

***e*-Steering Committee Aruba**

Final Report

“To e, or not to be”... would be the phrase of a modern-day Shakespeare.

Aruba, August 2000

Preface

Preface

This document is the final report of the e-Steering Committee of Aruba, the result of many months of voluntary work executed by different public instances and private entities in Aruba. We are convinced that the conclusions and recommendations set forth herein, once adopted, will definitely enhance the possibilities of Aruba to become more successful and competitive in the e-commerce world, just as we have proven to be in many other sectors and industries.

By this means we would like to thank all the volunteers that have given their share of work to this report. We must also mention and thank the former Minister of Transport & Telecommunications Mr. G.F. (Junior) Croes for his initial support, the Minister of Economic Affairs & Tourism Dr. L.G. (Lili) Beke for her attention to this Committee, and the entire Council of Ministers for granting the official status to our work.

We now look forward to a rapid review of the conclusions and recommendations by the government and parliament, in order not to miss this unique opportunity of creating another economic pillar for the island of Aruba.

Ir. Alan H. Riley
President of e-Steering Committee Aruba

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Executive summary

With the explosion of the Internet and e-commerce, most developed countries already recognized the need to introduce a regulatory body to guide, promote, stimulate and regulate the digital economy of their country. This has been proven to be the most efficient way to keep up with the rapid growth and development of e-commerce worldwide.

Aruba also requires this approach and in November 1999, upon initiative of the Aruba Chamber of Commerce & Industry, the inaugural meeting was held between several invited public and private entities, in order to establish such a national platform for e-commerce. This meeting resulted in an overwhelming enthusiasm and support by those present to create a national Committee, with representation of a diverse selection of public and private entities, to be referred to as: the e-Steering Committee.

The official objective of the e-Steering Committee as per State Decree reads:

“Considering that it is desirable to install a Committee to research the possibilities of e-commerce as an economic instrument of diversification, as of July 20, 2000, to install a Committee with the objective to make recommendations to the government to promote e-commerce on Aruba.”

During the past months various sub-groups analysed the issues related to legal and fiscal matters, infrastructure matters, banking and security matters, logistical matters and organizational and educational matters.

In view of the analysed current situation in Aruba with regard to e-commerce potential and possibilities, some of the recommendations set forth by the e-Steering Committee to the government of Aruba are the following:

1. Legal and fiscal issues

- that the government admit other Internet Access Service Providers to the telecom market; the cable-TV infrastructure should also become accessible for multiple Internet Access Service Providers;
- that the government introduce or incorporate similar legislation as the Fair Credit Billing Act, the “30 days shipping rule” and some type of anti-cartel legislation;
- that the government make it clear and legally possible for at least existing “brick & mortar” walk-in casinos of Aruba, to offer Internet gaming for a trial period;
- that the government create with the introduction of the NFF, certain fiscal incentives to promote the establishment of e-commerce (related) businesses in Aruba;

2. Technical and infrastructure issues

- that the government should encourage and support participation in existing and new fibre optic cable systems to be able to meet the expected growth in demand for bandwidth;
- that the government stimulates the introduction of tariffs for Internet services equal or lower than benchmark countries;
- that the government seeks to introduce special tariffs for educational and government institutions and offshore companies, and to commence a full-blown national awareness campaign for users and merchants alike;
- that the government oversees the accomplishment of improvement of the overall service of SETAR on short term;

3. Banking and security issues

- that the government closely monitors through the Central Bank, the possible (future) damage to the economy of Aruba because of local merchants and users making widespread use of foreign e-banking services;
- that the government stimulate local banks to work with foreign banks to offer competitive e-banking solutions to local merchants and users;
- that the government to closely monitors through the Central Bank, the security provided to users with regard to on-line information gathering by local banks;

4. Logistical issues

- that the government establishes a task force within the custom department itself, to further analyse what needs be improved, amended or introduced in order to adequately handle an e-commerce environment in Aruba;
- that the government improves the overall service of the post office on a short term basis;

5. Organization, training and educational issues

- that the government establishes jointly with the private sector, a national incubation centre for e-commerce in order to provide facilities, knowledge and finance to selected, lucrative, locally initiated Internet start-up companies;
- that the government stimulates the creation of an ICT knowledge base on Aruba by organizing and/or stimulating highly qualified ICT training courses;
- that the government increase the budget for hard- and software for schools;
- that the government adjust the school management structure, making them more flexible and adaptable to handle the rapid changes within the labour market;
- that the government further promote and support the concept of "lifelong learning";
- that the government appoint a fulltime, remunerated, ICT acquainted Internet Executive reporting to the Minister of General Affairs, whom will head a National Internet Platform with similar public and private representation as in the e-Steering Committee, in order to execute the recommendations herein to initiate and introduce e-government services and to monitor closely and respond to the rapid ICT advancements and their impact on Aruba as a whole.

Since the Internet moves at the speed of light, a quick decision-making process, as well as a rapid pace of implementation is crucial for the further “e-development” of Aruba. It is the unquestionable task of the government to lead and establish the appropriate environment in which any and all lucrative e-commerce initiatives can actually be solidified to their full extent in Aruba.

1. Background

1.1 History

In order to fully comprehend the current situation of ICT* (Information and Communication Technology) and its future potential, it is necessary to explain somewhat the development over the years of ICT.

Computers, in the beginning, were primarily utilized to automate mainly internal, administrative business processes. Initially, due to high costs of computers and the required know how to operate and maintain computer systems, a more centralistic approach was adopted, where computers (the mainframe*) were optimally utilized from a central location, making use of the then 'high tech' punch cards. Each computer manufacturer built their systems according to their own knowledge and protocols, thus making connection between different systems very difficult, if not impossible. This fact created isolated automated information systems, each having its own dedicated infrastructure. Even the programs and databases were isolated.

By eliminating the punch cards, data communication became possible, being the digital exchange of information on-line. Programmers and end users were then able to work more efficiently and at a certain distance from the central computer. Terminals were connected to the mainframe computer by means of telephone lines. Graphics within applications however laid a heavy demand on the capacity of these 'connections', because increasingly greater quantities of data needed to be transferred between computer and terminals.

Further technological development introduced the minicomputer with better performances in relation to its price. Even hobby and personal computers were later introduced, thus for the first time making computers affordable for individual use. This new generation of computers was utilized by businesses as a 'smart' terminal, still maintaining the centralist approach but with more sophisticated data communication.

All the above developments created the demand for increased bandwidth* for data communication. The use of advanced cable networks, satellite communication and the application of fiber optic technology countered this increased demand for bandwidth. Additionally, during the last decade, an international phenomenon began to take place within the telecom industry, being the liberalization of the telecommunication market and privatization of telecommunication operators. Simultaneously, the demand for telecommunication services increased (e.g. mobile, Internet, Value Added Services) while tariffs began to drop drastically.

* See glossary

The interconnections of systems provided the first networks. In the first instance, primarily within a building of a business, the local area network (LAN*), but soon thereafter also between buildings and locations of a business, the wide area network (WAN*). The private data networks, the SITA* for flight reservations and the SWIFT* for international banking transactions, were amongst the first international networks. Country jurisdictions and legal boundaries were crossed for the first time by single information systems.

The ARPANET in the US connected university computers with each other to simplify the exchange of project data. The amount of thus interconnected, independently owned computers increased dramatically over the years and evolved to what we call today: *The Internet*. Although intended to be a means for sharing information between universities, the Internet is now widely available throughout the entire world.

1.2 From data exchange to e-business

Through the Internet, many new ways of business communication and data exchange became possible, such as e-mail, on-line databases, video conferencing, etc. On the commercial end of the business, the buying, selling and marketing of goods and services started to gain popularity: e-commerce*. The on-line, electronic shopping exploded first in the US and later all continents of the world, in various stages of advancement, were to follow. E-commerce is slowly evolving into e-business*, where all other business processes, besides the commercial ones, are integrated into the electronic world. For purposes of this report, we shall not further elaborate on this evolution, since recommendations for e-commerce will usually be similarly applicable for e-business.

The importance of e-commerce lay mostly in the fact that:

1. All businesses, even smaller ones, can now be reached worldwide at relatively low costs;
2. More detailed information can be easily obtained from customers all over the world which makes one-to-one marketing and make-to-order sales more viable;
3. Traditional procurement chains are strongly reduced, where the manufacturer now can deal directly with end consumers, thus eliminating added costs and unnecessary intermediary distribution channels;
4. The overall productivity increases, which translates itself into more competitive pricing and improved customer service.

Especially for a small island like Aruba, the above aspects play an important role in the attempt to compete on a global basis.

1.3 An organized approach is required for overall success

With the explosion of the Internet and e-commerce, most developed countries already recognized the need to introduce a regulatory body to guide, promote, stimulate and regulate the digital economy of their country. Through private and public initiative, national platforms were instituted to advise governments and execute the mentioned tasks in a well organized, but speedy manner. This has been proven to be the most efficient way to keep up with the rapid growth and development of e-commerce worldwide.

