ISPs, they also made mistakes since the announcement of the project; first when they found the subscribers refusing to renew their subscription, they launched a campaign of “99 EGP for Life” subscription. This campaign affected the loyalty of the users because they realized then that these ISPs were just trying to collect money and this life subscription was just a way for doing so. ISPs lost the trust of the customers by doing this. Second, since the announcement, every ISP was buying and extending its ports and infrastructure to all governorates in Egypt as if this ISP would be the only one covering all of Egypt, having 100% market share. These huge investments added to the trouble of the ISPs and after the launch of the project, they all realized that they were overestimating the number of users who would actually use their network and that is why many of them started to decrease and abandon some of the ports installed, which further added costs. A study by the ISPs before their extension would have made a difference and decreased their costs.

The sole and only winner from this project is the end user who has gained a better quality, a higher speed connection, and a larger content in his own language, all this with a lower price. However, the content is still mainly for entertainment purposes such as chatting, music and pictures download, not educational or valuable content which, if it existed, would have made a huge difference to cultural literacy and would have helped the Internet penetration even more, helping achieve the aim of the ministry which was to the benefit of Egypt in the first place.

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