

## ANNEX 9 – GUIDELINES FOR THE DEVELOPMENT OF THE APEC INTEGRATED INFORMATION SYSTEM

In order to develop free and open trade and investment, to promote and accelerate regional economic integration, to encourage economic and technical cooperation, to enhance human security, to create favorable and stable business environment, to stimulate economic cooperation at the level of small and medium-sized enterprises (hereinafter - SMEs) and to facilitate the process of internationalization of SMEs of the APEC economies it is necessary to develop and use special instruments to support SMEs, which would overcome the existing barriers and difficulties and gain easier access to all kinds of relevant information and reliable contacts not only at national level but also international.

Information in the modern economy is required as economic resource and as a product that meets human and business needs. Special area of information use in economic activity is to ensure the effective functioning of organizations through qualitative treatment of information and knowledge. Lack of necessary information, as well as an excess of unnecessary, disorients any business activities and nullifies all efforts.

The need to make optimal marketing decisions in tough competition obliges any business - and especially small and medium-sized - to have huge amounts of marketing information.

Specificity of modern life in the global markets requires the subjects of economic relations to analyze deeply all the processes in domestic and foreign markets in order to find the right niche for their products, to ensure the efficient use of resources and qualitative satisfaction of customer demands.

Such information - especially if it is relevant and reliable - allows any small and medium-sized enterprise:

- to reduce financial risks;
- to gain competitive advantages;
- to monitor the marketing environment;
- to find new markets and niches for their products;
- to coordinate the strategy;
- to evaluate the effectiveness of activities;
- to promote products and find business partners effectively.

Currently the share of the APEC economies accounts for 57% of world GDP, 49% of the turnover of international trade, more than 40% of direct foreign investment and about 40% of the world population. It is perfectly natural that small and medium business plays a different role in each economy.

Similarly the share of SMEs differs in the total exports of the APEC economies (according to the APEC Secretariat, presentation SME Internationalization - Different Aspects and Related Issues, September 3, 2014, 39th SME Working Group Meeting, Nanjing, China):

<b>No</b>	<b>APEC economy</b>	<b><i>SME share in national export, %</i></b>
1	Australia (2010 / 2011)	5%
2	Viet Nam (2010)	9%
3	Indonesia (2011)	16%
4	Canada (2010)	41%
5	China (2011)	68%
6	Chinese Taipei (2011)	16%
7	Republic of Korea (2011)	35%
8	Malaysia (2011)	19%
9	Chile (2010)	7%
10	Peru (2012)	4%
11	Russia (2012)	1,5%
12	Singapore (2009)	16%
13	USA (2009)	22%
14	Thailand (2011)	30%
15	Japan (2012)	15%

Each APEC economy uses different ways for collecting and analyzing data, so there is a need in unified standards allowing to collect, store and process information in the same style. However, the frequency and regularity of such an analysis is different in the APEC economies. In addition it is needed a single set of indicators and targets to measure the level of development and degree of activity of APEC SMEs in foreign trade / exports.

The effectiveness of any organization in terms of market relations is inseparably linked with the information. Information in the company's marketing system is crucial, as any marketing activity is based on an understanding of the concrete situation in the market production of goods / services. Lack of adequate marketing information, the use of inaccurate or irrelevant data can cause serious economic miscalculations. The purpose of the use of marketing information is to reduce uncertainty in decision-making.

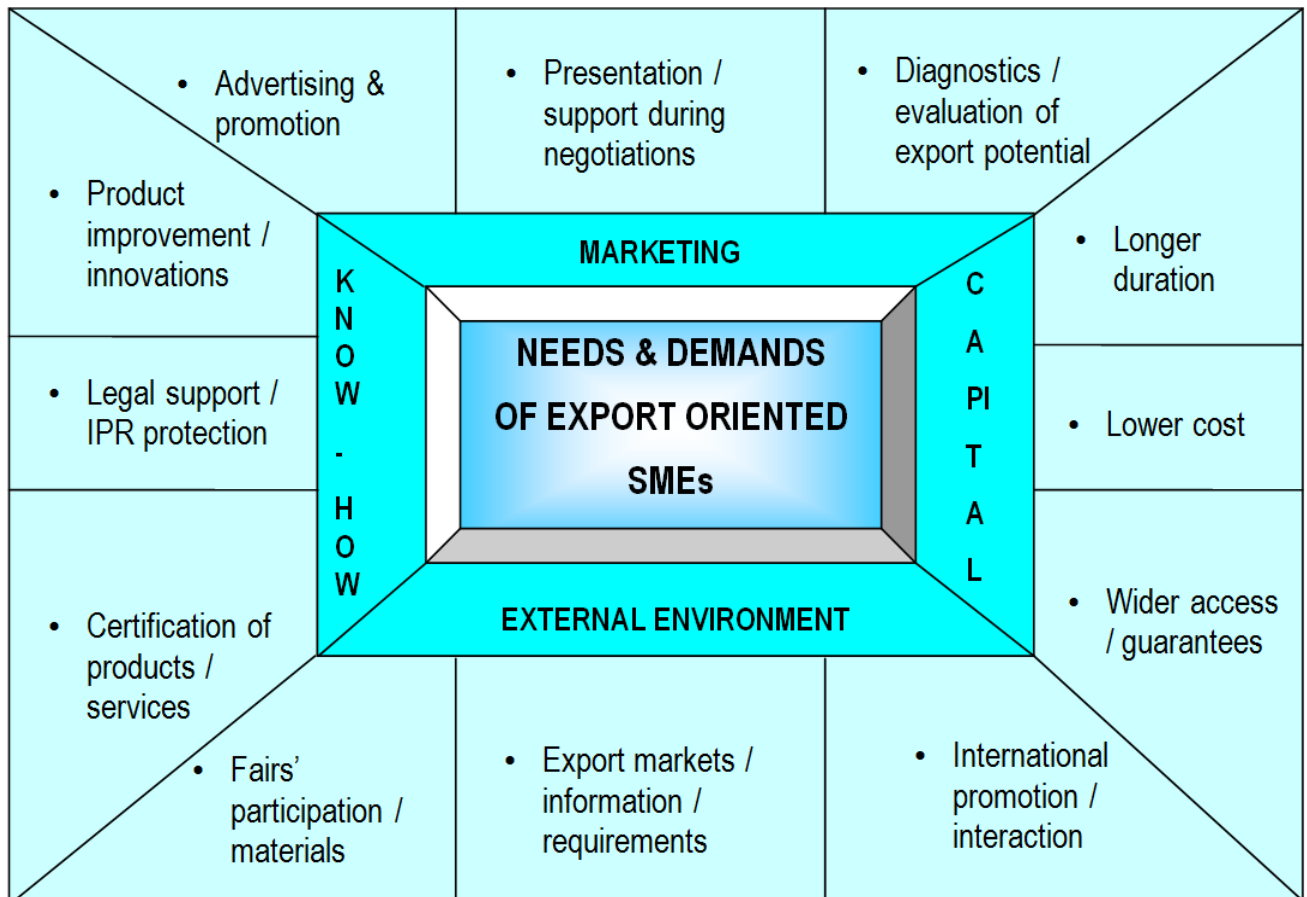
To survive in the competition SMEs require large volumes of marketing information. Therefore, the market of information services must respond flexibly to changes in demand and preferences of small and medium-sized businesses, and the government should strongly assist business to have always access to accurate, relevant information:

- about enterprises of various industries and their products in the interested countries;
- about sales volumes of these goods / products, supply and demand trends;
- about opportunities of entering the interregional and international markets;
- about trade and customs regulations;
- about the requirements of the market and technical standards;
- about possibilities of establishing businesses in other countries;
- about possibilities of attracting investments, etc.

For the development of their businesses SMEs should receive all necessary information from one and the same source ("one window", etc.) - different countries have different approaches, - however, their experience may be useful for the development and use of one common information tool that will be used by the APEC economies seeking to support SMEs and to promote them to the world markets.