Countries like the United States and the Netherlands have established their national Internet platforms, and our sister island Curaçao has already been through the establishment of their own national platform as well. Similar developments are seen throughout the Caribbean and the rest of the world.

Aruba also requires this approach and in November 1999, upon initiative of the Aruba Chamber of Commerce & Industry, the inaugural meeting was held between several invited public and private entities, in order to establish such a national platform for e-commerce. This meeting resulted in an overwhelming enthusiasm and support by those present to create a national Committee, with representation of a diverse selection of public and private entities, to be referred to as: the e-Steering Committee.

1.4 Objective and scope e-Steering Committee

A petition was made to the Council of Ministers of Aruba, to establish the proposed national platform by means of an official State Decree. This petition was granted, and the State Decree has been issued under number 865/00/m dated July 20, 2000 (see appendix I). The committee however never stopped execution of its work since the initial meeting in November 1999, making it possible to have this report ready at this date.

The official objective of the e-Steering Committee reads that, "considering that it is desirable to install a Committee to research the possibilities of e-commerce as an economic instrument of diversification,

As of July 20, 2000, to install a Committee with the objective to make recommendations to the government to promote e-commerce on Aruba."

The installed thirteen members of the Committee are:

- Aruba Chamber of Commerce & Industry, as President, represented by Mr. ir. Alan H. Riley;

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- SETAR, as Vice-president, represented by Mr. Ludwig Jansen;
 - PricewaterhouseCoopers, as Secretary, represented by Mr. Rub en Goedhoop;
 - Aruba Financial Center Association, as Vice-secretary, represented by Mr. mr. Andin Bikker;
 - Aruba Trade and Industry Association, as Member, represented by Mr. Robert Croes Jr.;
 - Free Zone Aruba N.V., as Member, represented by Mr. Greg Peterson ;
 - Department of Economic Affairs, as Member, represented by Mr. Gregory Maduro;
 - Aruba Hotel and Tourism Association, as Member, represented by Mr. Ewald Biemans;
 - Aruba Bankers Association, as Member;
 - High Commissioner, as Member, represented by Ms. mr. Ell en Kuster;
 - Representative of Council of Ministers, as Member, represented by Mr. Cedric Tilma;
 - Department of Law (Directie Wetgeving), as Member.
 - Tax Department, as Member, represented by Mr. Ronnie Tchong.

The scope of the objective has been kept as broad as possible in order not to undermine the flexibility and creativity required from such a Committee. However, beyond the actual scope of the Committee is the *e-Government* issue, an aspect that certainly does require the necessary attention and which is increasingly important if not crucial for the overall success of e-commerce within a country. Nonetheless, the Committee has taken up to make certain recommendations with regard to this latter aspect as well, which are included in this report.

1.5 Organization e-Steering Committee

The following key issues have been identified as comprising the critical success factors for e-commerce in general:

1. Legal and fiscal issues;
2. Technical and infrastructure issues;
3. Banking and security issues;
4. Logistical issues;
5. Organization, training and educational issues;

Pursuant to the above, the e-Steering Committee has formed a project organization which totally reflects the identified categories of e-commerce issues in its work groups (see figure 1).

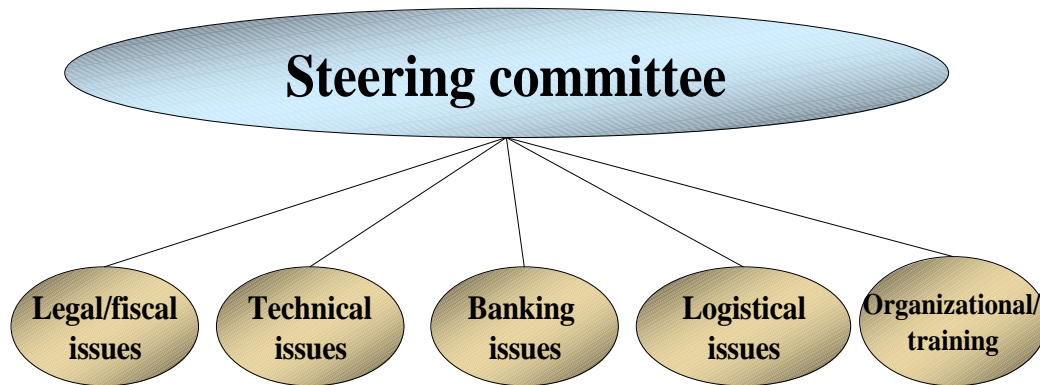


Figure 1. Project organization e-Steering Committee

The identified work groups were then installed, consisting of members of the Committee, as well as other representatives from the public and private sector that were relevant to the tasks of that particular work group. All work groups maintained the same approach in order to produce their requested conclusions and recommendations, being 4 steps as follows:

- I. Analysis of current situation;
- II. Definition of desired situation;
- III. Gap analysis;
- IV. Conclusions and recommendations.

The findings of each work group were scrutinized by the entire Committee, supplemented with more general background, findings and details and subsequently compiled into this report.

2. Analysis legal and fiscal issues

2.1 Introduction

The Internet has proven itself to be a very powerful medium through which merchants can offer products and services to potential clients. The particular commercial dimension of the Internet is that merchants do not limit themselves to using the net as a medium for displaying their products and services, but also to sell the same online.

In this paragraph we will give an overview on some legal and fiscal aspects of conducting business on/ through the Internet, for merchants that operate from Aruba.

The most important areas for the purposes of the paragraph are:

- Telecommunications law;
- Business law;
- Criminal law;
- Banking law;
- Tax law;
- Intellectual property law.

2.2 General remarks

Aruba is an independent partner in the Kingdom of the Netherlands, together with the Netherlands Antilles and the Netherlands. The Aruban law system is a so-called civil law system. Aruba has its own Government, Legislative body, Court in First Instance, currency and Central Bank. Aruba shares an Appeals Court with the Netherlands Antilles ("Gemeenschappelijk Hof van Justitie van de Nederlandse Antillen en Aruba"). The Supreme Court of the Netherlands also serves as Supreme Court for Aruba and the Netherlands Antilles.

Being a former colony of the Netherlands, many laws of Aruba are derived of Dutch laws and regulations. The Aruban law system is based on a principle of hierarchy. Aruban legislation of a "lower" order (e.g. decrees and ordinances), can be nullified in case of conflict with the (articles in the first paragraph of) constitution of Aruba and certain articles embedded in international treaties, which have direct effect in the Aruban law order (e.g. the European Convention of Human Rights).

For the purposes of this paragraph we have investigated primarily the laws of Aruba as it stands and has been interpreted in published case law of the Court in First Instance of Aruba ("Gerecht in Eerste Aanleg van Aruba"), the Common Appeals Court

of Justice of the Netherlands Antilles and Aruba ("Gemeenschappelijk Hof van Justitie van de Nederlandse Antillen en Aruba"), and the Supreme Court of the Netherlands ("Hoge Raad der Nederlanden") (collectively: the "Courts of Aruba"). Where necessary we refer to relevant laws and/or regulations of other jurisdictions.

2.3 Telecommunications law

Telecommunication in Aruba is basically regulated in the Ordinance for the institution of the Telecommunications Company of Aruba ("SETAR", 1992), The Ordinance containing general regulations for telephone connections (1959), the Ordinance for Telephone tariffs (1992), the Decree Conditions for Cellular Services (1994), the Regulation for the Admission of Cellular Systems (1994), the Telegraph and Telephone Ordinance (1996), the Decree Conditions for Internet Services (1997), and the Decree International Phone calls (1998).

According to the explanatory memorandum ("Memorie van Toelichting") on the Ordinance for the institution of the Telecommunications Company of Aruba, others that want to operate on the Telecommunications market have to request a concession based on the Telegraph and Telephone Ordinance. However, the Government of Aruba up this date seems to favor a policy that de facto gives SETAR a monopoly on telecommunications services, including Internet access services through "SETARNET". For cable (television) services there is a monopoly position that is being occupied by the Cable Television of Aruba N.V.

In the light of relevant jurisprudence regarding monopolies in telecommunication, a monopoly position on telecommunications in general (including Internet services) cannot be sustained much longer. The Government of Aruba is slowly realizing this, but at the same time is not very keen in speeding up the liberalization of the market as much as possible, most likely to come with certain "updated" rules and regulations. In the meantime the Internet economy is moving at the speed of light (for example: broadband Internet access services through wireless, laser, cable and (A)DSL* networks, "evolution of wireless devices within the Internet through third generation GSM* web enabled phones).

Its is a fact that SETAR can offer Internet Services based on the conditions set forth in the Decree Conditions for Internet Services; it is however unclear why other Internet Access Service Providers cannot be admitted to the market under the same or similar conditions, to be set forth in their license. The same applies for cable Internet services: the cable TV infrastructure should be accessible for Internet Access Service Providers.

