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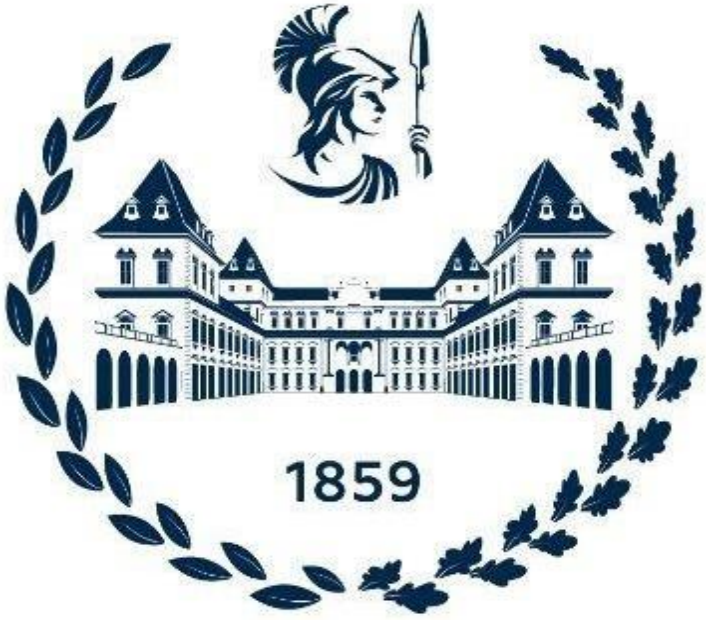

Export Compliance as a Response to Export Control

Supervisor: **Candidate:**

Prof. Guido Sassi **Nandan Kumar**

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Acknowledgment

The thesis you are currently reading is the result of my final master project which is the result of nine months of dedication and hard work. Completion of this final project does not only mean the end of my master's in Engineering Management, it will also mean the end of my time as a student and the start of a new chapter. To start, I would like to express my special thanks to Professor Guido Sassi for his invaluable guidance, comments and suggestions during the weekly meetings which provided me with energy and inspiration to continue. I always enjoyed our online meetings. I would also like to thank him for providing me the opportunity to participate in the International Masterin Export Compliance 2021/2022 that done by EIFEC (European Institute for Export Compliance) which helped me to complete my project effectively. I would also like to acknowledge the valuable time and precious guidance provided by EIFEC team during export compliance course.

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Abstract

Under EU export control regulations, items such as goods, software, and technology which can be used for both civilian and military are called as dual-use goods which can contribute to the proliferation of weapons of mass destruction are subjected to export restrictions. The European Union has developed numerous regulations to govern the export, transfer, brokering, and transit of dual-use products in order to prevent the spread of weapons of mass destruction.

This report will present what companies should do in the case of exporting dual-use goods, what is internal compliance program (ICP) and its core elements. During the analysis of core elements of ICP, a framework will be developed and proposed along with some practical examples for some core elements. After that a certain question will be developed for each core element as a construction methodology of ICP. These questionnaires can be used in the development of an ICP or review of an existing ICP. At the second half risk analysis for item classification and customer will be performed to help the company to identify and mitigate these risks. After that study will examine the export process of dual use goods for a company, outlining shipping process and required documents at each stage of the process.

This report also discusses about ISO:9000, its framework and outline the requirements of the ISO 9001. At the end a quality manual will be developed as a practical implementation of ISO 9000 in the form of case study since there is similarity of core elements between Internal Compliance Program and ISO 9001. Finally, a conclusion will be drawn to highlight what is necessary to do in ICP if you already have a developed ISO 9000 based on the similarities and differences between the ICP and ISO 9001 and the missing core element that can be included in ICP to increase effectiveness of the ICP.