On the basis of the research done in the frame of the project among 300 SMEs from different regions of Russia, it was concluded that one of the priority needs of those companies that wish to enter international markets is an access to relevant and reliable information (markets, requirements, potential partners and contacts, promotion and marketing, etc.), as well as complex consulting support in development and implement of export strategy.

Figure 1 – Needs and demands of export oriented SMEs



At the national level many APEC economies already have some information resource aimed at supporting small and medium-sized businesses of any country to enter the international markets, such as, Austrade, Hong Kong Trade Development Council, MATRADE, Thailand Department of International Trade Promotion, New Zealand Trade and Enterprise, International Enterprise Singapore, etc.

It should be noted that most of these resources are informative and designed to support national SMEs. It means they contain information about measures / tools / mechanisms of supporting foreign trade that are used by the state, and how national SMEs can enter international markets. However, such information resources are one-sided – i.e. they are directed to support national SMEs, and the same businesses from other countries which would like to find potential business partners in this country do not have the ability to use such a resource for this purpose, which is very often also established in the national language of this country.

Thus, the existing national information resources do not provide all necessary opportunities for bilateral cooperation and opportunities for consulting enterprises.

Therefore there is a need in an integrated resource to receive actual information for promoting international cooperation and integration of SMEs based on the optimization and raise of efficiency of

existing information resources of the APEC economies with full use of all their capabilities and their integration into a single information space / single system - Integrated Information System APEC (hereinafter - IIS APEC).

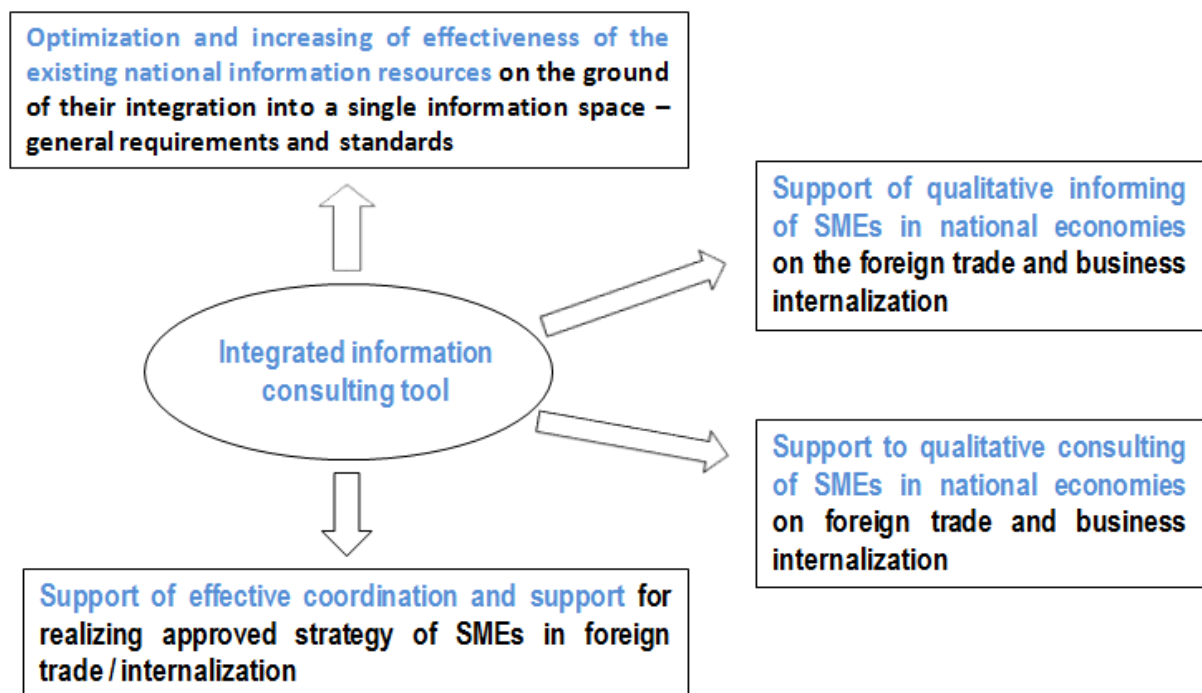
One successful example of such informational consulting resource is an international network Enterprise Europe Network, which covers 54 countries and is focused on complex support and assistance to SMEs from the EU in the field of internationalization of business.

IIS APEC creation will promote favorable conditions for SMEs of the APEC economies abroad, facilitate access of national goods and services to external markets and improve the efficiency of product promotion of SMEs on foreign markets.

IIS APEC should become a single reliable and relevant source of information in the Internet for the participants of foreign trade of the APEC economies, including search and selection of potential business partners.

IIS APEC creation will increase awareness of SMEs of the APEC economies on the current situation and existing opportunities in the markets of the Asian - Pacific region, and will promote real-time providing of necessary foreign information to ensure effective integration of national economies into the world economy and export development within the region.

*Figure 2 – IIS APEC*



Creation of Integrated Information System APEC is fully consistent with the stated goals of the APEC Working Group on SMEs to promote free and open trade and investment and the development of economic and technical cooperation for achieving stable growth and equitable development, and promote trade and investment in the Asian-Pacific region.

## GOALS AND OBJECTIVES OF THE INEGTRATED INFORMATION SYSTEM APEC

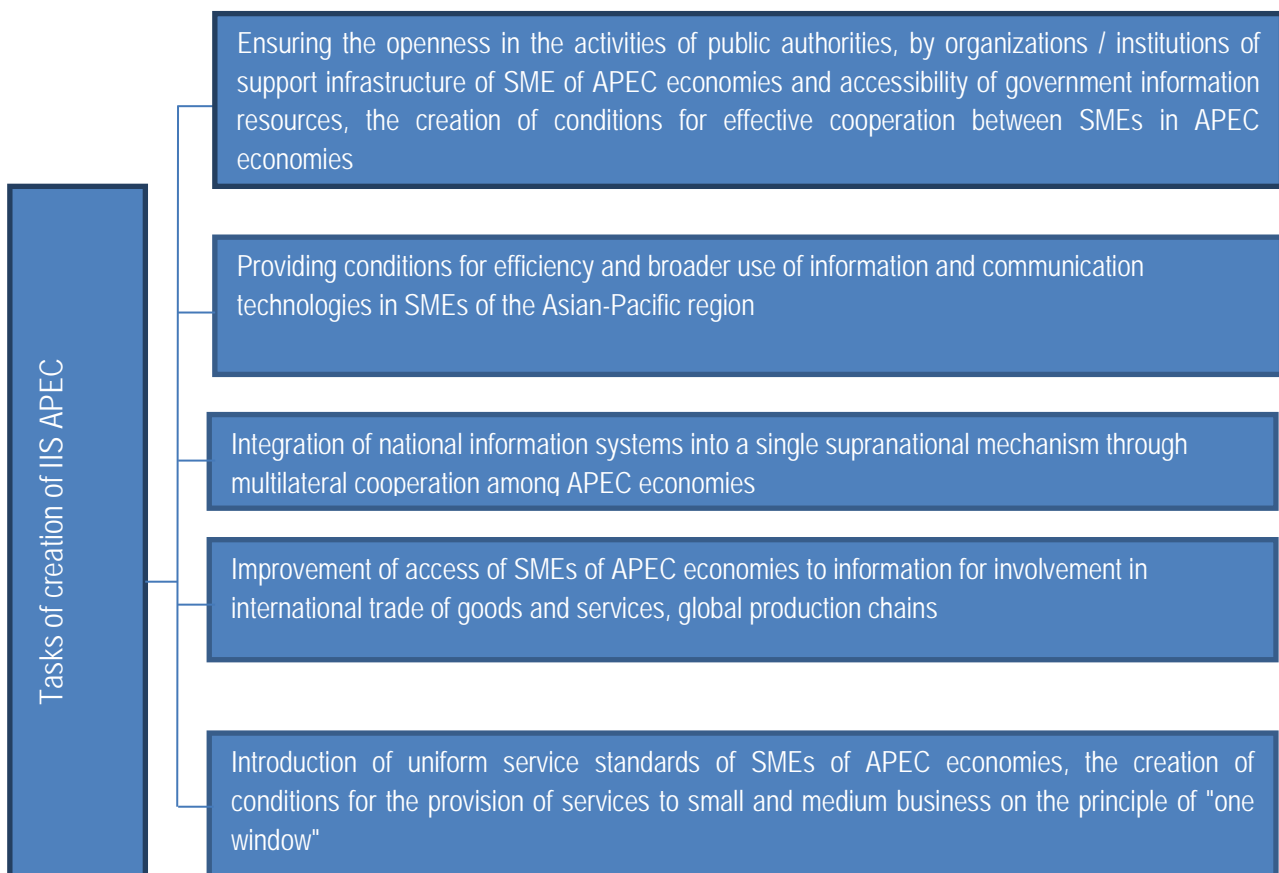
Integrated Information System of the APEC economies (hereinafter IIS APEC) is a supranational mechanism of formation of a single information space of the APEC economies for SMEs.