2.4 Business law

2.4.1 Law of contracts in general

The general principles of law of contracts as embedded in our Civil Code can be applied on contracts agreed through/on the Internet. However, given the fact that e-commerce contracts often involve “cross-border” agreements (agreements involving the private civil laws of more than one jurisdiction) the rules of international private law are also of utmost importance.

2.4.2 International private law of Aruba

International private law of Aruba, pursuant to jurisprudence and the EEC Convention Applicable to Obligations out of Contract, allows choice of applicable law, which will be recognized by the Courts of Aruba. Therefore, the choice of law in a “cross border” e-commerce agreement will be recognized by the Courts of Aruba, provided that these agreements constitute the legal, valid, binding and enforceable obligations under the chosen law, to which they express to be subject. However, when applying the laws of the chosen jurisdiction, the Courts of Aruba may refuse to apply that law if such application is manifestly incompatible with public order of Aruba.

International private law of Aruba, pursuant to jurisprudence and/or applicable treaties, also allows choice of applicable forum. Therefore, the Courts of Aruba will honour and recognize the selection by the parties to the cross border e-commerce agreement, of the applicable forum mentioned therein. However, in the absence of a convention between for instance the United States and the Kingdom of the Netherlands (applicable to Aruba), providing for the reciprocal recognition and enforcement of judgments in civil and commercial matters, a judgment rendered by a Court in the United States, will not readily be executable in Aruba. In order to obtain a judgment that is enforceable in Aruba, the counterpart will have to bring its lawsuit against the Aruban party before the Courts of Aruba.

2.4.3 International private law and consumer protection: a practical approach

Many essays and articles have been written regarding the “e-consumer” protection and international private law aspects of cross border e-commerce agreements. However, few authors realize or point out the fact that most cross border e-commerce agreements involve purchase agreements, where the purchase price is relatively small (which often does not render it feasible to start litigation in case of breach of contract) and is paid by credit card.

In the United States, where most of the current Internet merchants are based, a credit card user is basically legally protected by the same Federal laws that protect

mail and telephone orders (the so-called “Fair Credit Billing Act”). The Fair Credit Billing Act basically provides for the possibility to withhold payment and to dispute charges (“charge backs”/ “billing inquiries”). Another important US legislation is the “Mail/ Telephone Order Rule” nicknamed as the “30-days shipping rule”, which protects the consumer from merchants who take payment but do not ship the goods in a timely fashion. If the merchants does not specify a shipping period on its website, the order must be shipped within 30 days.

In Aruba it is unclear if, and to what extent the Aruban based Credit Card Institutions provide charge back and/or other facilities to their card holders, similar as those by virtue of the Fair Credit Billing Act. In any case there seems to be no explicit Aruban legislation on this matter. The same applies for the 30-days shipping rule.

Another issue is the artificial maintenance of high price levels as a result of informal intercompany agreements/understanding. The Aruban legal system lacks anti-cartel legislation, which makes it thus possible, even with free enterprise rules and multiple players in the field, to artificially maintain high rates.

2.4.4 Corporate law

The corporate law of Aruba is embedded in the Code of Commerce (the limited liability Company/ “Naamloze Venootschap”, the Aruba Tax Exempt Company/ “Aruba Vrijgestelde Venootschap”), the Civil Code (the association/ “vereniging”), the Ordinance on Cooperatives (“cooperatieve vereniging”) and the Ordinance on the Foundation (“stichting”).

The Internet is just another (yet powerful) medium through which the corporate bodies can conduct business transactions. The Corporate Law of Aruba can be considered currently adequate for an e-commerce environment. However, it may be advisable to consolidate our corporate law in one Civil Code (compare the second book of the Civil Code of the Netherlands).

2.5 Criminal law

The Penal Code of Aruba does not specifically provide for penalization of computer or Internet related crimes (“hacking”, unauthorized copying of files, unauthorized personal information distribution and e-mail spamming, electronic virus production and distribution, etc.). Therefore it is advisable to introduce or adopt legislation on this matter.

There is great uncertainty as to the legality of Internet gaming offered by merchants based in Aruba. Article 266 of the Penal Code of Aruba prohibits the offering or facili-

tation of games of chance without a license. The Ordinance on Lotteries has similar provisions.

The Ordinance on Games of Hazard makes it possible to obtain a license for normal “onshore” activities, such as a normal “walk in” casino. Although several applications to obtain licenses for Internet casinos have been made, up to this date no such specific license has been issued. It is also unclear if a normal “walk in” casino could offer Internet gaming under its existing license.

The Ordinance on Lotteries is focused on licensing institutions that use the proceeds for sponsoring activities on behalf of the (sporting) community. The popular national lottery “catoochi” is formally illegal, but has been openly tolerated by the competent authorities.

Aruba is known for its “walk-in” casinos. Internet casinos have a better paper trail than “walk-in” casinos, so the Government can easily know what is going on and what the taxable “net” drop is. Therefore it is advisable to make it possible for at least existing “walk-in” casinos to offer Internet gaming for a trail period. If this trail period leads to good results make it possible for virtual casinos to operate from Aruba. The Netherlands Antilles for instance have already adopted their legislation for Internet Gaming and sports book (“Landsverordening Buitengaatse Hazardspelelen”).

There is also great uncertainty as to the legality of offering pornographic material through the Internet from servers based in Aruba. Article 245 of the Penal Code of Aruba embodies a general prohibition regarding the “public display” (“openlijk tentoonstellen”) of “indecent” (“aanstotelijk voor de eerbaarheid”) material. Article 246 of the Penal Code of Aruba has a prohibition regarding the offering or display of indecent material to minors younger than 18 years of age. It is not defined if digital presentation or display of such “information” on-line is subject to these laws.

2.6 Banking law

Banking law is for purposes of this report of importance in so far it relates to Internet Banking services. The new Ordinance for the Supervision of Credit Institutions (“Landsverordening Toezicht Kredietwezen”) can be deemed to offer sufficient tools to supervise Internet Banking. The Central bank of Aruba has not set any additional requirements or conditions with regard to Internet Banking. The requirements however with regard to identification, signatures etc. via the Internet will need further analysis, and these are addressed in the banking and security section of this report.

2.7 Tax law

The International tax law consequences of e-commerce are not clear or have not crystallized yet. Basically normal local tax legislation will apply for Aruban based merchants that generate income from e-commerce activities. Other taxation tools (as the so-called permanent establishment) can be used to try to tax income derived from certain forms of Aruba based/related e-commerce activities.

The Government of Aruba has announced the introduction in the near future of the New Fiscal Framework (NFF), by virtue of which the difference between on- and off-shore companies will be abolished. It is unclear what will happen to the Aruba Tax Exempt Company under the NFF. In any case it is advisable to create with the introduction of the NFF, certain fiscal incentives to promote the establishment of e-commerce (related) businesses in Aruba.

The new Ordinance for the Free zone(s) of Aruba is a welcome tool that will offer several new prospects to e-commerce oriented free zone companies.

2.8 Intellectual property law

Trademark and copyright are the intellectual property rights that are most likely to be infringed when doing business on/ through the Internet. In this paragraph we will limit ourselves to trademark.

Up to this date no issue of trademark infringement through the Internet has been brought before the Courts of Aruba. However, in the Netherlands, from which jurisdiction our Trademark legislation has been derived, a couple of cases have been brought before the judge in short proceedings.

Insurance Group and other plaintiffs asked the judge in short proceedings an interim injunction against IMG Holland, because IMG was infringing their Trademark. Bank Labouchere and Delta Loyd were the owners of the trademarks "Labouchere" and "Delta Lloyd". IMG Holland had registered a.o. the names "labouchere.com" and "deltalloyd.com", and was basically operating on the same market as Labouchere and Delta Lloyd. The judge concluded that the IMG was infringing the trademarks of Labouchere c.s. and ordered IMG to stop the infringement and turn over the domain names to the plaintiffs. In this case both the plaintiffs and the defendant were established in the Netherlands.

In a more recent short proceedings case (k.g. 1999/185), the trademark owner of "Intermediar", asked the judge in short proceedings an interim injunction against The Monster Board. Both the plaintiff and the defendant are intermediary agencies for

people that are looking for a job. The Mother Board entered into an agreement with a search engine, whereby whenever somebody using the search engine would type the keyword “intermediar”, automatically the banner of The Mother Board would appear. The judge found for the plaintiff and ordered The Mother Board to stop the infringement. In this case both the plaintiffs and the defendant were established in the Netherlands. However, the judge also determined in the question if he had jurisdiction, that he had such because of the fact that the “Internet manifests itself also in the district where this Court resides, and that therefore the alleged infringements (may) have also taken place in this district”.

3. Analysis technical and infrastructure issues

3.1 Current situation

The national telecom operator SETAR currently provides all telecom and Internet services in Aruba. Both dial-up and leased services are provided through a fully redundant, technologically very advanced, fully digital network.