Abbreviations

AG	Australia Group
CEO	Chief Executive Officer
CECO	Chief Export Compliance Officer
CSG	Customer Screening Group
CWC	Chemical Weapons Convention
EU	European Union
GPS	Global Positioning System
ISO	International Organization for Standardization
KPI	Key Performance Indicator
MITEC	Modern Industries Technique Company
MTCR	Missile Technology Control Regime
NSG	Nuclear Suppliers Group
QC	Quality Control
QMS	Quality Management System
WMD	Weapons of Mass Destruction
WA	Wassenaar Arrangement
ZC	Zangger Committee

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1 Introduction

1.1 Background & Problems

In this 21st century terrorism has emerged as a new major issue and has affected the worldwide community. During recent years world have witnessed major terrorist attacks around the world, and terrorism has caused loss, destruction, suffering, sadness, anxiety, and instability in almost all countries, whether directly or indirectly. At present, it has become more serious issue since terrorists are attempting to attack nations, states, institutions with Weapons of Mass Destruction (WMD) such as missiles, nuclear weapons, biological weapons, and chemical weapons in order to inflict a large amount of damage and death of innocent civilians.

Currently, terrorists have developed highly complicated way to procure and acquire materials and equipment's to produce or obtain Weapons of Mass Destruction. Since using WMD for terrorism or military purposes could have serious consequences for human civilization, international security, and the global environment, as well as have a psychological impact on the public. From history it can be seen that terrorists have employed a variety of methods for assaults including bombing, chemical terrorism, and bioterrorism. The following are some major examples of terrorism:

- In 1995, terrorists have attacked a Tokyo subway station with nerve gas known as "Sarin," killing twelve people and injuring over 5,000 [1]
- 9/11 attack in the United States where the terrorists attacked the World Trade Center where 2,977 people were killed from 97 nations and over 6000 were injured [2]
- 26/11 attack in the Mumbai, India where series of terrorist attacked took place at multiple places killing 175 people [3]
- In 2015, terrorists used weapons and bombs to attack Paris. Three suicide bombers stormed the Bataclan Concert Hall in Paris, killing 136 people and injuring over 350 others in this attack [4]

Therefore, many developed countries are encouraging to develop their own effective export control measures for any material or technology that could be used to develop WMD in order to prevent harm to the global community's peace and security. Thus, Dual-Use item which can be goods, software or technology that can be used for both civilian and military purpose and/or can assist in the proliferation of WMD are subject to regulation under each country own export rules. To promote international peace and security, the EU has devised a system to control the export, transfer, brokering, and transit of "dual-use items."

1.2 History of EU Regulations & Violation

Preventing the proliferation of weapons of mass destruction is one of the most major challenges of our day. Several countries want to acquire or create weapons of mass destruction for themselves or get the technology to make such weapons and sell them to other countries for a profit. To effectively combat proliferation, European Union member states, as well as all other industrial nations, have committed to preventing the spread of weapons of mass destruction and controlling the transfer of dual-use materials to vulnerable countries. Despite the EU's rules and regulations, managing the export of dual-use goods is still seen as a tough task. European Union which is only regional organization with a uniform legislative framework for regulating the trade in dual-use items faces numerous challenges. One example of this situation is the number of cases of export control violations that have been charged and successfully prosecuted in EU member states. The following are some examples of export violations in the past.

- Export of Chemicals from Belgium to Syria: On February 7, 2019, the Penal Court of Antwerp found three Belgian companies and two directors guilty of illegally trafficking 168 tons of isopropanol to Syria. [5] The chemical is having many civilian applications, and this is also a vital component of the nerve toxin sarin which had been used in Tokyo subway station attack in 1995 [1]
- Export of Weapons to Libya & Iran: Three Italian nationals were apprehended on January 31, 2017, by the tax branch of the Italian financial police of Venice. Anti-tank and surface-to-air missiles, helicopter spare parts, and ammunition made in the Soviet Union were illegally sold. The commodities were negotiated and sold in a number of countries around Europe, Africa, and Asia, and then sent to Libya and Iran without passing through Italian

territory [6].

- Export of valves from Germany to Iran: In 2012, the German Federal Prosecutor General detained four German citizens on suspicion of sending valves to Iran in breach of the EU's ban on the country. It was a multimillion-euro transaction, deliveries occurred between 2010 and 2011. The exports were hidden as supplies to Azerbaijan and Turkey to escape scrutiny. The end user was MITEC, which was in charge of constructing Iran's heavy water reactor in Arak and is thus subject to the EU's Iran embargo [7].