The common goal is an increase of the number of competitive SMEs of the APEC economies involved in the process of internationalization of its business, contributing to the development of the APEC economies.

The main goal of IIS APEC creation is cooperation on a mutually beneficial basis of the national information space of the APEC economies at the expense of optimization and improvement of the efficiency of existing information resources of the APEC economies on basis of their integration into a single information space, taking into consideration their interests in the development of cooperation in the agreed areas of stimulating the involvement of SMEs of the Asian-Pacific region in international trade in goods and services, global production chains.

IIS APEC creation will contribute to the following **key objectives**:

Figure 3 – key objectives of IIS APEC



**Target group:** public authorities, organizations / support infrastructure of SMEs in the APEC economies, subjects of SMEs, national and international organizations that support the internationalization of SMEs and access to new markets.

IIS APEC should provide SMEs for information and consulting services in the field of foreign trade.

The basic package of services for SMEs in the APEC economies should be provided on a gratuitous basis, and additional – related – services can be done on a paid basis.

Thereby, the available information should report about the situation inside the member economy in support and stimulation of foreign trade activities of SMEs, as well as about the situation in other economies they are interested in:

- Information about national system of support of foreign economic activities within a particular member economy:
  - about the activities of public authorities in the field of regulation of foreign economic activities;
  - about measures and instruments, mechanisms and opportunities for government support in the field of foreign trade;
  - about activities and programs of relevant development institutions;
  - about the range of activities (conferences and forums, B2B meetings, exhibitions and fairs, business missions, etc.);
  - about proposals from SMEs in foreign trade (supply and demand, search of partners, etc.);
  - etc.;
- information about other economies that are within the scope of IIS APEC activity:
  - about socioeconomic situation of the member economy as a whole and about the state of various sectors of the economy;
  - about rules and regulations of economic activity as a whole, business registration, creation of joint ventures, etc. .;
  - about regulation of foreign economic activities and technical requirements for foreign products;



- about tenders, exhibitions / fairs and other events that make possible for SMEs to present themselves, and to find potential business partners;
- about proposals from small and medium business in the field of foreign economic activities (supply and demand, partner searching, etc.), etc.

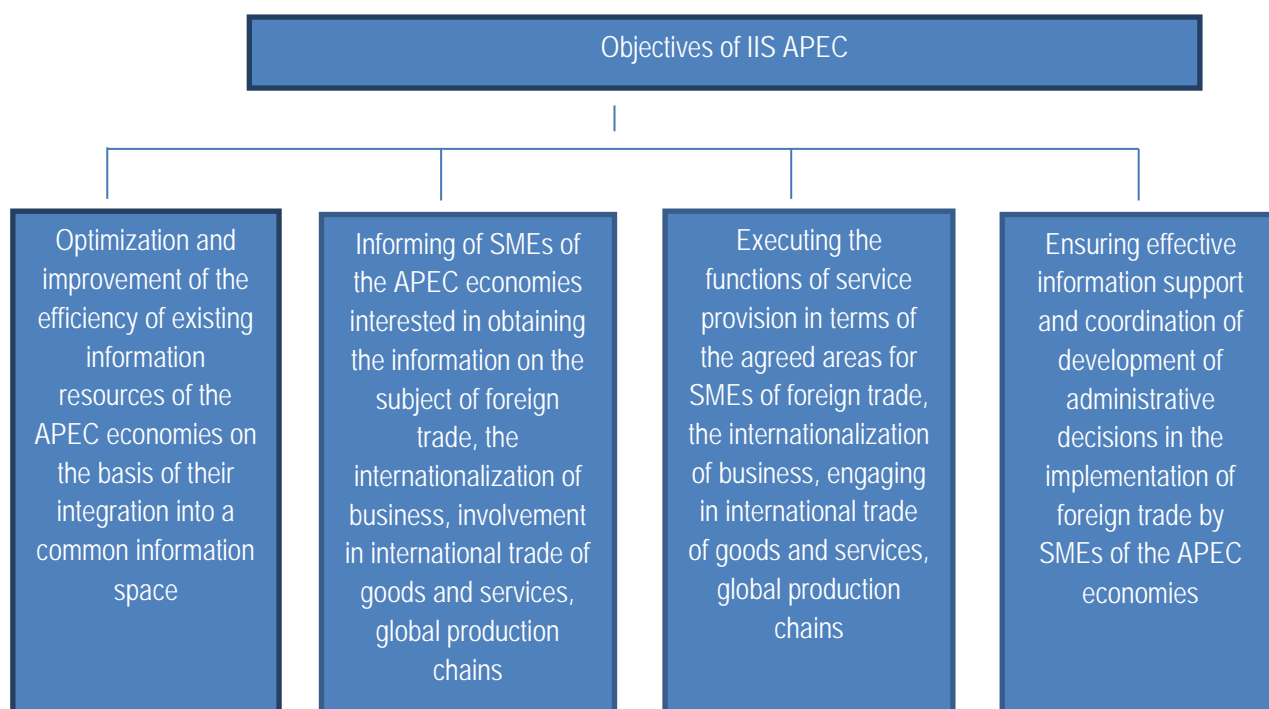
Information provided by IIS APEC can be open – that means to contain general information in the field of foreign trade, and closed – that means to be available to SMEs only after registration (e.g. search for potential foreign business partners, review of proposals from international partners etc.).

Consulting support should target on decision of particular requests / tasks of SMEs in search of any information, contacts of potential business partners, filling profiles, etc., including the collection and analysis of export proposals, claims and tenders received from domestic enterprises and foreign partners in IIS APEC.

### Architecture of the proposed IIS APEC

The architecture of the proposed IIS APEC should contribute to complete all specified tasks, therefore its functions should include the following:

*Figure 4 – Main functions of IIS APEC*



The system should provide the following tasks:

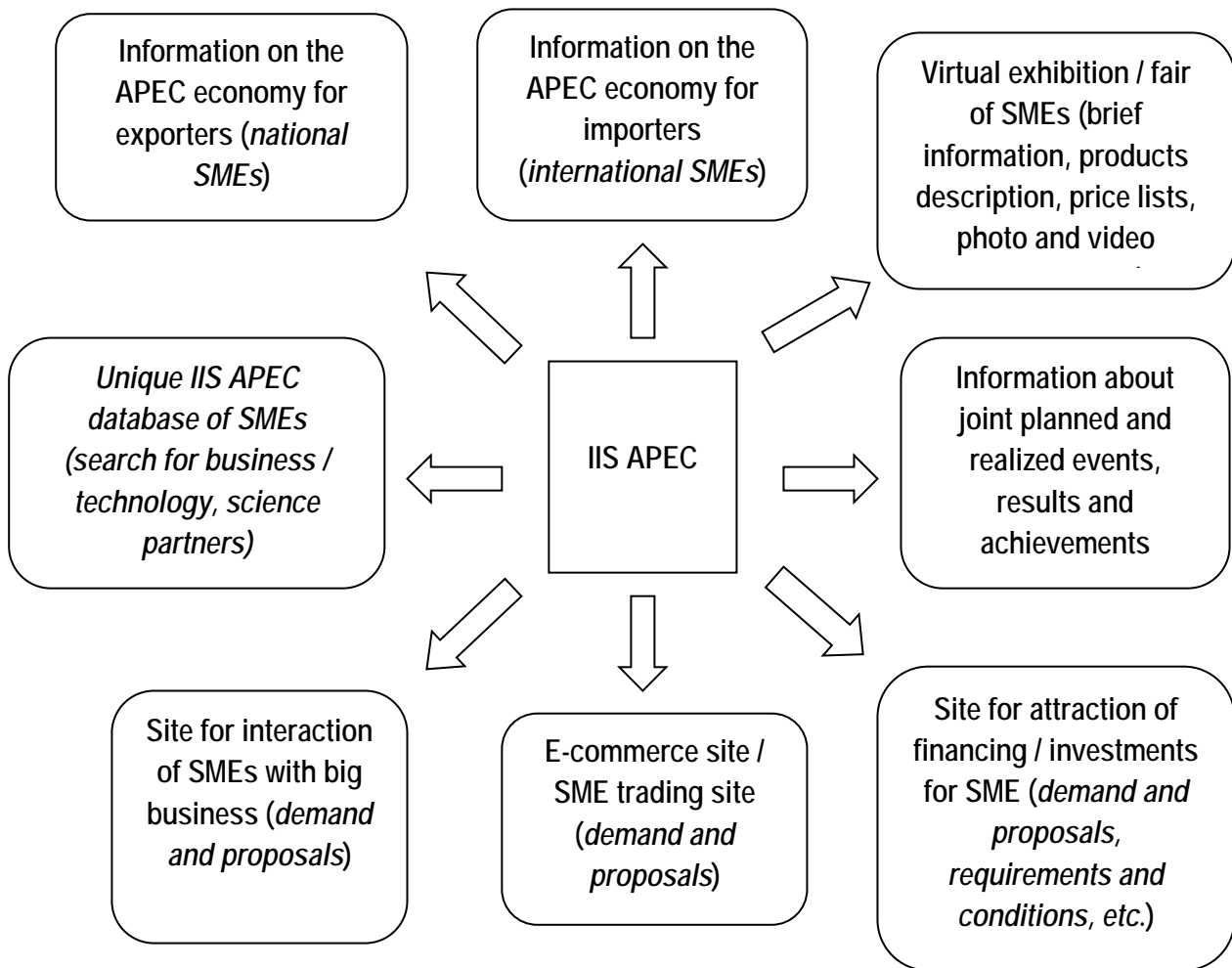
- informing individuals and juristic persons about services and events in the field of foreign trade in the Asian-Pacific region, about the export opportunities of producers of export products of SMEs in the APEC economies and relevant characteristics of such products through thematic information window:
  - Window "Database on SMEs" - business, scientific and technical cooperation, technology transfer;
  - Window "Information about the economy in the field of foreign trade" - regulation of foreign trade, protection of intellectual property, goods and services markets;
  - Window "Interaction with big business" - business localization, subcontracting, supply chains;
  - Window "Investment attraction" - financial instruments, investment cooperation and investment projects;
  - Window "Virtual exhibition of SMEs" – description of the products / services of SMEs with photos, specifications and videos;
  - Window "Trading site of SMEs" – a site for electronic commerce of SMEs in different economies.
- within the above windows IIS APEC provides operational information support to exporters in the APEC economies and other subjects of foreign trade, including legal matters of implementation of such an activity;
- system provides its users with the tools of access to operational information, means of its analysis and storage for later use;
- ensure the provision of general and operational information to participants of foreign trade:
  - on state regulation of foreign trade;
  - protection of intellectual property;
  - conditions for registration and operation of the business;
  - about activity in the special economic zones;
  - aspects of customs regulations;
  - about the system of support institutions / SME infrastructure, including in foreign trade;

- about the possibilities of attracting investments, the availability of funds / guarantees for SMEs in the field of foreign trade;
  - publication of information and analytical materials on doing business in foreign countries, information about tenders and commercial offers of foreign partners, etc.;
  - recommendations, practical advice and success stories promoting products and services of SMEs in the APEC economies to international markets;
- the system should have administrative instruments of content management, sufficient to support the transfer of functions to the external management system, while maintaining complete control over the performance of the system by authorized employees of the APEC Secretariat;
  - the system should have built-in mechanisms to maintain smooth operation, and provides the conditions for the most rapid elimination of potential problems, including a redundant subsystems for emergency replacement of defective critical components;
  - the core system is a single database of foreign trade - a set of information and analysis on foreign trade activities, including:
    - plain text information resources;
    - complex information structures, such as directories, equipped with sophisticated tools of search and selection of a point of information. The central database must accumulate all available information on foreign trade for SMEs in the APEC economies.

However, it should be noted that the structure of IIS APEC should be rather flexible to add new sites as required or at calls of SMEs of different APEC economies, to create sectoral and / or expert groups, to plan joint events (B2B meetings, broker arrangements, business missions, conferences / forums, exhibitions, etc.).

Therefore, the general structure of IIS APEC can be presented as follows:

Figure 5 – IIS APEC structure



**Basic principles of an Integrated Information System development and organization of the APEC information space**

The appearance of transnational economic structures, information and telecommunication systems globally indicate the transition to the information orientation of the development of economy and society. This is precisely why the solution to the problems of information interaction should precede by the time each step in establishing cooperation in a particular area – it is necessary to monitor the information needs of SMEs of the APEC economies and to suggest effective decisions for their satisfaction.

Formation of a unified information space of SMEs in the APEC economies will allow better coordination of their activity to create favorable conditions for foreign trade, pursue a coordinated policy on various issues related to the implementation of foreign economic activities, access to foreign markets, the search for a foreign partner, the implementation of various forms of internationalization of SMEs of the APEC economies during the interaction of their economies.

In the area of formation of information space there are rules that are both common to the APEC economies and specific to each economy. The reason for these specific characteristics is that not all the items of information space are at the same time on one and the same stage. The process of development of the APEC economies is linear and the occurrence rate of each of these states into the information space can be different.

Accordingly the concept provides:

- the stages of formation and development of an integrated information space of the APEC economies;
- organizational and technical base for the cooperation of the participating economies (national partners) in the information sphere;
- guidelines for the development of an integrated information system and the formation of an information space of the Asian-Pacific region;
- general architecture of an integrated information system;
- model of the created integrated information system;
- target audience: participants, operators, users;
- the structure of the database.

The present concept focuses on:

- improvement of the efficiency of information interaction of the APEC economies on the agreed spheres of stimulating the involvement of SMEs of the Asian-Pacific region in international trade of goods and services, global production chains;
- protection of intellectual property;
- protection of the national interests of SMEs in the APEC economies.

The concept of IIS APEC is based on the following **main principles**:

*Figure 6 – basic principles of the IIS APEC creation*

Tasks of creation of IIS APEC

Observance of state sovereign rights of the APEC economies on independent formation of the information space

Observance of fundamental principles of international documents and agreements and contracts between the APEC economies

Mutual benefit of interstate relations with regard to a single information space for SMEs in the APEC economies

Improved access of SMEs in the APEC economies to information of involvement in international trade of goods and services, global production chains

Introduction of common standards for servicing SMEs in the APEC economies, creation of conditions for the provision of services to small and medium business on the principle of "one window"

Ensuring an adequate level of information security by each of the APEC economies

Economic expediency of participation of each APEC economy in the implementation of measures for the development of an integrated information system and the formation of common information space in the Asian-Pacific region

Conservation, development and effective use of the existing information infrastructure of the APEC economies in stimulating the involvement of SMEs in international trade of goods and services, global production chains

Observance of international law and consideration of national interests by development and coordination of approaches to cooperation of the APEC economies in the development and implementation of IIS

Implementation of mutually beneficial science and technology policy ensuring the effective interaction of information systems of the APEC economies

Use of various attracted funds along with state funding sources

Acceptance of equality of SMEs in the APEC economies in the right to receive and extend information

Mutual interest in expanding opportunities to establish permanent and operational channels of interstate communication, exchange and extend of information in the Asian-Pacific region in the sphere of SME

The mentioned principles take the issues of IIS APEC creating and activity of development of the information space to the priority tasks of interstate level, which should be constantly controlled by the heads of state structures governing the SME sector in the APEC economies.

