Airport automation and e-business

4.1
General

ACI POLICY

4.1.1 The role of the airport operator should be to promote and implement standardized shared solutions and systems. Centralized management of these systems by the airport operator is suggested wherever possible.

ACI RECOMMENDED PRACTICE / COMMENT

Automation via the application of Information and Communications Technologies (ICT) plays a vital role in the operation of airports and the facilitation of traffic, passenger processing and security. The role of the airport operator is to coordinate development of automated systems. In some cases, airport operators are also involved in or responsible for their provision and operation.

4.1.1a The airport operator should also ensure that the necessary communications infrastructure is provided, and that all necessary systems and procedures can be installed and operated. It is essential that information exchange between all airport users is coordinated and agreed upon, taking into account the technological solutions and standards best suited to each particular situation, and in accordance with international standards.
### 4.2

**Information and communications technology infrastructure at airports**

<table>
<thead>
<tr>
<th>ACI POLICY</th>
<th>ACI RECOMMENDED PRACTICE / COMMENT</th>
</tr>
</thead>
</table>
| **4.2.1** The usage of shared or common-use information and communications systems can contribute to the optimum use of airport capacity and enhanced levels of airport and airline service to passengers. | **4.2.1a** Centralized management of this ICT infrastructure by the airport operator is suggested.  

It is the accepted role of the suppliers of major physical facilities at an airport to equip those facilities with various utilities (such as electricity, air-conditioning, heating) to be shared by the tenants of the facility. In light of technological developments, cost factors and the dynamic nature of airport tenants, it is becoming increasingly worthwhile and feasible to equip facilities with information and data communications systems provided by the airport operator. This approach enables current and future users of the facility to use information systems and communicate with local and/or remote computers and databases in a coordinated manner, without having to re-invest in new infrastructure when there is a change of tenants or changes in airport infrastructure. Such systems should be based on international standards and recommendations. |

| **4.2.2** All data processing and communications activities and requirements at an airport which affect airport management and operations should be coordinated, and/or approved by, the airport operator. | **4.2.2a** The development and installation of shared use data communications systems at an airport should be the result of careful coordination between all parties involved (users, suppliers, operators) in order to achieve the most cost effective and operationally desirable technical and functional solutions for all airport users and customers.  

**4.2.2b** Airport operators should develop standards and install a general multi-purpose infrastructure, in order to avoid heterogeneous and incompatible operations and information. These systems should include, but may not be limited to: shared cabling infrastructure, local area networks (LANs), wide area networks (WANs), wireless technologies, radio-frequency-based technologies and cellular technologies.  

**4.2.2c** In environments where a shared common-use ICT infrastructure is installed, it is necessary to have adequate IT security procedures and operational contingency planning.  

The airport and airline operating environments are, by nature, very sensitive to problems affecting their operational efficiency. In addition, the fact that various different partners will utilize ICT infrastructure, often simultaneously, requires that careful attention be paid to IT security - both physical and logical - as well as general ICT operational availability.  

**4.2.2d** ICT Service Level Agreements should include standardized, agreed-upon security aspects, as well the establishment of a contingency plan which takes into consideration airline and airport operational levels under different contingency situations. |
4.3
Systems and procedures - common use environment

ACI POLICY

4.3.1  In order to ensure optimal, economic use of airport physical infrastructure, the airport operator should promote and prioritize the use of common-use systems.

ACI RECOMMENDED PRACTICE / COMMENT

4.3.1a  The airport operator should discourage the use of dedicated systems, wherever clearly defined benefits can be achieved from applying economies of scale for the provider and users of the facilities, thus avoiding unnecessary and costly capital investments in airport and ICT infrastructure.

Common use systems provide various benefits for both the airport and airline, including standardized, cost-efficient operations, and optimization of airport infrastructure. These aspects produce economies of scale for the provider and user of the facilities, avoiding unnecessary and costly capital investments in airport infrastructure. Economies of scale can be realized by applying a “one to many” vs. “one to one” approach, where it is more cost effective to distribute the initial investment and recurring costs amongst the users of ICT infrastructure as opposed to investing in and maintaining different ICT solutions.

4.3.1b  The airport operator should take a leading role in promoting these systems to the airline community.