The European Union has taken numerous initiatives to improve the coordination and integration of member states export controls since the early 1990s. The main aim has been to develop universal export control regulations on dual-use goods, software, and technology. Following talks in the 1980s and early 1990s, the first pieces of EU law in this area were adopted in 1994 [8]. 1 Regulation (EC) 428/2009, a significantly amended version, was approved in 2009 [9]. The European Commission, the European Parliament, and the European Council began a review of the 2009 rule in 2011 and a new version of the dual-use law (the recast, or the 2021 recast) went into effect on September 9, 2021. This document has the themes and ideas of 2009 rules along with some alteration for better adoptability.

The EU has created a unified legal structure for member states' legislation on dual-use item export, re-export, brokering, and transit through these regulations. They've also produced mechanisms for countries outside the EU to enhance their export restrictions, such as a list of forbidden dual-use commodities, as well as outreach and assistance from the EU [10]. When the EU created dual-use export controls, two key goals were to implement globally agreed non-proliferation commitments and to avoid unlawful transfers to weapons of mass destruction programs [11].

2 Dual-use Goods

2.1 What are dual-use items?

Dual -use items are any technology or items that can fulfil more than one goals at a time. In general terms, they are the items including software & technology which can be used for both civil and military purposes [12]. There are many technologies which are developed for the development of humankind, but they can also be used for military purpose and can be the reason of WMD. E.g.- GPS, Drones, Night Vision Systems, microbes etc.

It includes all the items which can be used for the design, development, production, or use of nuclear, chemical or biological weapons or the medium through which these goods can be transported. It also includes items which can be used for both non-explosive uses or assisting in any way in the manufacturing of nuclear weapons or other nuclear explosive devices. It covers a wide range of products and technologies which effects not only manufacturers but also transport providers, academic and research institutions.

There are ten different types of dual-use commodities that are recognized across the world. These categories are then further segmented into five sub-categories. These categories and sub-categories help in controlling the export of listed items.

The categories are as follows:

Category 0 Nuclear materials, facilities and equipment
Category 1 Special materials and related equipment
Category 2 Materials processing
Category 3 Electronics
Category 4 Computers
Category 5 Telecommunications and "information security"
Category 6 Sensors and lasers
Category 7 Navigation and avionics
Category 8 Marine

Category 9 Aerospace and propulsion

Subcategories are:

A Systems, Equipment, and Components

B Test, Inspection, and Product Equipment

C Material

D Software

E Technology

2.2 What are the different Control Regimes?

There are several international arrangements between different countries to standardize lists of dual-use items and technology in order to control and prevent the spread of nuclear, biological, and chemical weapons and their delivery systems, as well as the destabilizing buildup of traditional weapon systems and dual-use commodities. These group includes:

- The Nuclear Suppliers Group (NSG): This is a group of nuclear-supplier countries who want to help prevent nuclear proliferation by enacting two sets of nuclear and nuclear-related export standards. [13].
- Zangger Committee (ZC): It established guidelines for implementing the Nuclear Non-proliferation Treaty's export control provisions by refusing to provide a source of special fissionable material, along with equipment and materials specifically designed or prepared for the processing, use, or production of special fissionable material to any non-nuclear weapon State for peaceful purposes [14].
- Missile Technology Control Regime (MTCR): It's an intergovernmental organization entrusted with stopping the proliferation of ballistic missiles and other unmanned delivery vehicles capable of delivering chemical, biological, or nuclear weapons. [15].
- Australia Group (AG): It is an informal agreement aimed at reducing the risk of states exporting or transshipping chemical and biological weapons, thereby contributing to their proliferation. [16].

- The Wassenaar Arrangement (WA): It was created to promote greater transparency and accountability in the transfer of conventional weapons, dual-use items, and technology, lowering the risk of destabilizing accumulations [17].
- Chemical Weapons Convention (CWC): It is a multi-lateral treaty that bans chemical weapons and gives direction for the destructions of these weapons within a specific period. It is convention on prohibition of development, production & use of chemical weapons [18].

2.3 What are the different Control Activities?

Every research project utilizing dual-use materials will not require a permission. On Regulation (EU) 2021/821, the European Parliament and the Council of the European Union specified five types of activities that must be allowed depending on the activity on [18]:

- Every dual-use item listed in Annex I of the EU dual-use Regulation requires export authorization for movement or transmission outside the EU's customs area.
- Only the dual-use items listed in Annex IV of the EU dual-use Regulation require a transfer permit for transit or transmission within the customs territory of the Union.