With regard to interregional Internet Protocol* (IP) traffic, Aruba forms a part of the Latin America & Caribbean block of countries, which is one of the five identified blocks of countries throughout the world (see figure 2). The greatest part of IP traffic goes through the US & Canada block of countries, whereas the highest traffic volume between blocks occurs between the blocks of US & Canada, and Europe (13,258 Mbps). The traffic volume between the US & Canada and our block of countries comes in far low third (at 949 Mbps). The traffic volume between blocks of countries has a great influence on the interregional bargaining position with regards to telecom provisioning costs, which partly determines the local tariffs.

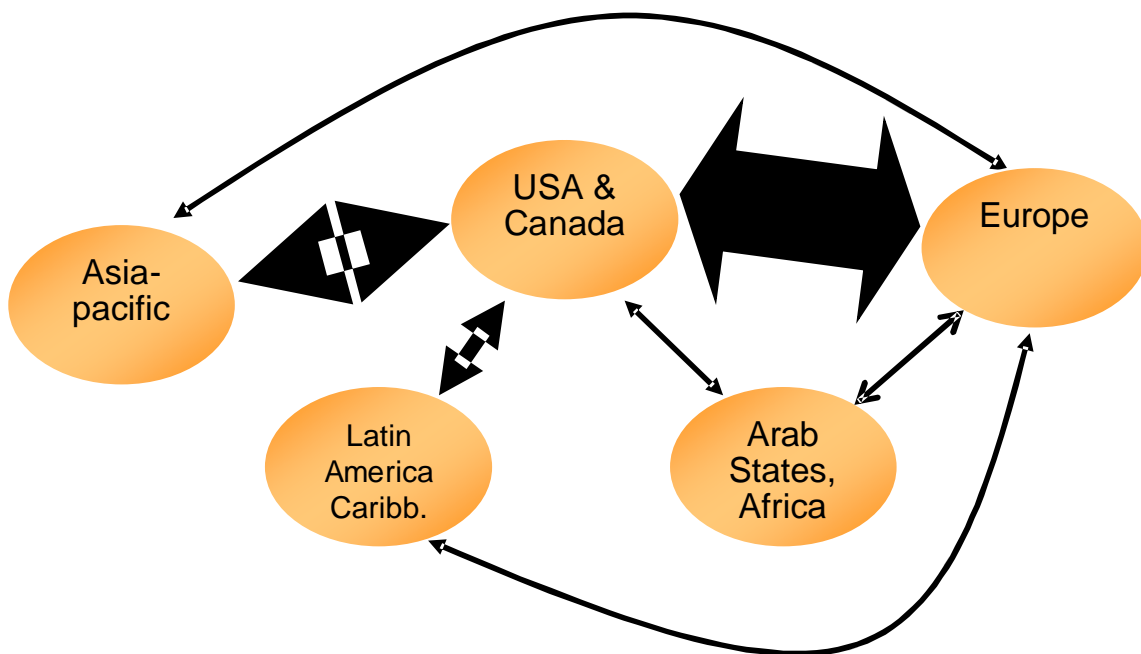


Figure 2: Interregional IP traffic.

Besides providing satellite communications through its Standard A and B satellite ground stations, SETAR participates in several fibre-optic cable systems in the Caribbean. Aruba is a landing point for the Pan American Cable System and Alonso de Ojeda, the latter jointly owned by SETAR and Antelecom/UTS. Connectivity to other cable systems such as Americas II, of which SETAR is an owner, is or can be achieved via the Alonso de Ojeda cable.

Currently, the total available (on demand) bandwidth for E-commerce applications is 155 Mbps (1 STM-1*), whereas the total bandwidth currently used for Internet is 6 Mbps. In October 2000, a new Internet service platform will be implemented by SETAR, increasing the bandwidth to 8 x 2 Mbps and providing more e-commerce possibilities. A total bandwidth of 34 Mbps will be readily available, which can be activated as needed.

The new internet service infrastructure as planned by SETAR will include high-end redundant servers capable of hosting e-commerce applications. Also, the network will be made ready for re-selling, allowing expected newcomers to the ISP market a speedy and cost effective entrance. Frame-relay access up to 2Mbps will be available in the third quarter of 2000. Higher bandwidths will be accommodated through special arrangements.

Dial-up access is currently available through POTS* and ISDN* (up to 128 Kbps). By the first quarter of 2001 ADSL (Asymmetric Digital Subscriber Line) supporting G.Lite* (1.5 Mbps) and G.Dmt* (up to 8 Mbps) and support for the Wireless Access Protocol* (WAP) is expected.

The number of phone line connections in Aruba runs about 40,000, and is growing at a steady rate (8% in 1999). The number of cellular connections is now about 14,000, and growing drastically (4% on a monthly basis), especially since the introduction of the "calling-party-pays" principle. The number of Internet (dial-up) subscribers is currently 6,000 since its introduction in 1996. This number is expected to double within 12 months, based on the current trend of computerization of businesses and homes, and the planned reduction of tariffs. One must bear in mind that the subscription to SETARNET is often not personal and is used by multiple users within the business or home environment.

3.1.1 Review of current situation

- SETAR is the national operator and sole provider of telecom services in Aruba. There are several requests for ISP licenses, and even request for other mainly wireless telecom service providers.
- Despite being a monopoly provider, SETAR has the lowest price of the ABC islands for unlimited dial-up access (Afl. 50,00/month) and offers the highest dial up access speed (128 Kbps ISDN). See appendix II.

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- The supply of dedicated Internet access is however limited to a maximum speed of 64Kbps. The service of “Frame Relay access” up to 2Mbps has been recently approved by the Government and will soon be introduced.
 - SETAR has a capacity for fixed telephony to cover 95% of all residential and business users in Aruba and has a penetration of approximately 40%;
 - There are currently no or limited capabilities for wireless access (WAP, GPRS*, etc);
 - SETAR has recently introduced a special rate for 6th grade graduates for Internet use.
 - The available hosting services are limited, currently obliging local businesses to host their sites abroad. However, the first local full hosting services are recently approved by the Government and will soon be introduced by SETAR.
 - The service of SETAR as well as Setarnet is considered very poor and definitely must be improved.
 - The decision making process for most important telecom issues (e.g. tariffs, investments, personnel, etc.) are subject to political influence and are thus often based on non-commercial, political factors and furthermore are very time consuming.

3.2 Projected situation

In order to be globally competitive with e-commerce, a reliable and state-of-the-art IP infrastructure access must be widely and redundantly available, whereas tariffs must be accessible to the greater part of the population. The desired situation is best characterized by:

- An open Internet Service Provider* (ISP) market, whereby newcomers to the market compete on quality, customer service and price using a central international infrastructure to maintain a strong international negotiation power;
- The availability of high speed dedicated Internet access at affordable rates, for international and local businesses as well as for residential use;
- The availability of hosting capabilities offered by local ISP's at competitive prices.
- A 99.97% Internet access availability, at par with international standards, which translates into a maximum of 2.6 hours of downtime on a yearly basis;
- A capacity for 100% user connectivity;
- State-of-the-art mobile connectivity;
- Decision making process based on commercial, non-political considerations.

4. Analysis banking and security issues

4.1 General Introduction

Payment, just like in real-life commerce, plays an important role in e-commerce, but because of the anonymity that exists on the Internet there are different security issues. These security issues can be divided into the customer's security issues and the merchants' security issues.¹ The two most important issues for both the customer and the merchant are fraud and charge-back.

4.2 Credit card fraud

4.2.1 Background

Virtually all Internet sales involve a credit card, and retailers as diverse as apparel makers and operators of adult sites all report that their e-commerce operations have been fallen victim to credit card fraud. Merchants and industry groups report that fraudulent Internet orders tend to fall into two categories: items that can easily be exchanged for cash, and transactions that do not require physical shipment of goods. The former includes products like consumer electronics, diamonds and gift certificates, the latter downloadable software and subscriptions to adult entertainment sites.

Research on e-commerce credit card fraud rates is incomplete. Some research has been done by security software companies, which have an interest in highlighting the issue. But preliminary data gathered by the Internet Fraud Prevention Advisory Council, a non-profit group of merchants and software makers formed in October 1999, points to rates ranging from 2 percent in some product categories to as much as 40 percent in others. Interviews with dozens of merchants and industry insiders suggest that data is accurate.

While there's little difference in the rate of credit card fraud, whether the transaction is face-to-face, by mail order or phone order, or by online sale, security is an important part of e-commerce. For the client (a business or a natural person) it is important to know that all the information which is entered while executing a purchase and sale transaction, cannot be acquired by anyone else, whether it is the credit card number or personal information. This can be achieved by encryption of the entered information. Public Key Infrastructure* (PKI) has emerged as the preferred security method to aid online businesses in combating Internet security threats. Online fraud is also perpetrated the old-fashioned way: cards are stolen in the real world and used to purchase goods or services on-line.

¹ "Web Security – Tackling the faceless threats on the Internet. Andrea Wilson. ECQ Spring 00.

4.2.2 The payment process on-line or off-line (Face to Face)

When shoppers make an on-line or off-line purchase, the complex gears of the credit card payment process are set in motion. While many of the steps are the same whether the sale is at a physical store or at a Web site, the safeguards available for each are far different.