Given the different options - both technical and contractual, for the commissioning of these systems, it is important that the airport operator and the airline user community work in partnership to define the most adequate options for a particular airport environment - in line with IATA and ICAO standards.

In any airport terminal, dedicated equipment for departure control systems can waste scarce resources and confuse passengers. In such circumstances, the installation of shared use equipment for the terminal may have conclusive advantages.

4.3.1c  Where possible, automated local departure control systems should be utilized in order to ensure a reliable, auditable record of passenger check-in and aircraft boarding.

4.3.1d  The airport operator should promote the use of these systems for each airline, and provide an airport-based system for those companies which do not have access to such systems, especially in cases where Common Use Terminal Equipment (CUTE) is in use.

Common Use Passenger Processing Systems (CUPPS) Recommended Practice (ACI RP 500A07), developed as the evolution of IATA’s CUTE RP 1797, with ACI, ATA and IATA support, will provide airports the benefits included in its six foundational principles:

1. Applications should run on any platform
2. CUPPS facilitates rather than mandates business processes
3. The CUPPS platform will have minimum, defined functionality
4. Affordability
5. Serviceability
6. Predictability
7. 

(more information on www.cupps.aero and www.aci.aero)
4.4

Common use wireless infrastructure at airports

ACI POLICY

4.4.1 Airport Operators are concerned about the proliferation of independent Wireless Local Area Networks (WLANs) on the airport premises.

ACI RECOMMENDED PRACTICE / COMMENT

In order to avoid potential security and control deficiencies, duplication of investment, disturbance and interference, a “shared-use” approach is essential.

4.4.1a Airport operators should coordinate and manage the development and implementation of an integrated WLAN service infrastructure.

Companies operating at airports are increasingly demanding the installation of WLAN (also referred to as Wi-Fi) Access Points to optimize their activities. At the same time, airlines are increasingly demanding wireless Ground-to-Air and Gate-to-Cockpit applications. Furthermore, Mobile telephony Operators and Wireless Internet Service Providers (WISPs) are demanding the installation of WLAN Access Points at airports. WLAN services offer many current and potentially promising new applications for passengers and airport staff. The implementation of WLAN infrastructure allows different service providers to deliver this service to potential users.

However, Airport Operators are concerned about the proliferation of independent WLAN Installations on the airport premises. There is a risk of security and control deficiencies, potential operational disturbance and radio frequency interference as well as duplication of investment. Thus the airport community should adopt a ‘common-use’ policy enabling a Service Provider or tenant to offer services on the WLAN infrastructure at the airport.

4.4.1b Due to the security and operational requirements of the WLAN, the airport operator should undertake the professional management (itself or via a third party) of this wireless environment/infrastructure that ultimately services both the tenants and public.

4.4.1c When developing WLAN services, a ‘neutral’ infrastructure should be implemented. There must be clear rules how the services can be offered and installed. A multi-service provider environment should be realized via a common portal for public access.

Airport, Airlines and other tenants are increasingly using WLANs in support of critical operational requirements for services such as baggage reconciliation and mobile check-in. It is important that these critical functions are given priority access over less critical services such as public Internet access. Therefore the design, implementation, and management of the WLAN must consider multiple aspects of performance and security.

4.4.1d The airport operator, which has final responsibility for the consistency of different services, must coordinate and manage the wireless environment professionally. This can be achieved through a single infrastructure or a combination of different infrastructures of which the technical installation is evaluated and coordinated by the airport.

4.4.1e Airport operators should constantly evaluate competing technologies, so as to maintain low costs and increase capacity in line with demand, for the benefit of all tenants, concessionaires and others.
4.5
Cargo automation

ACI POLICY

4.5.1 Automation plays a vital role in the facilitation of international cargo.

ACI RECOMMENDED PRACTICE / COMMENT

4.5.1a The role of the airport operator should be to promote and implement standardized shared solutions.

In view of the proliferation of computer-based systems for the handling of cargo at airports, the objective of airports should be the usage of standardized common systems. However, it is recognized that this may not be achievable in the foreseeable future. ACI also advocates, where applicable, the development of integrated port systems covering all modes of transport at an airport, including sea, road and rail.