Addition to the above controlled items, these three cases listed below for which authorizations are required:

- Transit authorization is required for the items transiting through the Union's Customs area
- Brokering authorization is required for the brokering of products listed in Annex I between third countries from within the Union's customs territory.
- Authorization is even necessary for the provision of technical assistance related to any dual-use products mentioned in Annex I.

Controlled Items under Annex I

These are list of dual-use items contained in this Annex implements internationally agreed dual-use controls including the Australia Group, MTCR, NSG, Wassenaar Arrangement and CWC. This table indicates total number of items for each category and each sub-category which are subjected to outside union transfer control i.e., for export of these items from the European Union to the third country needs authorizations.

Annex I	A-Systems, Equipment, and Components	B-Test, Inspection, and Product Equipment	C-Material	D-Software	E-Technoloy	Total
Category 0 Nuclear materials, facilities and equipment	1	10	5	1	1	18
Category 1 Special materials and related equipment	13	21	49	6	10	99
Category 2 Materials processing	4	41	None	7	7	59
Category 3 Electronics	32	3	6	7	8	56
Category 4 Computers	6	None	None	4	1	11
Category 5 Telecommunications and "information security"	8	3	None	4	5	20
Category 6 Sensors and lasers	41	5	3	7	7	63
Category 7 Navigation and avionics	17	5	None	9	9	40
Category 8 Marine	3	1	1	2	3	10
Category 9 Aerospace and propulsion	33	16	2	9	8	68
Total	158	105	66	56	59	444

Figure 1: Dual-use items listed in Annex I

Controlled Items under Annex IV

This table indicates total number of items for each category and each sub-category which are subjected to intra-union transfer control i.e., for export of these items from the from one union member country to another member state authorization is needed.

Annex IV	A-Systems, Equipment, and Components	B-Test, Inspection, and Product Equipment	C-Material	D-Software	E-Technoloy	Total
Category 0 Nuclear materials, facilities and equipment	1	7	5	1	1	15
Category 1 Special materials and related equipment	1	3	6	1	5	16
Category 2 Materials processing						0
Category 3 Electronics	4				2	6
Category 4 Computers						0
Category 5 Telecommunications and "information security"	1			2	1	4
Category 6 Sensors and lasers	12	2				14
Category 7 Navigation and avionics	1	2		1	3	7
Category 8 Marine	1				1	2
Category 9 Aerospace and propulsion	10	2		1	3	16
Total	31	16	11	6	16	80

Figure 2: Dual-use items listed in Annex IV

2.4 Export restrictions for non-listed dual-use items

An authorization is required even if commodities or technology are not listed in Annex 1 but are intended or likely to be used for nuclear, chemical, or biological weapons, or are suspected of being utilized for an end-use of concern. If a company believes its products could be utilized in one of the instances described below, it should contact its national authority for more information. This is called "catch-all control".

Under Article 4 of Regulation (EU) 2021/821 [18]:

"An authorisation shall be required for the export of dual-use items not listed in Annex Iif the exporter has been informed by the competent authority that the items in question are or may be intended, in their entirety or in part"

- *"for use in connection with the development, production, handling, operation, maintenance, storage, detection, identification or dissemination of chemical, biological or nuclear weapons or other nuclear explosive devices or the development, production, maintenance or storage of missiles capable of delivering such weapons"*
- *"for a military end-use if the purchasing country or country of destination*

is subject to an arms embargo"

- *"for use as parts or components of military items listed in the national military list that have been exported from the territory of a Member State without authorisation or in violation of an authorisation prescribed by the national legislation of that Member State.*

Under Article 5 of Regulation (EU) 2021/821 [18]:

"An authorisation shall be required for the export of cyber-surveillance items not listed in Annex I if the exporter has been informed by the competent authority that the items inquestion are or may be intended, in their entirety or in part, for use in connection with internal repression and/or the commission of serious violations of human rights and international humanitarian law"

Under article 9 of Regulation (EU) 2021/821 [18]:

"A Member State may prohibit or impose an authorisation requirement on the export ofdual-use items not listed in Annex I for reasons of public security, including the prevention of acts of terrorism, or for human rights considerations"

2.5 What are the different types of Authorizations?

According to 'subject and definitions chapter' mentioned in article 2 in Regulation (EU)2021/821 [18]:

- Individual export authorization:

  "individual export authorisation means an authorisation granted to one specific exporterfor one end-user or consignee in a third country and covering one or more dual-use items"

- Global export authorization:

  "global export authorisation means an authorisation granted to one specific exporter inrespect of a type or category of dual-use items which may be valid for exports to one or more specified end-users and/or in one or more specified third countries"

- Large project authorization:

  "large project authorisation means an individual export authorisation or a global export authorisation granted to one specific exporter, in respect of a type or category of dual-use itemswhich may be valid for exports to one or more specified end-users in one or more specified third countries for the purpose of a specified large-scale project"

- Union general export authorization:

  "Union general export authorisation means an export authorisation for exports to certain countries of destination that is available to all exporters who respect the conditions and requirements listed in Sections A to H of Annex II"

- National general export authorization:

  "national general export authorisation means an export authorisation defined by national legislation in accordance with Article 12(6) and Section C of Annex III"

TYPE OF AUTHORIZATIONS	No. of exporter	No. of end users	No. of counteries	No. of dual-use items
Individual Export Authorizations	One	One	One	One or more
Global Export Authorizations	One	One or more	One or more	A type or category
Large Project Authorizations	Individual or Global authorization to one exporter	One or more	One or more	A type or category
Union General Export Authorizations	Authorization to all exporter for certain destination (who respect the conditions and requirements listed in Sections A to H of Annex II)			
National General Export Authorizations	Export authorisation defined by national legislation in accordance with Article 12(6) and Section C of Annex III			

Figure 3: Type of Authorizations

Addition to above mentioned authorizations, other authorizations related to Dual-use control regulated by EU are:

Under article 6 of Regulation (EU) 2021/821 [18]:

"An authorisation shall be required for the provision of brokering services of dual-

use items listed in Annex I if the broker has been informed by the competent authority that the items in question are or may be intended, in their entirety or in part, for any of the uses referred to in Article 4(1)"

Under article 7 of Regulation (EU) 2021/821 [18]:

"The transit of non-Union dual-use items listed in Annex I may be prohibited at any timeby the competent authority of the Member State where the items are situated if the itemsare or may be intended, in their entirety or in part, for any of the uses referred to in Article 4(1)."

Under article 8 of Regulation (EU) 2021/821 [18]:

"An authorisation shall be required for the provision of technical assistance related to dual-use items listed in Annex I if the provider of technical assistance has been informed by the competent authority that the items in question are or may be intended, in their entirety or in part, for any of the uses referred to in Article 4(1)"

Under article 11 of Regulation (EU) 2021/821 [18]:

"An authorisation shall be required for intra-Union transfers of dual-use items listed inAnnex IV. Dual-use items listed in Part 2 of Annex IV shall not be covered by a general authorization."

2.6 What are Custom Procedure Requirements?

Under Article 21 & 22 of Regulation (EU) 2021/821 [18]:

"When completing the formalities for the export of dual-use items at the customs office responsible for handling the export declaration, the exporter shall furnish proof that any necessary export authorization has been obtained. A translation of any documents furnished as proof into an official language of the Member State where the export declaration is presented may be required of the exporter"

"Without prejudice to any powers conferred on it under, and pursuant to, the Union Customs Code, a Member State may also, for a period not exceeding the periods referred to in paragraph 4, suspend the process of export from its territory, or, if

necessary, otherwise prevent the dual-use items which are or are not covered by a valid export authorization from leaving the Union via its territory, where it has:

(a) grounds for suspicion that:

(i) relevant information was not taken into account when the authorization was granted; or

(ii) circumstances have materially changed since the grant of the authorization; or
(b) relevant information regarding the potential application of measures under Article 4(1)"

The Commission may develop advice to facilitate interagency cooperation between licensing and customs authorities in collaboration with Member States. Member States may stipulate those customs formalities for the export of dual-use goods be performed only at customs offices with the necessary authority.