The credit card transaction starts when the card information is sent from the merchant to the "acquiring bank" – the bank that provides the merchant with its credit card processing account. The information then moves on to the networks run by credit card associations, most notably Visa and MasterCard, and is routed to the bank that issued the shopper's credit card, also known as the "issuing bank". That is the bank that will perform a number of checks to verify that the card is valid, that it is not over limit and has not been reported lost or stolen. If the transaction is accepted, the acquiring bank will issue an authorisation – a move that will set aside the needed funds in the buyer's account and notify the merchant of the approval.

Once the merchant has authorisation, it will issue a request to "capture" the funds. The request, once again, will flow from the merchant to the acquiring bank, through the credit card association's network to the issuing bank. The final step is when banks settle accounts, which typically happens after hours. The issuing bank transfers the funds to the acquirer, who then passes them on to yet another bank, the merchant's bank. Credit card transactions are further complicated by a number of third parties. Payment processors like First Data and Paymentech often take care of one or several of the transaction stages, providing their own verification services. And other companies such as HNC Software (HNCS) often stand between merchants, payment processors and banks, providing additional checks to combat fraud.

A number of security checks are set up in the system: magnetic strips, signatures and, more recently, a three-digit code. But for the most part these were designed to ensure the security of face-to-face transactions. Additional checks were put in place, most notably Address Verification Services*, or AVS, which are performed by payment processors to make sure the credit card billing address and shipping address coincide.

But the Internet makes the risk of fraud much greater. The most risky transaction in the real world is with telephone orders where a consumer communicates with a customer service representative on the phone. In an Internet environment the risk of the transaction increases due to the fact that a computer communicates directly with another computer. Additionally, savvy fraudulent individuals can attack merchants from

anywhere in the world with simple software scripts that target hundreds if not thousands of merchants simultaneously.

Part of the problem, according to some merchants, stems from the large amount of players that make up the credit card payment system – the merchants, issuing banks, acquiring banks, merchant banks, credit card associations, third-party payment processors and security software makers, to name a few. All the diverse players are linked by a complex set of relationships and alliances. While ultimately everyone has an interest in reducing overall fraud, each player in the game has its own vested interest and constituency or customer group to protect.

To guard online transactions, the credit card associations have thrown their weight behind the Secure Electronic Transaction* (SET), which would give transactions a high degree of security. But SET is a technology-heavy solution that requires shoppers to install software on their systems, and it has as yet failed to be adopted in the marketplace. Credit card companies have invested millions of dollars in the system and are still pushing the SET protocol, but most in the industry doubt it will take hold.

Many merchants are beefing up their security with software from companies such as CyberSource, HNC, Clear Commerce and others.

Credit card and security companies are also looking at new technologies, such as smart cards, fingerprint readers or retina scanners, that might help reduce the risk of online transactions. American Express, for instance, is busy promoting the Blue Card, which includes a chip. The company gives customers who request a Blue Card a free card reader to connect to their PCs. But such a system will be effective only when card readers are in widespread use and merchants require that a transaction originate from a card reader. So far they don't, and the protection offered by the chip is little more than feel-good marketing. Credit card companies say that smart cards have become effective in some European countries where they are widely used.

4.3 Credit card charge-back

The risk of charge-back is another aspect of e-commerce that is a factor for the merchant and the bank that has the license of a credit card company. While the rules protecting consumers are the same online and offline, the rules that spell out who is responsible for unauthorized charges, are not. In the case of a face-to-face transaction, the merchant that follows established rules – checking the signature, verifying codes on the card, and delivering a satisfactory product or service – is typically not liable. The issuing bank that approved the transaction is saddled with the charge-back.

In addition to lost sales, merchants that are victims of fraud are charged a penalty for every charge-back – the refund issued to consumers for unauthorised charges. If charge-backs become frequent, banks will charge a merchant a higher commission rate for credit card transactions, introduce a revenue rolling holdback system or drop them altogether.

For the merchant a charge-back could be refunded out of a reserve, the so called revenue rolling holdback reserve. In this case, a certain percentage of the merchants credit card revenue is withheld for some time by the bank (usually 6 months) to cover possible charge backs. But if the merchant doesn't have the sufficient funds to cover a charge-back the bank will be the one that will have to cover this. If the amount of charge-back reaches more then a certain stipulated percentage, the bank is charged with a fine. If this happens on a frequent basis, the bank may be confronted with the lost of the license granted by the credit card Company.

4.4 Current situation in Aruba

Through the Internet Aruba is connected with the global economy but still the use of a personal computer to conduct business via the Internet, either Business-to-Business (B2B) or Business-to-Customer (B2C), is not a wide spread phenomenon. The hesitance of the Aruban people is not uncommon but is seen across the world. Customers as well as merchants are preoccupied with the dangers that exist on the Internet because of the anonymity that exist on it.

The Aruban banks that offer Internet services to their clients have taken measures to prevent the problems associated with online credit card processing, as have the other banks of the world. Encryption of the information that passes through the systems is not uncommon. One of the banks in Aruba that offers clearing of Internet sales has formed an alliance with a company called EPX, which is an official independent sales organization from VISA/MasterCard that designed and programmed a software to make Internet processing of credit cards more secure and reliable. Charge-back can be resolved by taking insurance and having a buffer for charge-backs (rolling holdback). The higher standard of encryption offered by US banks (128-bit) provide a competitive advantage above non-US banks, including Aruba. Although some Aruban banks are offering services for e-commerce entrepreneurs, most of the banks are just waiting to see how the e-business market will evolve.

4.5 Projected situation in Aruba

Ultimately the market will compel Aruban banks to follow the online banking trend, as in the years to come e-commerce will continue to grow. People will not only do busi-

ness on the Internet but the Internet will also take the place of the long queues at the government offices, banks and other instances. The world will be electronically connected, however face-to-face commerce will not disappear completely.

In order to be globally competitive with e-commerce, e-banking solutions are surely a crucial factor. Local banks must be able to offer services of on-line credit card processing and on-line banking at an internationally acceptable level as not to lose market share of local consumers and businesses to foreign banks. Working in alliance with foreign banking institutions is most likely the approach in order to spread the risks as much as possible, and also when considering the required encryption needs. The local consumer and merchant must eventually feel secured and comfortable to conduct business over the Internet and to provide confidential information on-line.

It is also envisioned that local currency credit card (AWG) should become widespread available and used in Aruba, so local payments can be made electronically in Aruban florins, without consumer losses through currency exchange rates. This will greatly stimulate the use of credit cards by locals, on-line and off-line. A local bank has recently already announced the introduction soon of a local or dual currency credit card.

Setting the example for local businesses and users, the government can introduce the possibility of payment of taxes, fees, and contributions for governmental services by means of local currency credit cards, on-line and off-line.

5. Analysis logistical issues

5.1 Introduction

Clearly, e-commerce will not work without the proper logistical aspects in place. When businesses or customers do their business and shopping online, the following logistical aspects are of crucial importance:

- the airlines and the airport;
- harbour;
- customs;
- delivery services.

5.2 Airlines and airport

As a major tourist destination Aruba has relatively many airlines that have Aruba as one of their destinations. This influx of airplanes makes fast delivery of air cargo to and off the island possible.

Currently the Reina Beatrix International Airport is in the second phase of its expansion project and it is scheduled to be completed in August 2000. Upon completion the airport is one of the most modern airports in the region. Already major improvements are visible and with the new airport Aruba positions itself as a serious hub between the United States and South America providing an excellent basis for all in- and outbound traffic. At the same time, research indicates that the choice for a hub will increasingly be made on factors such as connectivity, 24-hour operational capability and price. Especially on the last aspect there is still room for improvement.

5.3 Harbour

The Aruba Ports Authority (APA) is responsible for the management of the harbour. Cargo ships as well as cruise lines can make use of the services of APA. Currently, APA is also busy with a big expansion project. It will move to Barcadera. Once this move is completed, the harbour will be one of the most modern in the region, making it also a serious hub within the region.

5.4 Customs

The Aruban customs constitute also an important link within the logistical process.

The average throughput time of processing the goods into and from the island is two to three days. However, during peak periods (e.g. December) this throughput time increases often to unacceptable levels. Also, too often goods are processed improperly because of matters as incorrect filling of forms, missing information, etc. Organizational restructuring, updated procedures and information systems may help customs to improve its services.

Another possibility to minimize paperwork and reduce throughput time is to establish new rules and conditions for inspection. The Netherlands for example have abandoned the 100% inspection rule and has now three different categories for clearing goods:

1. Immediate clearance;
2. Limited inspection;
3. Full inspection.

The Aruban customs plans to also abandon the 100% inspection rule. Additionally, the Aruban customs has plans to reduce the paper work by introducing the possibility of on-line declaration (Asycuda ++ system). Furthermore, the Aruban customs is currently investigating the possibility to declare the goods before the ship has even arrived on Aruba.