There is an acknowledged need for standardization in the development of new systems. For example, RFID standards for cargo information must be defined at three levels, consolidated unit cargo, home airway bill and house airway bill, in order to facilitate automation for cargo movement. There is also a need to establish interface requirements between existing and planned systems to facilitate information and traffic flows between a port system; its local cargo community, clearance authorities where appropriate, and ultimately systems at other ports. The role of the airport operator in this respect should be to coordinate system development, even if the airport operator does not itself provide the cargo system.

A successful system enables ports, as well as other parties, to achieve a more efficient use of physical capacity by virtue of a faster throughput of international cargo. This makes air cargo more competitive in comparison with other modes and leads to the deferment of capital intensive alternatives.
4.6
Flight information displays systems (FIDS)

<table>
<thead>
<tr>
<th>ACI POLICY</th>
<th>ACI RECOMMENDED PRACTICE / COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6.1 Flight information display systems should be carefully tailored to the airport environment, and should be as simple and clear as possible.</td>
<td>4.6.1a Centralized management of these systems by the airport operator is suggested. ACI generally favours standardization, but believes that the form, degree of detail and location of displays should depend to a great extent on the architectural design of the terminal and on the centralization (or decentralization) of particular operations.</td>
</tr>
<tr>
<td></td>
<td>4.6.1b It is important to standardize the presentation, i.e. the order of the various items of information, and to adopt and use standard abbreviations, designations and remarks. The systems should be as simple, clear and direct as possible. If a centralized computer system exists, airlines should not operate their own system without the airport's approval.</td>
</tr>
<tr>
<td></td>
<td>4.6.1c All the parties involved in the operation of flights, including airlines and air traffic control authorities, should provide on a timely and rapidly updated basis the relevant information on flights, including last-minute changes, to the authority responsible for the operation of the flight information display system. This authority should be responsible for establishing the list of data elements needed for this operation and the means of communicating them.</td>
</tr>
<tr>
<td></td>
<td>4.6.1d The displayed flight numbers should be preceded by the airline prefix codes as they appear on airline timetables, passenger tickets and boarding passes. In airport terminals used by only one airline, the airline prefix can be omitted. Where the national language is not written in the roman alphabet, provision should be made for repetition of the display information in the relevant characters and/or numerals. It is recommended to display flight information in English as well as the national language.</td>
</tr>
<tr>
<td></td>
<td>4.6.1e The use of flashing signals and colours should be kept to a minimum. Flashing signals should be restricted to the “remarks” column, and to information which requires passenger action. Slow scrolling (upwards/downwards or sideways) should be done in such a way that the passenger notices that more information is available. Different colours should be used logically, to highlight data elements which are important for passenger action (e.g. gate/time). A maximum of 4 to 5 colours should be used.</td>
</tr>
</tbody>
</table>
### 4.7
Flight information display systems — display of code-share information

<table>
<thead>
<tr>
<th>ACI POLICY</th>
<th>ACI RECOMMENDED PRACTICE / COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7.1 ACI recommends, for reasons of clarity, a reference level for the display of code-share flight information.</td>
<td>4.7.1a Airport FIDS systems may use various methods of displaying code-share flights. ACI recommends that, wherever possible, the preferred method should be to display the code-share flight numbers successively on a single line of a display monitor, or at most two lines. Such flight numbers can be alternated, wiped or scrolled, and each flight number should be displayed for sufficient time to be clearly legible to all passengers. Given also that the “cycle time” should not be excessive, a maximum of two or three flight numbers per display line is suggested. An alternative method which may be found useful is to reserve a separate monitor for the display of code share flights only - with reference in the main display.</td>
</tr>
</tbody>
</table>

### 4.8
Machine readable travel documents (MRTDs)

<table>
<thead>
<tr>
<th>ACI POLICY</th>
<th>ACI RECOMMENDED PRACTICE / COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.8.1 ACI supports the worldwide issuance of MRTDs, in accordance with ICAO/ISO standards, as recommended in ICAO Annex 9.</td>
<td>In order to automate and expedite the clearance of passengers through government controls with increased security, an ICAO group (on which ACI is represented) has adopted and continues to improve worldwide standards for machine readable passports, machine readable visas, machine readable official travel documents and machine readable crew member certificates, including biometric ID. It also urges the installation of automated document readers linked to border control systems at international airports, thus enhancing security and obtaining the intended efficiency of automated controls. Even States which do not issue MRTDs can benefit from installing automated arrival controls for the inspection of the MRTDs of foreigners.</td>
</tr>
</tbody>
</table>