3 Internal Compliance Program

3.1 What companies should do?

Companies dealing with export of dual-use items are obliged to comply with EU trade control requirements and related trade restrictions. Companies need to prove that authorization is necessary or not to the competent authority for the products they are exporting, along with this they also need to prove that end users do not falls under sanction list. An internal export control program is required for compliance management for the export process. Internal Compliance Program lays out the internal controls to ensure that trade control rules and regulations are implemented. It serves as an internal document, laying out internal protocols and processes as well as terms and conditions, such as due diligence for managing all risks involved with the export of goods to end-users and end-uses. A well-thought-out ICP improves organization's policy, so it is recommended to implement an effective Internal Compliance Program. "An efficient, uniform and consistent system of export controls on dual-use items is important to push EU and international security and to confirm both compliance with the international commitments and responsibilities of the member states of the Union (EU), especially regarding non-proliferation, and also the promotion of level playing fields among EU operators" [19].

If appropriate rules are not followed, companies involved in international trade and their employees have to go through unavoidable consequences. Companies may face criminal charges, penalties, and civil liability if they violate international trade law. Also, a breach could potentially harm the company's reputation.

3.2 What is an ICP?

"Internal compliance program or 'ICP' means ongoing effective, appropriate, and proportionate policies and procedures adopted by exporters to facilitate compliance with the provisions and objectives of this Regulation and with the terms and conditions of the authorizations implemented under this Regulation, including, inter alia, due diligence measures assessing risks related to the export of the items to end-users and end-uses" [18].

Since a company's export control policy is dependent on wide range of factors, an ICP must always be customized according to the specific needs of that organization. These factors include: the size of the company, the final product that company produces, and the market in which it operates. An organization's ICP should represent the scope of its export and re-export activities, as well as its business circumstances. Consider a company's size, its business and end-user geographic areas, the end-use and sensitivity of its items, export volume, and the complexity of internal export procedures. The way a company structures its ICP will be influenced by its relationships with business partners and product limits.

The activities of company will determine how it should establish its compliance program. Its export, on the other hand, must adhere to EU laws. The seven key aspects specified by Commission recommendations (EU) 2021/1700 are as follows [19]:

- Top-level management commitment to compliance
- Organization structure, responsibilities, and resources
- Training and awareness-raising
- Export screening process and procedures
- Performance review, audits, reporting, and corrective actions
- Recordkeeping and documentation
- Physical and information security

3.3 Core Elements of ICP

For each core element have two sections: 'What is expected?" It is about describing the ICP element objective(s) and 'What are the steps involved?' It indicates what are the possible actions and the solutions for development or implementation of compliance procedures.

For the companies involved in export of dual-use goods, these core elements are the 'building blocks' for the preparation of an effective ICPs. Considering unique circumstances, each

organization should specify how it applies the required core elements in its own customized ICP. All companies engaging in dual-use export should examine the activities listed in the section 'What are the steps involved,' but if there are business-specific reasons companies may diverge from these actions.

3.3.1 Top Management Commitment

“An effective ICP is a top-down process where company senior management gives significance, legitimacy, and structural, human, and technical resources for the corporate commitments to the compliance and culture of compliance” [20]. It is the is the most important aspect for an effective export compliance program. Company top management must be fully committed in developing and implementing an effective "best practice" export compliance program. The top management of a corporation is in charge of promoting and guaranteeing compliance with relevant legislation. Its goal is to foster or construct an organizational culture that promotes the legitimacy of compliance processes while simultaneously supporting dual-use export control requirements. The management team, which is also responsible for raising awareness inside the company, must actively promote the company's export control tasks, including the dangers involved and the significance of following the laws and regulations.

What is expected?

The main goal of the top-level management is to develop compliance leadership and a compliance culture for the export of dual-use items. A written statement from Top-level management for internal compliance procedures to promote the company's understanding of dual-use trade control objectives and compliance with relevant EU and Member State laws and regulations. The commitment demonstrates top-level management's clear, robust, and ongoing engagement and support. It results in the company's commitment to compliance having sufficient organizational, human, and technical resources. To establish a compliance culture, management conveys the business commitment to employees clearly and on a frequent basis.

What are the steps involved?

- Development of an effective corporate commitment statement declaring that the organization complies with all EU & Member State dual-use trade control laws and regulations.

  Example of a corporate commitment statement: The provision of export control of dual-use goods should be taken seriously according to EU and national dual-use export control laws and regulations and compliance is expected from organization.

- Defining detailed compliance expectations from company's top management and communicating the importance and value of an effective compliance procedure to lower level.