The proposed concept is a part of the cooperation among the APEC economies in the sphere of information and telecommunication, and will be realized through national programs of informatization and target programs for interstate cooperation in agreed areas of custom activity.

### **General Technical Requirements to the proposed APEC Integrated Information System**

IIS APEC is to support a set of functions to enable the submission of the documents in electronic format through a single entity in order to fulfill all regulatory requirements related to the implementation of foreign economic activity, the search for a foreign partner, access to foreign markets.

The participants of foreign trade relations provide information only once in a single form, filling the approved profile form, involved agencies and organizations will receive a copy in electronic format. This provides update of stored information: the database always holds the last copy of the document.

*IIS APEC is to meet the following general requirements:*

1. Ensure the completeness of the database. Database (public) is to include: all normative documents concerning foreign trade procedures, acting requirements of all relevant government authorities of the APEC economies, contact data of state authorities, organizations and institutions of support of SMEs in the APEC economies and their employees, practical examples, guidelines for processing documents, information about the companies by industry and others.
2. Reliability and data security. Data storage reliability should be provided in view of physical and information security. IIS APEC should provide both external security (resistance to attacks of any kind) as well as internal - (threats associated with misuse or theft of confidential information). It is also necessary to ensure the reliability of data storage and backup system.
3. Ease of use and access to IIS APEC. To provide the options for access to the service for all customer groups. Access procedure in any of the options should be simple and clear.
4. The ability to make changes according to varying requirements. It must be a technical capacity to make changes to the work of IIS APEC sufficient to maintain its effectiveness in the event of change of procedures, requirements, etc. IIS APEC will allow effective extension of functions, particularly the addition of new interfaces and opportunities.

5. The ability of reporting. The most important property of IIS APEC should be its ability to provide quickly the necessary management information. IIS APEC should be able to make several reports by pressing a button. The list and the format of reports will be determined during the development of IIS APEC and agreed with the relevant agencies and departments and other involved authorities of the APEC economies.

### General System Requirements to the proposed APEC Integrated Information System

- The key requirements for the system are:
- **openness** – IIS APEC compatibility with all current standards and protocols, support for Internet technology, and the ability to increase the functionality due to the interaction of both own technologies of participants of the creatable system, as well as with software of independent provider and best practices of users;
- **integrability of the information environment** in which the corresponding complex of heterogeneous resources and services is presented to the user in consistent and integrated way through a single interface;
- **universality** – information environment must cover distant and distributed, independently accompanied sources and services of various formats and forms, should provide a search operation of information resources and localization of their location, request of resources and their delivery;
- **transparency** - information environment should be transparent to the user, maintain possibilities of public access and the personification of the interface, should be supported by user profiles (fixing individual configurations of the user interface), information about the user's access rights, the rights of use of resources;
- **reliability** - ensuring the sustainability of access, load balancing, as well as data security and control of access to them to meet the requirements of copyright law, the terms of data provision, control of payment of the materials used, the responsibility for the contents, dissemination of false information, privacy compromise, etc.
- **dynamism** - providing with efficient information based on dynamic content updates;
- **scalability** as a key requirement in view of investment saving - to support the growth in the number of portals, resources, services, the volume of data, traffic, etc .;



- **portability** - the ability to run on different hardware platforms, operating systems, database servers;
- **adaptability** - the ability to customize on the developed system for any organization;
- **actuality, reliability, authenticity, fullness of information** is provided with profile authorities and departments in each APEC economy.

### **General Requirements to the proposed APEC Integrated Information System**

The developed system must meet the following requirements:

- to ensure the building of common information space between different information systems of the APEC economies in the sphere of SMEs;
- to use the experience of foreign construction both of integrated information systems of this kind, particularly Enterprise Europe Network, and of national systems, e.g. Austrade, Hong Kong Trade Development Council, NATRADE, Thailand Department of International Trade Promotion, New Zealand Trade and Enterprise, International Enterprise Singapore, etc.
- information in IIS APEC should be presented in English to provide free access of all interested SMEs but at the same time it is necessary to create a possibility to distribute different information .

### **Requirements to Hardware and Software for the proposed APEC Integrated Information System**

Hardware and software systems should be established on the basis of the world's leading technology in the field of telecommunications and automation of control and meet the following basic requirements:

- to support access to system resources via Internet, including using a secure protocol HTTPS;
- to use a unified open standard of metainformation representation;
- to use a unified system of classification and coding;
- to have a built-in tools of online analytical data processing;
- to operate in heterogeneous environments and on different hardware platforms;
- to ensure interaction and compatibility with a variety of software products already used by developers and users of resources;

- to ensure high reliability and error stability;
- to maintain the ability of upgrade in operational process.

The suggested software and hardware decisions should provide the possibility of the flexible modification of the structure and scalability of IIS APEC resources. Software should meet the modern world requirements by function, support main compatibility and exchange details, and have international conformity certificates.

All types of software and hardware in IIS APEC should be serial, declared for commercial sale, under warranty and be really supported by the producer.

All computer equipment for IIS APEC should be delivered with advanced tools of intellectual monitoring, configuration and diagnostic.

Special software should contain source codes, full design and operating documentation, or be supported by the producers on the ground of long-term agreement.

### **Requirements to the Software**

Software that implements the functions of IIS APEC at the program level should include the following:

- general system software (GSS);
- software for maintenance of computer and network equipment;
- special software (SS).
- General system software should provide the following functions:
  - system support of the programs that implement functions of IIS APEC;
  - multi-user access to the resources of software, maintenance and information support of the system;
  - interface of interaction between applications (API) with the OS and DBMS;
  - interface of interaction between users and / or program with the telecommunication means;
  - support for maintaining databases and file structures of data;
  - ensuring the protection of information resources from unauthorized access;
  - flexibility and ease of use, the ability to adjust for different types of equipment and its various modes of operation;

- user identification and authentication of access to the resources of software, technical and information support;
- audit of the processes performed in IIS APEC with the ability to configure the completeness, structure and regulation of the audit.

The amount of the above mentioned functions should be defined at the stage of detailed design.

Software of the maintenance of computer and network equipment should contain the means for performing the following functions:

- computer maintenance;
- virus prevention and protection;
- centralized administration and management of a local network;
- diagnostics and control of the operation of all types of software.

The specific minimum composition of software for maintenance of the computer and network equipment should be defined at the stage of the detailed design.

As GS and software of maintenance of computer and network equipment it is recommended to use standard (replicated or "box") software of the third producers (hereinafter referred to as "purchased software").

While using purchased software of the given types for each software product there should be a license of the manufacturer, and maintenance should be provided by the manufacturer.

### **Separation of access**

IIS APEC should provide correct separation of the users' rights/. Basic software should be checked for the lack of known vulnerabilities to denial and to unauthorized access.

The system should protect against unauthorized access and change of IIS APEC content by standard means of used web-server and operating system.

- Authentication for working with publication sections of the subsystem must be made on a personal user name and password. Each user can be granted the right to perform certain actions with certain types of documents and sections of IIS APEC:
- view of items;
- adding of items;

- editing of items;
- removal of items;
- sighting of elements (setting the mark "publication");
- editing of the access rights to the section.
- By default all actions for the newly accredited users should be banned. Each of the above mentioned actions can be individually enabled or disabled for a specific user for each of the sections of the IIS APEC.