### 4.9
Advance passenger information (API)

<table>
<thead>
<tr>
<th>ACI POLICY</th>
<th>ACI RECOMMENDED PRACTICE / COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.9.1 ACI supports advance passenger information collection</td>
<td>4.9.1a The use of document-reading devices to capture the information in the machine readable travel document should be encouraged. The collection of this data should take place in a manner which avoids extra handling or passenger processing time or the creation of congestion at the airport.</td>
</tr>
</tbody>
</table>
4.10
RFID usage at airports

ACI POLICY

4.10.1 Airport operators should coordinate and manage the development and implementation of RFID detection infrastructures as well as provide common use infrastructures for the means of baggage handling and position measuring on the apron.

ACI RECOMMENDED PRACTICE / COMMENT

Airport Operators are concerned about the possible proliferation of independent RFID detection equipment, infrastructures and related networks (RFID installations) on the airport premises. In order to avoid potential security deficiencies, duplication of investment and interference, a “shared-use” approach is essential.

Companies operating at airports are increasingly demanding the installation of RFID detection equipment and infrastructure to optimize their activities. Examples of such systems are position detection of ground handling equipment (e.g. multilateration) as well as the identification of cargo containers and loads. Airlines, together with the airport and ground handling agents, are also moving to use standard RFID enabled bag tags for the baggage handling process from check in to loading. RFID based services offer many current and potentially promising new applications for all stakeholders.

However, airport operators are concerned about the proliferation of independent RFID installations on the airport premises and especially the apron. There is a risk of duplication of investment, of over-usage of valuable space through the proliferation of detection equipment in frequently used areas as well as the potential for operational disturbance through radio frequency interference or security infringement. Thus the airport community should adopt a ‘shared-use’ policy enabling a stakeholder to offer services on the basis of a single infrastructure provided by the airport.

4.10.1a Due to the operational requirements of infrastructures such as, network and equipment used by the detection devices, the airport operator needs to be responsible for the professional management of such infrastructures. The airport should also establish a procedure to approve and register all RFID based applications.

4.10.1b The parties concerned should consider if the airport should take the role of installing and maintaining a common use infrastructure, if required, including the detection equipment as well as the use of standardized RFID tags that interact with the detection devices. There should be clear rules as to how the services can be offered and installed.

The airport operator, which has final responsibility for the consistency of different services, must coordinate and, if necessary, manage the RFID environment professionally. This can be achieved through the implementation of a single infrastructure or a combination of multiple infrastructures of which the technical installation is evaluated and coordinated by the airport. In addition, airport operators should constantly evaluate competing technologies, so as to maintain low costs and increase capacity in line with demand, for the benefit of all tenants, concessionaires and others.

Airports request that stakeholders wishing to install RFID systems consult and coordinate with the relevant airports services on the costs and design of the systems to be implemented. Costs should either be entirely borne by the stakeholders or on a cost sharing model between the various project stakeholders. For example the airports are within their rights to charge a rental fee to the tenants on usage of airport facilities and infrastructure.
4.11 Biometric identification systems

ACI POLICY

4.11.1 ACI supports the worldwide use of ICAO’s internationally standardized globally interoperable biometric system for MRTDs which uses face as the globally interoperable biometric for machine assisted identity confirmation with an MRTD.

ACI RECOMMENDED PRACTICE / COMMENT

ACI recognizes the benefits of using biometrics to confirm personal identity for border control, airport passenger processing and airport access control, to improve security, efficiency and facilitation. Identity can be verified using a biometric of the individual against reference data securely recorded on an MRTD, a “smart card”, or stored in a database. These methods, together with APP/API, can enhance security, speed up clearance and alleviate congestion and delays at airports.