5.5 Delivery services

A forth link in the logistical matter is the group companies that are specialized in delivery services. The major delivery companies on Aruba are:

1. Post office;
2. Courier services (FedEx, UPS; IBC, etc);
3. Freight services.

As concluded in a recent survey conducted by the government, the general opinion of the post office's service is that it is not up to par. The post office is government owned and is currently in the process of privatisation. However, still various changes must be implemented before the post office will be ready for e-commerce.

For the post office, fast and guaranteed delivery of the goods must be their main target. The post office should be customer oriented and fully service minded in order to compete with the other delivery companies.

Companies like FedEx, UPS and IBC have a strong base on the island. Obviously they depend heavily on the airlines and airport. Their business is mainly international delivery (from or to Aruba), and not so much locally oriented.

The prices for inbound (to Aruba) traffic differ from the prices for outbound (from Aruba) traffic, since each office of the country of origin stipulates its prices. Prices for outbound traffic are fixed at a higher level than inbound for same route, for already four years. However, as e-commerce will grow in Aruba, the need for local deliveries will also increase, as will the market pressure to lower outbound rates.

Since Aruba as an island depends on the import of goods, it already has an ample infrastructure and has gained vast experience in the field of freight services. However, it still happens that damaged or incomplete goods are being delivered, or even worse, goods are not delivered due to theft or negligence.

The basic conditions for smooth processing of freight are present (container storage, procedures, etc.) Obviously the performance of the freight services greatly depends on the other facilities such as the harbour, airport and customs.

5.6 Free Zone

The free zone is managed by Free Zone Aruba (FZA) NV and is an export zone, intended primarily for companies that export their goods and services. Under certain conditions, it is permitted to sell a small portion of the merchandise locally. The free zone offers convenient warehouse and office space to companies established there. Moreover, no customs duties are levied on goods stored and processed in the free zone and free zone companies enjoy a low 2% profit tax rate. Other facilities include around-the-clock security service, maintenance of premises and a one-stop-shopping model.

Recently, Parliament approved the new Free Zone Ordinance 2000, which opens the way for new and different business activities to be conducted from the free zone. Service oriented businesses, including e-commerce, will be allowed to operate from the free zone, which creates many business opportunities. For example, the free zone will be a perfect location for companies that do international business electronically without goods being handled on Aruba, or for companies that need storage space for their goods ordered via Internet that need to be delivered to customers in Latin American and the Caribbean region. And many other combinations are imaginable. Here, logistics play an important role.

An important development that will improve logistics and promote Aruba as a regional HUB, is the construction of a new state-of-the-art free zone at Barcadera, adjacent to the likewise to be constructed modern cargo harbor and at close proximity to the modernized and expanded international airport. Together, airport, free zone and

harbor will form a strategic triangle that will cater to the ever-growing need for improved logistics and combined transshipment facilities.

6. Analysis organizational, training and educational issues

6.1 Organizational aspects of e-commerce.

6.1.1 Introduction

It is an often-made mistake to consider the Internet and e-commerce as 'just another media' for continuing with or expanding your current business. It has been proven to not be the case, and Aruban merchants should not fall into this trap, nor should they attempt to invent the wheel all over again with regard to e-commerce strategies. The most successful e-businesses nowadays are based on entirely new business models, thus models that never existed before the worldwide explosion of the Internet. Some good examples of new business models are:

- Amazon.com introduced the "1-2-1 marketing system"*;
- EBay.com and Priceline.com became new type of intermediaries between sellers and buyers;
- Yahoo.com and Excite.com are some examples of 'free' search engine and portal services.

The primary business assets, once considered to be labour, material and capital, are now making way for the new era of business assets, being information, creativity and initiative. Once you enter the e-commerce market, you enter literally a new world of business. Your competitor may be next door or on the other side of the world. It is apparent that, generally speaking, local merchants are not fully aware of the threats of e-commerce that lay ahead if they just continue their current business activities without preparing themselves for this new worldwide economy. Furthermore, the for successful e-commerce highly necessary entrepreneurial spirit, creativity and initiative is somehow apparently lacking among local merchants.

Analysing the local market, the following items with regard to the organizational aspects of e-commerce in Aruba have been analysed: consultancy, web design & hosting, hard- and software suppliers and incubation centres.

6.1.2 Consultancy

Transition from traditional enterprise into e-commerce requires professional guidance by an e-commerce expert or consultant. Local consultancy firms are gearing up for the e-commerce boom, even though some disappointment is noted when it comes to the awareness, enthusiasm and susceptibility of local merchants. The local professional service level is considered good, especially since most international affiliated consultancy firms have trained their local consultants in this area and have a broad base of experts from foreign affiliates on which they can depend for specific tasks that require higher expertise.

6.1.3 WebDesign and WebHosting

There are several web-design and web-hosting firms that have emerged in Aruba during the last two to three years. Fact of the matter is that all hosting activities are done on foreign servers. The build-up of design expertise and hosting service level is however not at par with international developments. This lies mainly in the fact that the demand for these services are definitely lagging behind as compared with "e-developed" countries.

6.1.4 Hard- and Software Suppliers

The local suppliers of computer and network hard- and software are able to provide all that is required to be successful in e-commerce. This aspect is thus generally not considered as a bottleneck. It has become increasingly general practice to order hard- and software via the internet or direct delivery services from the US at lower prices. The delivery period, transport costs and import duties are often forgotten by customers in these cases. This is evidence of the loss of market share by local merchants to foreign competitors.

The pricing level of equipment may be higher in most cases (as compared to the US) due to low scale. However, comparing Aruba with benchmark countries as the neighbouring Caribbean islands provides a more realistic and apparently competitive scenario. Nonetheless, current equipment pricing is not a disturbing factor in conducting a profitable e-business on Aruba. The technical support and service level is however lacking in many cases, and will require more attention in the future as e-commerce get foothold on the island.

6.1.5 Incubation Centres

As stated before, the success of e-commerce activities is strongly based on creativity and initiative of entrepreneurs. However, financing of new business models is often a difficult item, since there are no historic figures to extrapolate from, nor proven track records upon which to base considerations. In e-developed countries during last few years, the development of "incubation centres" is gaining popularity. These centres, often public-private partnerships but sometimes also fully private, are founded to stimulate and help entrepreneurs develop their newly designed e-commerce ideas or businesses. A highly successful public-private example is the "Twinning program" of the Netherlands.

The Twinning Centres in the Netherlands are open for all individuals or businesses with seemingly lucrative e-commerce initiatives, and that comply with the pre-set criteria of the Centre. These Centres provide selected projects with three specific areas of assistance, being:

- a) Consultancy services, through a network consisting of recognised ICT entrepreneurs, providing free or low-cost support and advice;
- b) Financing by means of a Seed and Growth Fund and;

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- c) Centres for housing and business managing support, providing a infrastructure and e-commerce platform available at no or very reasonable costs.

Many other examples of incubation centres are known throughout the world. This is a very valuable tool to quickly and successfully develop e-commerce initiatives in Aruba.

6.1.6 E-commerce National Platform

The task of this Committee as set forth in chapter 1 of this report, is “*to make recommendation to the government to promote e-commerce on Aruba*”.

Consequently, the task of this Committee officially ends with the presentation of this report. It is nonetheless a requirement as seen in most “e-developed” countries, in order to successfully endeavour into the e-commerce world and to monitor new ICT developments, to establish a permanent national platform for e-commerce, with remunerated participants. This will indicate the commitment of the government towards e-commerce and secure a balanced and continuous ICT development of such country.

6.2 Educational and training aspects of e-commerce.

6.2.1 Introduction

In the first instance there is hardly any relationship noticeable between the world of education and that of e-commerce, if not the increased digitizing and commercializing of educational institutions. Commercializing and even privatizing, which causes more and more educational institutions to join the Web with whole or partial training courses, whether or not divided into learning modules.

This is a development of which the results and consequences cannot be completely foreseen. But it is definitely a fact that distance learning, tele-teaching, single access learning, edunet, etc. will have an ever-increasing influence on education and the educational market. For Aruba, with its limited educational resources, this is unquestionably a process to be closely monitored, if we want to create an education supply for the entire population, which is much broader and aimed towards the demands of the individual and of the society as a whole. Create an adapted education supply without too high investments in the educational infrastructure. This development will surely have its effect on the regular educational program, when it comes to the integration into the program of new technology used on the Internet. A further detailing of this aspect is not applicable for this report.

In this report we shall only focus on education as an obviously indispensable condition for the successful development, growth and maintenance of e-commerce on Aruba.

We can most comfortably state that e-commerce is and will be successful in those countries with the highest level of development of their population. This has to do with the high skilled technology and knowledge required for the use and maintenance of ICT businesses. Even though we may acknowledge that there is some expertise available locally, Aruba is definitely not a real competitor in this specific area of human resources. Dependence on foreign expertise may turn out to be much too expensive or even insecure, therefore the creation of a larger local "knowledge base" is imperative.