IIS APEC should have a possibility for entrance under the main administrative account that should have the right to take any action specified by function in any of the sections of IIS APEC.

### **Requirements for the Provision of Metadata**

Organization of the information space as a set of information resources requires their unique identification and guarantee of efficient navigation. As a tool for the identification of such information resources open standards should be applied.

Currently the most promising standard is DublinCore (DC), as it can be applied practically to all types of electronic documents and is available to the interpretation both a machine as well as a man, and, furthermore, is international.

On the first stage of the presentation of information resources it is advisable to limit to their aggregative description in DC (database, supply catalog, etc.). On the following stages there is a possibility of more detailed description right up to the description of each document.

Information about the resources provided by the parties, it is appropriate to provide in the form of a set of fields DublinCore (DC) and system extensions to it (classifications and codes).

In this environment the structure and data composition is not strictly regulated as in the catalog, there are no relationships between data elements, and there is a possibility of pre-identification of a resource in the form of a specific set of data.

Easiness of creation, easy indexing, the ability of additional charts for a more detailed search, interoperability are the arguments in favor of using DublinCore.

Metadata exchange is reduced to sending RDF / XML-files, i.e. can be fully automated

In order to maintain compatibility with the simplest description of the 15 elements DublinCore and, at the same time, to increase the detailing and complexity of the document description in different organizations, it is necessary to use additional classifications and references for the basic elements.

Universal and industry directories and classifiers allow adapting the system to the peculiarities of the particular organization, to make its "delicate" adjustment without breaking the traditions and technologies of information handling and creation of information resources adopted by these organizations.

### **Specification Requirements Rational Unified Process**

The specifications Rational Unified Process (RUP) in the classification of the requirements for information systems use model FURPS+ which means the following set of requirements:

- Functionality
- Usability
- Reliability
- Performance
- Supportability.

The symbol "+" expands FURPS-model by adding to it:

- particular limitations of the project,
- implementation requirements,
- interface requirements,
- physical requirements to the system / software and computers.

Furthermore in the RUP specifications there are also such categories of the requirements as:

- requirements indicating a need for conformity with certain legal and regulatory acts;
- licensing requirements,
- requirements for documentation.

## Requirements to the files

IIS APEC can contain as photos so documents. Document is a file in one of the accepted formats: pdf, rtf, doc, docx, xls, xlsx. (IIS APEC plans the distribution of the documents in open formats that are independent from proprietary technologies, e.g. – pdf that can be read by free software. Also closed formats of Microsoft (rtf, doc, docx, xls, xlsx) can be read by free public domain software as OpenOffice.org).

However all documents that are for publication on the site and are stored in the data bases should use UTF-8 format for providing a universal (platform-independent) method for storage, delivery and processing of the text massifs in different languages.

While publication of the documents there should be a possibility to read the documents by information users in 1251 format (Windows).

## Requirements to the documentation being developed

As a result the Contractor should submit:

- Concept design of IIS APEC;
- Software of IIS APEC as a part of agreed windows;
- Installation package of the IIS APEC on 2 DVD with source codes that are sufficient for self-use and upgrade by the Customer;
- Program and methods of IIS APEC testing agreed with the Customer;
- Software documentation for IIS APEC, including:
  - A set of functional specifications;
  - Specification for the technical infrastructure;
  - Explanatory note.
- Suggestions for IIS APEC improvement and development on the results of the experimental operation (according to Protocol of suggestions and comments on the results of trial operation);
- Statement of the holders of the originals;
- Statement of operational documents;
- Statement of computer data storage items;

- Technological instruction;
- Installation Guide;
- Programmer's Guide;
- Administrator's Guide;
- User's Guide;
- Registry list;
- Passport;
- General description of IIS APEC;
- Regulation of External Management of IIS APEC, including:
  - Procedure and frequency of providing information for publication;
  - Procedure and timing of the publication of the information;
  - Procedure for controlling the timely publication of information;
  - Reporting procedure of the management company;
  - Interaction procedure in case of impossibility of publishing of information on technical reasons;
  - Procedure for technical support of IIS APEC.

### **Requirements for preservation of information in case of accidents**

Preservation of information in case of failures and accidents should be reached for the database, data files on file servers – due to the architecture of building of IIS APEC hardware and software.

At the same time data recovery in databases and data files restore on servers should be ensured as at the time not more than 10 hours from the time of failure or accident of hardware and software, providing storage of the data.

In addition the system of long-term data archiving and files placed on IIS APEC server should be provided to ensure the preservation of the above mentioned data in the event of force majeure, fire, natural disasters, etc. Complete data archive must be formed weekly in two copies, one of which must be stored directly in the placement of IIS APEC, another one – in the room with controlled limited

access (accession order to the archive should be determined by IIS APEC leadership) in a building other than the one where physically is IIS APEC.

To ensure the preservation of the user data, storage of information only in databases and files hosted on IIS APEC servers should be provided by the architecture of IIS APEC constructing.

### **Requirements to access security**

Hacking ftp and / or users' passwords must not affect the information with more elevated privileges to edit.

All user input is filtered to select only variables that are necessary for the operation of the system as the type and name.

### **Load requirements for the public part of IIS APEC**

Each window should be designed for peak load at least 50 visits per minute.

### **IIS APEC operating conditions**

- IIS APEC operation on workplaces of the registered employees should be run by trained personnel who learnt the document "User's Manual".
- Administration and informational support of IIS APEC should be run by specially designated employees who learnt the document "User's Guide", section "Administration"
- Access to the system by non-registered and registered users is carried out round the clock.

### **IIS APEC maintenance**

- During the operation of IIS APEC should be carried out the following routine maintenance:
  - Check of servers' normal operation. Daily check of servers by a trial access to their resources;
  - Check of the connection to the Internet. Daily check of connection to the Internet by access to the Web-representation via an independent Internet service provider;
  - Check of the database (DB) integrity. Weekly check of the database integrity by means of the database server;



- Database backup. Daily database backup on a special backup device. Frequency of creating a record of backups on other media (DVD-ROM, tape drives, etc.) is determined by the intensity of changes in the state database.

## PROJECT STAGES FOR IIS APEC DEVELOPMENT

Creation and maintenance of IIS APEC is a complex organizational, technical and technological task. Its realization affects many aspects of practice in the field of scientific and technical information, and their implementation provides a sufficiently long period. Therefore, the realization of the main goal is split into several series to achieve the goals implemented in the independent stages, which specifies the practicability of a phased development of the system.