An optional secondary biometric, either fingerprint or iris, may be added to the MRTD. ICAO’s standard MRTD and biometric specifications are published in ICAO Doc 9303.

The ICAO ‘toolbox’ of highly developed standardized specifications for MRTDs, in particular those for ID; credit card size cards; biometrics; and their use in confirming a person’s identity and facilitating inspection. The specifications also offer significant advantages for other uses at airports such as airport access control, ID cards for airport personnel and crew members, passenger processing, and lookout checking systems. The specifications also cover security features, data presentation and recording formats and standardized placement of technologies for data storage on documents which encourage standardization and global interoperability.

4.11.1a ACI encourages ICAO and governments to continue to promote the use of the ICAO globally interoperable biometric for MRTDs and the use of the globally interoperable data formats for the three biometrics specified in the ICAO Standard (face, fingerprint, and iris). Also important, is the promotion of the installation of ICAO compliant document reading systems and biometric capture and authentication systems at airport border control points to assist in identifying the rightful holders of MRTDs. Data privacy concerns will need to be taken into account in implementing biometric identification systems.

4.12 Baggage handling automation

ACI POLICY

4.12.1 The “licence plate” concept should be normalized by airlines, airports and handling agents.

ACI RECOMMENDED PRACTICE / COMMENT

The “licence plate” concept includes a coded baggage-tag (bar code and/or RFID) with a unique number, which can be read automatically and transmitted electronically by means of standardized messages between airlines, airports and handling agents. It enables these parties to provide higher quality baggage sorting and handling services. Passenger/Baggage reconciliation applications (reference ICAO Annex 17) can also use the same data elements.

This concept is being put into practice by airlines, airports and handling agents, with major consequences for investment by airports in baggage systems. It is essential that any changes in the concept and definition of the licence plate are compatible with equipment at airports, so that airport investment is not wasted.

4.12.1a Improvement of the quality and efficiency of baggage processing will bring considerable benefits for passengers, airlines and airports. The system should be adopted by as many airlines, airports and handling agents as possible within the shortest possible time-scale.
4.13
Electronic identification standards for cargo

4.13.1 The early introduction of an international electronic identification standard for cargo consignments, such as bar coding or radio frequency identification, is necessary to enhance harmonization, facilitate shipment and tracing, and so benefit all parties involved in the handling of cargo.

4.14
Airport-airline data processing and electronic data interchange (EDI)

4.14.1 All systems which use aircraft movement information as well as security systems should obtain the same information from common, verifiable data sources, obtaining real-time updates as changes occur.

In order to maximize the benefit from new technology, the airport community has a need to share certain data relating to flights, including flight schedules and updates, airport facility allocation (such as aircraft stands, gates, check-in desks and baggage belts), including real-time updates, aircraft details, actual times, delays and aircraft load data. Most such exchanges are currently implemented by technically obsolete means. In order to ensure optimal airport resource allocation, cover all security requirements in and around the airport environment, ensure orderly airport passenger flows and customer service, it is essential to establish safe and reliable information exchange between the partners.

To meet the ever-growing requirements for on-time, real-time information, it is important that airport operators take a leading role and guide concentrated efforts to ensure the maximum level of integration between all informational and operational systems, ensuring data integrity and delivery within the airport environment. In this respect, Airport Operational Data Bases (AODBs) provide a powerful and practical solution for the centralization of airport information and should be considered as a single repository for all aircraft movement information - planned and real-time.

A standard format for such messages exists, complying as far as possible with UN/EDIFACT definitions. Other standards are also being introduced, such as XML and other web based techniques.

Aviation Information Data Exchange (AIDX) Interface Recommended Practice (provisionally accorded ACI RP 501A09) describes the interface specifications and standards by which airlines, airports and other participants can exchange information within or between their systems, using defined XML schemas. It will ensure that the Data Receiver obtains the correct flight information in a timely and reliable manner.

(more information on www.cupps.aero and www.aci.aero)
4.15
Airline designators

ACI POLICY

4.15.1 ACI recommends that airports ensure that their information systems can display both 3-letter and 2-letter airline designators, pending a total airline conversion to 3-letter designators.