Recently, the government of Aruba has decided to make available great quantities of computers to first grade high school students, this year being the second batch of such computers to be distributed. Even though this initiative seen by itself can surely be applauded, it is definitely not sufficient. At this moment, there is no structural follow up in the scholar programs that links up with this rather ad hoc governmental investment into computers for these first graders. Some attempts are being made to do so, but a coherent follow-up and implementation program is nonexistent.

The flexibility, alertness and customer orientation of the educational infrastructure within a country is of major importance for ICT and e-commerce, since both of the latter require alert reactions and flexible management. The developments proceed rapidly ('at the speed of light') and require highly skilled, independent and IT knowledgeable personnel. The current educational infrastructure is not customer oriented and of a very 'top-down' management style, that smothers the desired alertness and creativity.

Most, if not all e-commerce advanced countries have already a growing shortage of IT personnel throughout the industry. The US congress has adapted immigration laws with regard to IT skilled immigrants, in order to accommodate the ever-increasing demand. Germany, the Netherlands and even some Caribbean islands like Bermuda have revised their immigration laws for similar reasons. Aruba has not experienced any such shortage as yet, since e-commerce has not spun off as it should have. But it is inevitable that soon, once e-commerce gains ground on the island, Aruba will encounter similar (IT) human resource shortages, and will be unprepared to cope with it.

6.3 Projected situation educational and training aspects

The following four aspects are of major importance for an appropriate e-commerce oriented educational environment in Aruba:

- an integral educational policy;
- a new didactic method;
- an educational system development structure;

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- an emphasis on post scholar and post academic training.

6.3.1 Integral policy

The government needs to take responsibility to regularly monitor the effectiveness of Aruba's educational system, and keep in touch with the changing demands of the labor market. An integral educational policy, to suit such demands, must then be developed. Already there are initiatives for educational systems towards more independent, expressive and creative students, in the form of the renewal projects PRIEPEB*, SHA*, EPB* and EPI*. More than ever it is required to renew the primary and secondary educational systems in order not to lose the link with IT developments. The same applies for "Avond onderwijs" and "Enseñansa pa Empleo" and other 'second chance' educational programs.

Finally, it should also be considered to include a new faculty at the University of Aruba, that will supply internationally recognized, top IT graduation levels.

6.3.2 New didactic method

The main aspect in the new educational form is the central position of the student and the learning process. The student, even though being part of a class group, maintains his right to personal approach with emphasis on individuality, since those individual characteristics are which should be developed by education. The school must provide the opportunity to develop these individual skills.

Application of new and different didactic forms as well as modern technology will bring new ways of grouping students. The customary view of classrooms with rows of benches will make place for new setups, where the students working independently will be the main focus.

6.3.3 Educational system development structure.

E-commerce and ICT-studies have an apparently different view on teaching and educating. It requires new knowledge, insights, skills and attitudes from all involved with the execution thereof, especially the teachers and school management. Implementing this new vision is a permanent and continuous process. It is imperative that within the school environment, everyone is aware of the goals and their role in accomplishing these goals. The permanent adaptation of IT education as technology moves ahead, will require periodic reviews of all interested and executing parties, not to exclude the influence of the private sector. In order to execute this change-oriented process, the school must adopt an 'educational system development structure', embedded into the school organization, in order for the school itself to become a continuously learning entity. School management must create space for this new structure, both physically and mentally.

6.3.4 Post scholar training

A world of continuous change demands constant upgrading of all teaching personnel and educators. Nobody can assume to have a lifetime diploma. Post scholar and post academic training is however only successful if it is perceived positively by the participants. Therefore, it needs to be carefully planned and all players within the educational field must carry the responsibility: the School Board (Schoolbestuur), Inspection, school management and the private sector. The concept of "lifelong learning" needs to be introduced, which entails a policy aimed at:

A. **Reinforcing the internal continuity:** the different levels of ICT education must integrate seamlessly into each other, referred to as the internal continuity of the educational infrastructure, and which is expressed by the creation of follow up and master studies. Furthermore, the barriers between regular and non-regular (e.g. night-time) schooling must be removed in order to be able to offer certain specialization courses in a short and efficient manner.

B. **Reinforcing the external continuity:** the relationship between the educational studies and the labor market is of importance here. This reinforcement takes many forms, such as solidifying the practical training period ('stage') of students within businesses and the involvement of business representatives and social partners in the determination of curricula.

Aruba already has a national platform of consultation CELA (Conseho di Educacion y Labor), which functions as a board for regular deliberation and discussion between educators and the labor market; this initiative must be enhanced and supported. By constantly monitoring the developments of ICT and e-commerce, the educational infrastructure can be swiftly adjusted to provide "make to order" training courses.

7. Conclusions and recommendations

Which position does Aruba want to conquer within the global e-commerce market? This is a question that is very difficult to answer and which depends on the pro-activity of both the public and private sector as a whole. There is no single government or private entity that can satisfactorily answer this question. Nonetheless, it is the unquestionable task of the government to lead and establish the appropriate environment in which any and all lucrative e-commerce initiatives can actually be solidified to their full extent in Aruba.

In view of the analysed current situation in Aruba with regard to e-commerce potential and possibilities, taking into consideration the projected and desired situation as presented herein, the e-Steering Committee concludes and recommends to the government of Aruba the following:

7.1 Conclusions & recommendations legal & fiscal

1. Conclusion: The SETAR as the only Internet Service Provider is currently not providing the service level desired by consumers and businesses. ISP via cable is not yet available in Aruba.

Recommendation: *To create a more competitive and service oriented environment, the Committee recommends that the government admit on a short term other Internet Access Service Providers to the telecom market, under the same or similar conditions as in the Decree Conditions for Internet Services. The cable-TV infrastructure should also become accessible for multiple Internet Access Service Providers.*

2. Conclusion: Most cross border e-commerce agreements involve purchase agreements, where the purchase price is relatively small, and is paid by credit card, which often does not render it feasible to start litigation in case of breach of contract. It is unclear if, and to what extent the Aruban based Credit Card Institutions provide charge back and/or other facilities to their card holders, similar as those by virtue of the Fair Credit Billing Act. In any case there seems to be no explicit Aruban legislation on this matter. The same applies for “the 30-days shipping rule”, anti-cartel legislation and the like.

Recommendation: *The Committee recommends the government to seek to introduce or incorporate similar legislation as the Fair Credit Billing Act, the “30 days shipping rule” and appropriate anti-cartel legislation.*

3. Conclusion: The Corporate Law of Aruba can be considered currently adequate for an e-commerce environment.

Recommendation: *The Committee however recommends that the government consider consolidating our corporate law in one Civil Code (compare the second book of the Civil Code of the Netherlands).*

4. Conclusion: The Penal Code of Aruba does not specifically provide for penalising of computer or Internet related crimes (“hacking”, unauthorised copying of files, spamming, viruses, etc.).

Recommendation: *The Committee recommends that the government introduce or adopt specific legislation on this matter to protect bonafide consumers and merchants.*

5. Conclusion: It is unclear if Internet Gaming is considered legal or not if conducted on Aruba.

Recommendation: *The Committee recommends that the government make it clear and legally possible for at least existing “brick & mortar” walk-in casinos of Aruba, to offer Internet gaming for a trial period. If the existing casinos make good use of this opportunity and this trial period leads to positive results, a review of the existing laws must take place in order to allow virtual casinos to operate from Aruba.*

6. Conclusion: It is unclear if the offering of pornographic material through the Internet from servers based in Aruba is considered legal or not.

Recommendation: *The Committee recommends that the government introduce or adopt new legislation or prosecution guidelines, to create certainty whether or not it is legal to offer pornographic material through the Internet from servers based in Aruba.*

7. Conclusion: The new Ordinance for the Supervision of Credit Institutions (“Landsverordening Toezicht Kredietwezen”) offers sufficient tools to supervise Internet Banking.

Recommendation: *The Committee however still recommends that the government assure that Aruba is not misused in this matter by strictly monitoring Internet banking startups through the Central Bank.*

8. Conclusion: The introduction of the NFF will not disturb the establishment of e-commerce (related) businesses in Aruba, however it is not sufficiently attractive to stimulate foreign e-businesses to move to Aruba.

Recommendation: *The Committee recommends that the government create with the introduction of the NFF, certain fiscal incentives to promote the establishment of e-commerce (related) businesses in Aruba.*

9. Conclusion: The new Ordinance for the Free zone(s) of Aruba is a welcome tool that will offer several new perspectives to e-commerce oriented, free zone

companies.

Recommendation: *The Committee recommends that the government speed up the realization of the new Free Zone at Barcadera and to support the full effectuation of this new ordinance.*

7.2 Conclusions & recommendations technical and infrastructure

10. Conclusion: Spreading of IP traffic to and from Aruba will not necessarily assist with the actual lowering of telecom tariffs and prices.