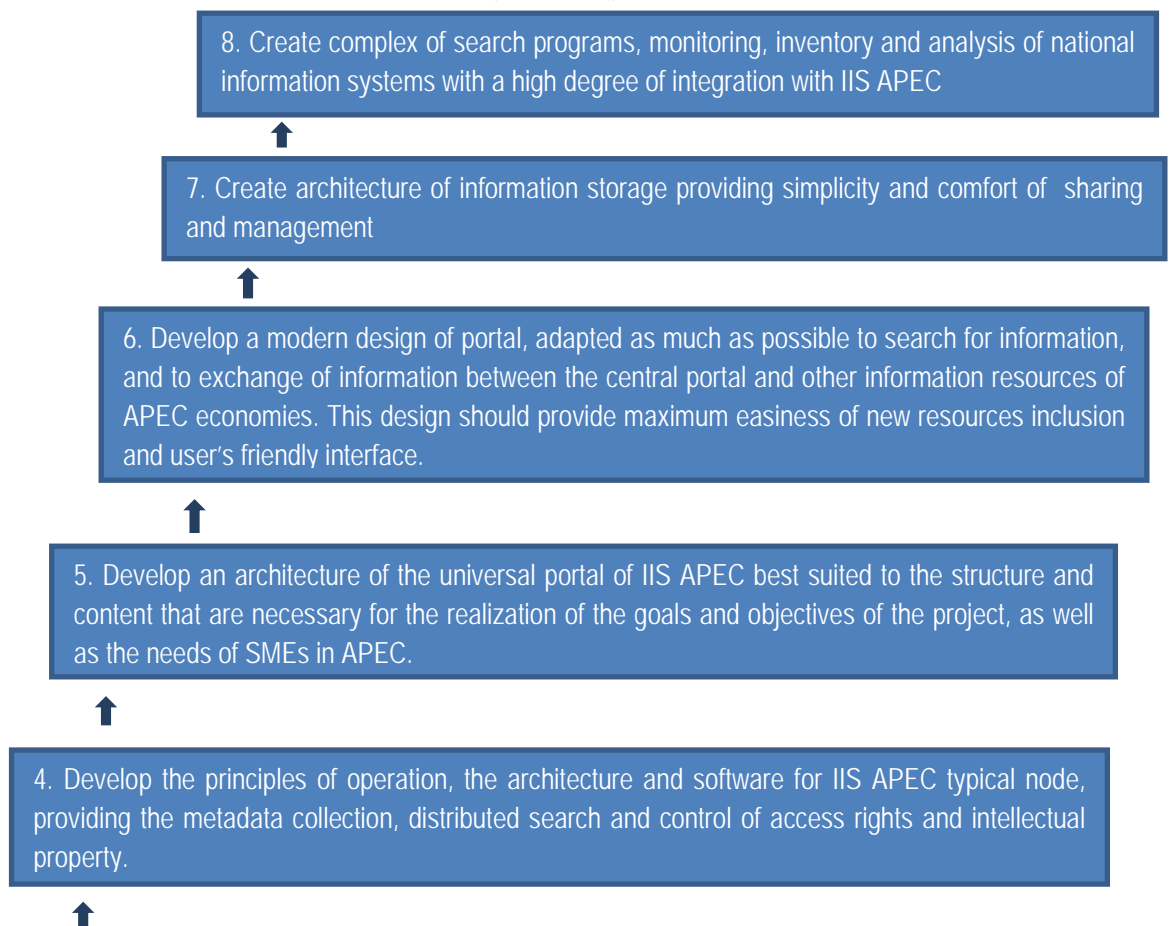
At the first stage the prerequisites for the realization of activities on the theme are formed. The main goal is to audit the current state of information systems of the APEC economies (resources, relationships, technology, market, etc.), the choice of the best options for further work organization.

At the second stage there will be carried out a full-scale test of decisions made, consistent startup of the finished development of IIS APEC by the example of the selected economies (involved on voluntary / consensus basis) for the purpose of pre-testing of the system, the analysis of practical results.

At the final stage there will be the plantation into the operation of full scope of the project decisions, taking into consideration changes that were made after preliminary approbation in all APEC economies.

For solving the main tasks for the formation of IIS APEC it is supposed to carry out the following organizational and technical steps:

*Figure 7 – general steps for the IIS APEC formation*





The solution to these problems must come from the requirements of decentralization of responsibility for information support. Each of integrable centers (national information systems) must be supported by its organizational structure, which has departmental responsibility for maintaining corresponding thematic collection of information - tracking its actualization and authenticity.

### **Management of creation and maintenance of an integrated information tool and information space of APEC**

IIS APEC shared use must be carried out in accordance with interstate and interdepartmental decisions and agreements of the APEC economies.

For goal achievement it is necessary to create a mutually beneficial environment for SMEs of the APEC economies and foreign entrepreneurs by access to the resource.

Realization of the decisions on the formation of an integrated information space of the APEC economies is based on the package of existing and developing international agreements that provide the organization and legal control of relations in the sphere of information and informatization.

The task of creating of interstate information systems as an integral part of the information in the Community is decided by the relevant intergovernmental and industry authorities. They work guided by decisions adopted at the international level, including this Concept.

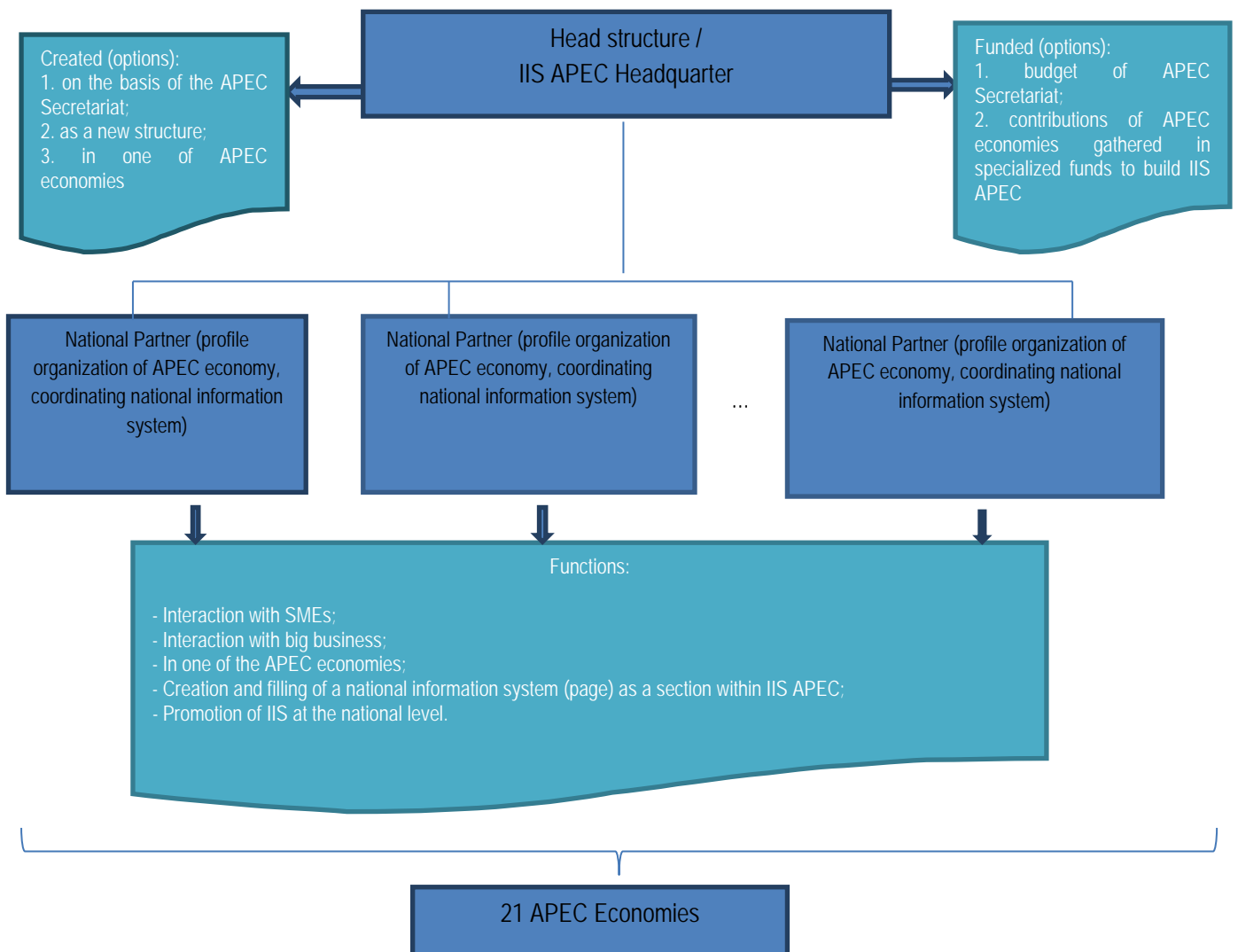
The APEC economies and APEC Secretariat should carry out activities for the development of national information systems and IIS, as well as provide the advantageous environment for the implementation of information processes in those cases when it is important from the point of view of their interests, creates new opportunities for information exchange to promote cooperation according to intergovernmental agreements and international standards.