ACI RECOMMENDED PRACTICE / COMMENT

4.15.1a If airports are requested to display 2-character numeric/alpha or alpha/numeric designators before total conversion to 3-letter designators, and if this requires additional airport investment, ACI recommends that airports should suppress either the entire designator, or just the numeric element.

4.16
Electronic ticketing — implications for airports

ACI POLICY

4.16.1 ACI supports the implementation of methods which do not require passengers using electronic tickets to have additional printed material (besides their normal identity documents) in order to be checked-in.

ACI RECOMMENDED PRACTICE / COMMENT

Electronic ticketing promises tremendous savings for the airline industry, by reducing ticket costs, speeding up accounting and billing processes, and reducing the distribution and handling costs involved with paper tickets. Electronic ticketing is considered likely to become the leading way to develop an advanced system that combines all the advantages of Internet booking, self service check-in and smart cards.

Besides electronic ticketing, passenger processes are not always completely paperless. Most airlines need to issue a boarding pass to track the passenger in their airport-related processes. Also, due to government regulations, for international flights, a paper boarding card or ticket may still be needed to pass outbound immigration controls. Additionally, international conventions on liability require that various paper notices be provided to passengers.

ACI supports measures to eliminate requirements for printed notices in the future. For example, before passing immigration or buying tax free goods, passengers need to prove that they have booked or are checked-in on a flight departing that day. By having access to some data elements of electronic travel documents, immigration and retail staff could verify automatically whether a person is a valid passenger or not.
4.17
Self-service kiosks

ACI POLICY

4.17.1 ACI recommends a “common use” approach in developing and implementing self service check-in kiosk infrastructure.

ACI RECOMMENDED PRACTICE / COMMENT

Airport operators are concerned about the unnecessary proliferation of airline-dedicated self-service kiosks, with the attendant floor space requirements. To make optimum use of available floor space and kiosk capacity, and to offer passengers greater ease of use and airlines an integrated self-service environment, a “common use” approach is essential in developing and implementing self service check-in kiosk infrastructure.

4.17.1a Airport operators should promote and recommend that airlines develop and implement off-site check-in solutions for their customers. This type of implementation should allow airport operators to save floor space and optimize passenger processing.

Nevertheless airlines are increasingly demanding the installation of self service kiosks at airports. Self service kiosks can reduce the time required to process passengers, increase passenger choice, and assist airlines and airport operators in dealing with increasing passenger volumes, for passengers with or without an electronic ticket. The implementation of self service check-in kiosks allows airports and airlines to increase their check-in capacity without investing in new facilities.

However, airport operators are concerned about any unnecessary proliferation of kiosks, with their attendant floor space requirements, especially in already congested check-in areas. It is therefore recommended that a “common use” policy is adopted by the airport community when a self service check-in kiosk infrastructure is implemented, either with CUSS, web check-in, or other emerging technologies.

4.17.1b When developing and implementing a self service kiosk infrastructure which allows airport community partners, like airport operators, airlines and concessionaires, to offer their services to passengers, certain combinations of applications at one type of kiosk or at one location should be avoided.

4.17.1c Applications which are used to provide essential services to passengers and to improve logistic-related processes in a common use environment (e.g. at check in), should not be combined with applications which are not time critical from an operational point of view (maps, shopping and general information, ticketing).

4.17.1d ACI recommends that suppliers of CUSS kiosks should design and certificate their products according to CUSS Technical standards maintained by IATA on behalf of the Industry. This will ensure both interoperability and a competitive market for the procurement of CUSS kiosks, with a choice of suppliers.
4.18
Security systems

ACI POLICY

4.18.1  Airports should give careful consideration to the security requirements when planning and implementing new facilities or enhancements to existing facilities. Where appropriate, airports should use technology to optimize the effectiveness of security measures.

ACI RECOMMENDED PRACTICE / COMMENT

4.18.1a  Airport operators should take a leading role in the implementation of automated security systems, in close collaboration with the entities responsible for airport security. The implementation of CCTV, access control, fire detection and building management systems in particular must take into account security requirements and any infrastructure modifications which are being planned or executed so as to optimize airport security.