Recommendation: *The Committee recommends the government to as much as possible, in order to obtain a competitive pricing, bundle Internet traffic to and from Aruba, using a central international infrastructure. The government should encourage and support participation in existing and new fibre optic cable systems to be able to meet the expected growth in demand for bandwidth.*

11. Conclusion: Aruba lies within the Latin America & Caribbean block of countries, when it comes to IP traffic and international price negotiations. Price wise, Aruba may not be able to compete with large IP traffic countries as the US and Europe, but can definitely compete within its own block of countries.

Recommendation: *The Committee recommends the government to seek the introduction of tariffs for Internet services equal to or lower than benchmark countries (Bermuda, Cayman Islands, US- and British Virgin Islands, Netherlands Antilles).*

12. Conclusion: The Aruban community must be made more aware of Internet possibilities and IT learning must be stimulated as much as possible.

Recommendation: *The Committee recommends the government to introduce special tariffs for educational and government institutions and offshore companies, and to introduce an affordable fixed line tariff for Internet access (e.g. US Internet access tariff).*

13. Conclusion: The service level of the current national telecom company SETAR requires urgent upgrading in order to enable successful e-development.

Recommendation: *The Committee recommends the government that the improvement of the overall service of SETAR, which forms an integral part of the privatisation process, should be accomplished on a short term.*

7.3 Conclusions & recommendations banking & security

14. Conclusion: Most local banks have some web presence, but with regard to e-commerce and credit card processing some local banks have hesitantly entered the e-banking world, whereas others have taken a more setback approach awaiting the development of e-commerce in Aruba, due to the high risks involved.

Recommendation: *The Committee recommends the government to closely monitor through the Central Bank, the possible (future) damage to the economy of Aruba because of local merchants and users making widespread use of foreign e-banking services, and to stimulate local banks to work with foreign banks to offer competitive e-banking solutions to local merchants and users.*

15. Conclusion: Web security issues are not currently addressed by any privacy and encryption laws in Aruba, and a major security breach incident may impede successful e-commerce development.

Recommendation: *The Committee recommends the government to closely monitor through the Central Bank, the security provided to users with regard to on-line information gathering by local banks, in order not to disrupt a successful e-commerce development as a result of a possible major security breach incident in Aruba.*

16. Conclusion: Local currency credit card will increase the credit card usage for local purchases. The government can set an example for increasing local currency credit card use in Aruba.

Recommendation: *The Committee recommends the government to jointly with the Central Bank and local commercial banks proactively seek the effective introduction of local (or dual) currency credit cards, followed by the introduction at its outlets and on its web sites the payment for governmental services with local currency credit cards, and to publicly stimulate the use of local currency credit cards.*

7.4 Conclusions & recommendations logistics

17. Conclusion: Our harbour and airport are getting in gear to handle high traffic that e-commerce may bring. Customs however is not preparing for the consequences of an e-commerce boom.

Recommendation: *The Committee recommends the government to establish a task force within the custom department itself, to analyze what needs be improved, amended or introduced in order to adequately handle an e-commerce environment in Aruba, and to implement as soon as possible its results.*

18. Conclusion: The unacceptable service level of our local post office is a disturbing factor for successful e-commerce development.

Recommendation: *The Committee recommends the government to that the improvement of the overall service of the post office, which forms an integral part of the privatization process, should be expedited and accomplished on a short term.*

7.5 Conclusions & recommendations organization, training & education

19. Conclusion: Internet startup companies require entrepreneur spirit, creativity and vision, but consequently often confront difficulty to obtain finance. The Dutch Twinning concept has however proven to be successful. The new Internet Service Platform of SETAR can be of assistance in this matter.

Recommendation: *The Committee recommends the government to, jointly with the private sector and SETAR, establish a national incubation center for e-commerce (similar to the Dutch Twinning concept) in order to provide facilities, knowledge and finance to selected, lucrative, locally initiated Internet startup companies.*

20. Conclusion: Aruba will run into manpower shortage of IT personnel soon, and the extent of the shortage will be determined by the actions taken now to help remedy this future problem.

Recommendation: *The Committee recommends creating on a short term an ICT knowledge base on Aruba by organizing and/or stimulating highly qualified ICT training courses. A concrete suggestion is to create an ICT training center from which this process can be guided and monitored. The University of Aruba can add an IT specialization or faculty to its existing curricula. Investments will be required from the government as well as the private sector. The government should stimulate students to seek high level IT specialization at foreign universities and provide incentives for their return to Aruba.*

21. Conclusion: The schools of Aruba are lagging behind when it comes to computer hard- and software availability.

Recommendation: *The Committee recommends that the government increase the budget for hard- and software for schools. An extra investment is required on a short term to bring our MAVO, HAVO, VWO and "beroepsonderwijs" up to par rapidly, not only equipment but also in people, such as system engineers and software specialists.*

22. Conclusion: The Aruban educators are not prepared for the rapid advancement of ICT technology.

Recommendation: *The Committee recommends that the government adjust the school management structure, making them more flexible and adaptable to handle the rapid changes within the labor market. With this vision, a more autonomous school management is foreseen, where the directors are trained to be "Educational Leaders". Additional administrative support at schools will be required to handle daily operations.*

23. Conclusion: Local merchants are not prepared or preparing themselves sufficiently to enter the new worldwide economy.

Recommendation: *The Committee recommends that the government commence a full-blown national awareness campaign for users and merchants alike.*

24. Conclusion: The traditional didactic system in Aruban schools is not adequate to develop creativity and independence of students as is needed in the new economy.

Recommendation: *The Committee recommends that the government amend the current educational principle into that of 'guided independent learning'. Which means that the educator guides the student into the arena of ICT, but stimulates for him to self-define his course and be creative. This requires entirely different learning material, such as the Internet, videos, media-library, etc. Investments need to be made in the post scholar training of educators as well.*

25. Conclusion: The labor market and private enterprises of Aruba are not (fully) aware of the extra educational requirements as a result of rapid new developments of ICT and thus the ever-changing environment of e-commerce.

Recommendation: *The Committee recommends that the government further promote and support the concept of "lifelong learning". This can be done through setting an example by increasing the budget available for training of public personnel. The government should also sustain the vision that education is not just a task of the government, but also a responsibility of everyone. The private sector should also be invited to invest in national training programs. A good suggestion is to create extra tax incentives for company expenses related to training of personnel.*

26. Conclusion: The implementation of the recommendations herein, the introduction of e-government services, and the rapid advancement of ICT requires full-time, constant and professional supervision and control, which must not be underestimated.

Recommendation: *The Committee recommends that the government, in view of the urgency, appoint within 30 days after presentation of this report, a full-time, remunerated, ICT acquainted Internet Executive reporting to the Minister of General Affairs, whom will head a National Internet Platform with similar*

public and private representation as in the e-Steering Committee, in order to execute the recommendations herein (if adopted by the government and parliament), to initiate and introduce e-government services and to monitor closely and respond to the rapid ICT advancements and their impact on Aruba as a whole.

Appendix I: Landsbesluit e-Steering Committee

Appendix II: Comparison regional tariffs and SETAR

Glossary

ADSL	: Asymmetrical Digital Subscriber Line
ARPANET	: Advanced Research Projects Agency NETwork, precursor of the Internet, used by the U.S. Army and universities
AVO	: Algemeen Voortgezet Onderwijs
AVS	: Address Verification Services
Bandwidth	: in this context, measure of capacity (in bits per second or bps) of a transmission channel
CELA	: Consejo de Educacion y Labor Aruba
e-commerce	: electronic commerce
e-business	: business activities that are executed utilizing the means of digital information exchange in order to improve the efficiency and effectiveness of all commercial and business processes
e-government	: governmental activities that are executed utilizing the means of digital information exchange in order to improve the efficiency and effectiveness of governing
e-mail	: electronic mail
DSL	: Digital Subscriber Line
EPB	: Education Profesional Basico
EPI	: Education Profesional Intermedio
Frame Relay Access	: Wide Area Networking (WAN) interface specified by ITU-T standards designed to support bursty data communications applications typified by LAN internetworking
GSM	: Groupe Special Mobile, Global System for Mobile communications
Hacking	: unauthorized access acquisition into a private computer or electronic network.
ICT	: Information and Communication Technology
Internet	: a worldwide network of computer systems
ISDN	: Integrated Services Digital Network
IP	: Internet Protocol
ISP	: Internet Service Provider
IT	: Information Technology
LAN	: Local Area Network
Mainframe	: a high capacity computer, usually designed to serve a number of remote terminals.
Mbps	: Mega bites per second

1-2-1 marketing system	: innovative marketing strategy characterized by the individual targeting of customers based on extensive data acquisition of that prospect or customer.
PKI	: Public Key Infrastructure
POTS	: Plain Old Telephone Service
PRIEPEB	: PRojecto Inovacion pa Enseñanza Preparatorio i Enseñanza Basico
SET	: Secure Electronic Transaction
SHA	: Stuurgroep Herstructurering AVO
SWIFT	: Society for Worldwide Inter-bank Financial Telecommunications
WAN	: Wide Area Network
WAP	: Wireless Access Protocol