The APEC economies create economic, institutional and legal conditions for the establishment of mechanisms of international cooperation in the field of an integrated information system and a unified information space of APEC.

One of the major problems of development of the information space of the APEC economies is to ensure each of them with its own information security and protection of its information sovereignty as well as the protection and preservation of APEC information resources.

A practical solution of ensuring national security information, bringing to responsibility for a threat or violation of information security in each of the APEC economies is carried out in accordance with their national law, international law and relevant intergovernmental agreements:

**Figure 8 – management of IIS APEC**



Thus, under the framework of IIS APEC it is necessary to create a unique database with profiles of those small and medium enterprises that have applied to the National Partner of the IIS APEC in order to get various information (information, analytical data, brief reports and overviews, etc.) and consulting

(search for potential business / technological / scientific partners, subcontracting, investments attraction, etc.) services.

SME profiles should contain information in English on the company (name, address, location, contact person, web-site, e-mail, main sphere of activity, main products, etc.) as well as detailed description of its needs or proposal (search for a partner / technology, products sale, search for new products, etc.). Profiles might have as attachments product specification, price lists, certificates, etc.

It means that SME could apply to IIS APEC for information or consulting support. The whole service provision process should be carried out in accordance to special standards set by the IIS APEC and implemented within a certain period of time.

Also it is necessary to carry out on a regular basis special monitoring of SME (feedback opinion) that received this or that service from the National Partner of the IIS APEC.

### **Participants, IIS APEC operator, national operators**

Main IIS APEC participants are:

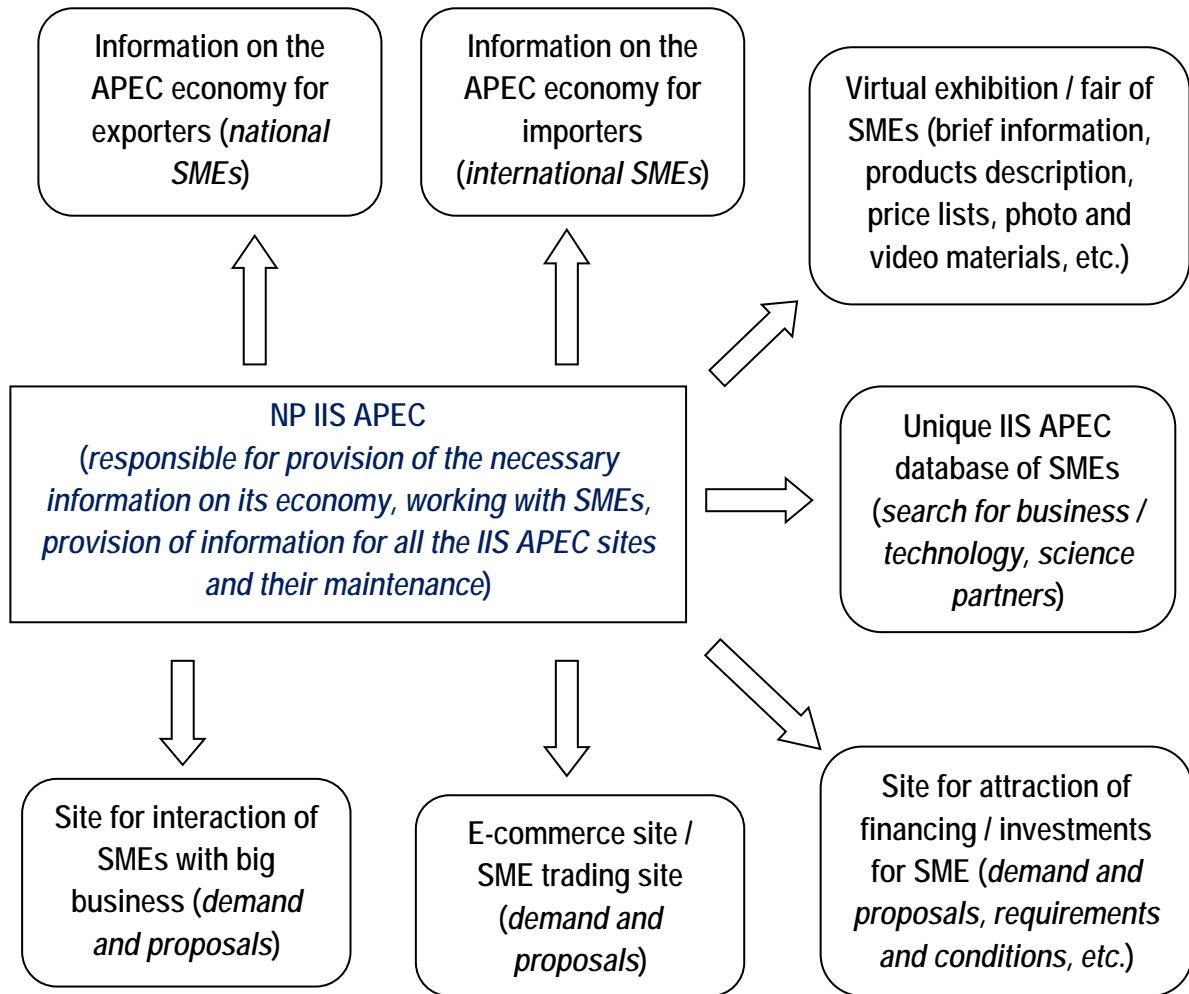
- profile structures of the APEC economies, coordinating the activities of national information systems (national partner, which is determined at the national level on a competitive basis or on the basis of the decision of the national executive authority responsible for the field of entrepreneurship in the APEC economy); SMEs of the APEC economies;
- support institutions / SME infrastructure on the territory of the APEC economies;
- international and national organizations that regulate the processes of internationalization and foreign trade.

Operator of IIS APEC is an organization to be selected by the APEC Secretariat for the implementation and coordination of the main objectives and tasks of the system, monitoring and control, marketing project IIS APEC.

Operator of IIS APEC interacts with a national operator confirmed on the national level in the APEC economies.

National Operator of IIS APEC is an organization selected on the national level by the responsible federal executive body to carry out and implement all the necessary IIS APEC functions.

Figure 9 - sphere of responsibility of a National Partner of the IIS APEC:



## PLANNED DATES AND DEVELOPMENT STAGES OF THE IIS APEC

Integrated Information System of APEC in accordance with the present Terms of Reference can be designed for 10 - 12 months.

However the amount of work involves not only the development and agreement of the structure and format of all units / modules of IIS APEC, its operation system, system of management, control and monitoring, requirements to national operators of IIS APEC, but also negotiations with representatives of the interested APEC economies ready to connect to the creation and development of the IIS APEC, the definition of the operator of the entire system and national operators, the development of requirements for the number of employees of the IIS APEC operator and national IIS APEC operators and qualifications required to fill the agreed units / modules, system testing, making adjustments and trial run of the system , the development of all necessary regulations, guidelines and manuals.

It is necessary to develop the structure and format of the site / portal of the IIS APEC, to state standard requirements for sites / portals of national IIS APEC operators, as well as to create and start a website / portal of the IIS APEC in accordance with set time.

Also during this period of time all organizational issues and financial aspects of the IIS APEC operation as a whole should be worked out.

Therefore the planned process of development and start of the IIS APEC includes the following steps:

- Holding of meetings and negotiations with all interested parties in the APEC economies and the APEC Secretariat to work out organizational and financial issues;
- Planning and coordination of the Working Plan of Action;
- Development and approval of all required formats / structures / documents / requirements, etc.;
- Development and testing of IIS APEC and the appropriate site / portal;
- Discussion of the results and introduction of any additions / changes to IIS APEC;
- Launching a pilot project of the APEC;
- Discussion of next steps and actions of all interested parties for the operation of IIS APEC;
- Start IIS APEC in the standard operating mode, system development through the involvement of new economies, creation and development of new functions and services.