In addition, planning should take into consideration the interactivity and integration of security and other airport systems and how the different security systems complement each other, in order to provide a maximum level of security. As an example, baggage screening technology can be complemented by CCTV technology to provide a process that covers security requirements for both content screening and handling of baggage in the airport environment. Close coordination between IT and physical security is necessary. The integration of different security systems gives the security authorities a powerful tool for monitoring the airport environment centrally, capturing events, setting thresholds to highlight contingency situations (alarms) and providing centralized recording of all events according to criteria pre-defined by the security authorities.

4.18.1b  Wherever possible, the implementation of these systems should be centrally coordinated and managed to maximize economies of scale, ensure adhesion to airport and/or government-defined requirements and policies, as well as to ensure a uniform level of service.

4.18.1c  Even if the airport operator is not be the provider or not involved in the coordination or implementation of the systems, its role should take into account complementary needs such as flight and resource allocation information as well as communications infrastructure which may be required.

4.19
Airport web sites

ACI POLICY

4.19.1  Airport should harness the power of the internet and the use of airport websites as a means to communicate with the travelling public.

ACI RECOMMENDED PRACTICE / COMMENT

4.19.1a  Airport web sites provide an attractive and practical solution to the diffusion of airport information. The natural attraction of flight information generates a high level of visits by local and international users alike.

4.19.1b  As for other airport-specific systems, the airport operator should take a leading role or direct responsibility for the definition, development and management of the airport web site, applying technological standards and ensuring the highest level of security.
4.20
Dot.aero top level domain

ACI POLICY
4.20.1 Airports are encouraged to register and use the “.aero” domain.

ACI RECOMMENDED PRACTICE / COMMENT
4.20.1a The “.aero” top level domain name for the aviation industry (community) provides a mechanism for distinguishing aviation from other Web domains. The implementation process for airport operators has been coordinated with SITA, which has been assigned by ICANN to establish and manage the .aero TLD.

4.21
E-business

ACI POLICY
4.21.1 Airport operators should recognize the significance of Electronic or e-Business, which encompasses all forms of business activity which can be facilitated by electronic information technology. It includes Electronic Commerce (e-Commerce) and Collaborative Commerce (c-Commerce).

ACI RECOMMENDED PRACTICE / COMMENT
E-Business is reshaping the economy and changing the very notion of business itself. Airport operators should recognize and promote the transformational power of e-Business and accelerate adoption of e-Business principles. E-Business (or Electronic Business) encompasses all forms of business activity, which can be facilitated by electronic information technologies, including marketing, supply chain management, research, product positioning and on-line customer support.

E-Commerce is a sub-set of e-Business, using electronic information technologies to conduct business transactions. C-Commerce or Collaborative Commerce is another sub-set of e-Business, which can enhance the productivity of teams using web-based document management, workflow and project productivity tools.

Many airports have public Internet sites, but most are first-generation sites, i.e.: not e-Commerce-enabled, involving simple one-way communications from the airport to the general public. By gaining transactional capability, a website can provide sufficient income to become a profit centre rather than a cost centre. It can also provide responses to queries from airport customers and stakeholders. Additionally, many airports have an internal Intranet, a closed site with access given only to airport employees, used to improve internal collaboration, including management of important documents and critical workflow. Airports also use Extranets, to provide an e-Commerce work-space for airport trading partners. The synthesis of Internet, Intranet and Extranet is sometimes known as an Enterprise Portal.

Business to Consumer (B2C)
Airports are not only using the e-Business model to improve transactional efficiencies, but also to enhance and/or exploit new business opportunities. Examples include offering travel services, currency exchange, retail shopping, car parking, and other premier services. Airports should allocate resources to facilitating e-Business development, and will benefit by better protecting existing revenues, and by tapping into new income streams.

Business to Business (B2B)
Some major airports are embracing new B2B models. Airports now can move core commercial transactions on-line, to streamline procurement and selling processes. Airports can develop their own applications or capitalize on efficient, collaborative e-Business “hubs”, which organize complex business processes between multiple internal and external participants into a virtual commerce community or marketplace.

4.21.1a Business process owners should play a key role in the development of an airport’s e-Business strategy and the management of technology. The Business Units of the airport, rather than IT professionals, should manage the content of the web-site and exercise dynamic control of the information included.
4.22
Risks of e-business

ACI POLICY

4.22.1 Airports should understand the opportunities and risks associated with e-business.

ACI RECOMMENDED PRACTICE / COMMENT

There are two kinds of risks associated with e-Business, those of becoming involved, and those of not becoming involved. Airports have many concerns about e-Business, e.g. costs, choice of partners, quality of content, ease of use, loss of neutrality in choice of partners/services advertised, privacy, cannibalization, relentlessly changing content of Web sites. However, the barriers of entry for e-Commerce (particularly B2C) are sufficiently low that unless airports consider more aggressive e-Business initiatives, their revenue has a high probability of being eroded by other competitors.

In e-Business, it is easy to emulate the business model of another business. Airports need to become increasingly aware of the products, services and data that they own which are unique and cannot be readily replaced by a substitute. In e-Business a consumer is never more than a few clicks away from a competitor’s products or services. The airport may not be given the opportunity to know, let alone bargain with a customer. The consumer will “belong” to someone else, e.g. an airline, travel portal, or other third party.

In e-Business, the threat of new entrants is great. The barriers to entry are minimal, and nimble solution providers can quickly develop a portal which can substitute for products and services typically provided by an airport operator. Examples in the B2C space may include duty free shopping, transportation and accommodation.

4.23
Opportunities of e-business

ACI POLICY

4.23.1 The opportunities created by e-Business should be carefully assessed. Airport operators are in a unique position to act as natural and trusted “aggregators” for travellers and businesses active in the air travel industry.

ACI RECOMMENDED PRACTICE / COMMENT

Airport operators have a unique brand which is difficult for a competitor to substitute. Airports are natural aggregators of products and services, and this position can be leveraged to protect and grow commercial opportunities. Airports already provide a strong value proposition to the traveller, have strong branding, provide products, services and information to travellers, and act as coordinators of multi-modal transportation hubs. These attributes apply equally to the on-line environment.

Although the physical dwell time of passengers at airports is being reduced, the Web can extend their virtual dwell time back to when they book tickets, possibly months in advance of travel. An effective e-Business presence allows airports to intercept travellers earlier, while they research their travel plans. An e-Business presence allows the airport to act as a single point of contact for the traveller, thus facilitating transport, accommodation and other related travel requirements.

E-Business provides opportunities to unite the industry and reduce the often extensive bargaining power of suppliers. By creation of e-Commerce hubs, members of the airport industry can negotiate arrangements collectively, in each member’s best interest. E-Procurement can improve time-efficiency and reduce purchasing costs.

Another opportunity is to create a comprehensive collaborative environment which can store, share and manage critical information for the benefit of the whole airport industry. This involves creating an on-line community for publishing and exchanging industry news, information and events. Any airport member can freely and easily provide input to the community. This could evolve into a form of Knowledge Management for the airport industry.
4.24
Technical requirements and criteria for success in e-business

ACI POLICY

4.24.1 An airport e-Business platform needs to be efficient, satisfying and easy to use. Acknowledged design principles should be followed.

ACI RECOMMENDED PRACTICE / COMMENT

Airports face new challenges in the growing e-Commerce market, especially in designing a high-performance, mission-critical and fault-tolerant system. Once an e-Commerce site is launched, keeping it up and running is a high priority. A system architect must address these aspects: the platform chosen to build the system should be available, reliable and scalable. The platform also should provide an ease of implementation, inter-operability, and a short turn-around time to market. The front-end and back-end systems and the networking infrastructure must work together effectively, to provide high performance and reliable web-sites to the online customers.

An airport’s e-Business web-site needs to be efficient, satisfying and easy to use, so that the visitor does not want to leave or cannot wait to come back. The following are some brief design principles: keep the interface simple and straightforward; place the user in control and provide pro-active assistance; build on users' prior knowledge; make actions predictable and reversible; create a feeling of progress and achievement; and allow users to customize the interface to their needs and desires. If the web-site provides transactional capability, it also needs to be secure for payment purposes.

A certain minimum of internal competence is required to manage e-Business activities. If the creation of an e-Business model has been out-sourced initially, airports should ensure that they retain sufficient information from external consultants to build up their own knowledge, competence and judgment capabilities.