  Example of Top-level expectations: General awareness & mandatory training for all the employees involved in dual-use trade, escalation of non-compliance to top management, remedial actions should be taken to mitigate all the avoidable risks, audits of company's internal compliance program should take place at regular intervals to check the efficiency, corrective measures should be taken based on the outcomes from the audits process.

- Clear and routinely communication of the company commitment statement to all employees (including those who have no role in dual-use trade control) to promote the compliance culture.

3.3.2 Organizational Structure

For establishing and implementing compliance procedures efficiently, sufficient organizational, human, and technical resources are required. An ICP faces a lack of monitoring and ambiguous duties if it lacks a clear organizational structure and well-defined tasks. A solid structure helps organizations in resolving problems as they arise and preventing unauthorized transactions.

What is expected?

Each has a written internal organizational structure (for example, an organizational chart) that allows for internal compliance controls to be conducted. It identifies and appoints the person(s) in charge of ensuring that the company compliance commitments are met, this position must be filled by a member of the top management team. All compliance-related roles, duties, and obligations are defined, assigned, should be linked in a way that assures management that the organization

follows all regulations. All segments of the business relating to dual-use trade should be adequately staffed with people who have demonstrated the relevant competencies.

Conflicts of interest should be avoided as much as feasible for dual-use trade control personnel. This staff should be able to report directly to the person(s) in charge of dual-use trade controls and should also have the authority to halt transactions. All the essential regulatory documents, including the most recent lists of controlled items and lists concerning embargoed or sanctioned destinations and entities, must be available to dual-use trade control personnel. The company should have an up-to-date collection of documented processes and procedures (for example, in a compliance manual).

What are the steps involved?

- Define the number of dual-use trade control personnel required, taking count of both legal and technical aspects. At least one person in the organization should be responsible for dual-use trade compliance, and an equally qualified replacement should be available in case of absence (such as sickness, holiday and so on).
- In the organizational chart, duties and responsibilities for all the activities that are related to export should be identified, described, and assigned. Also clearly indicate backup functions for the case of absentees.
- Using an organizational chart, clearly identify, describe, and assign all compliance-related activities, duties, and responsibilities. Whenever possible, clearly indicate backup functions.
- Make sure that everyone in the company is aware of the internal organizational structure for dual-use trade control, and that the internal records of these assignments should be updated and communicated on a regular basis. Contact information of person in charge of dual-use trade control should be available for any questions.
- Define the skills & knowledge that is required to work in legal and technical team of dual-use trade. Job descriptions are strongly advised.
- Ensure that dual-use trade control personnel are free from conflicts of interest as much as

possible. Depending on the size of the organization, compliance responsibilities may be assigned to a certain department or division. For example, the person(s) who make the final decision on whether items to be exported should belong to the legal department, not the sales department.

- Compile the policies and procedures that have been documented in the format of a compliance manual. And these compliance manuals should be distributed to all the personnel handling dual-use trade.

CECO Responsibilities & Delegations in an ICP

Chief Export Control Officer is responsible for overall organization and supervision of the internal compliance program as well as for staff selection and training. Along with participating in planning, organizing, and supporting company export compliance training & seminars for employees with external Education and training group.

Analysing products with technical team (internally) and classification group externally to determine items classifications. Determining export jurisdictions, export risks, authorization of needed products with Sales & Procurement team internally and transaction screening team externally. They have the final authority to approve any transaction or stop transaction.

CECO is the main point of contact for any inquiries on the application of export control regulations and authorization/ policies/practices/guidelines regarding any dual-use good transactions and internal compliance program activities. They are fully delegated to ensure importing, exporting, and supply chain security activities comply with EU laws and implementing export control regulation and fully responsible for any state of non-compliance. They should also manage external audits and self-assessments of ICP and take necessary corrective steps based on assessment to comply with compliance.

Organizational Structure Examples

There is no single way for designing compliance procedures and assigning responsibilities because each research organization is unique. Adopting a well-defined set of export compliance procedures and responsibilities, on the other hand, may help the organization meet its compliance goals while also improving its overall management mode. If the company's size allows, maintaining a clear separation of roles is vital to avoid conflicts of interest. For export control difficulties, larger organizations can assign one employee per department or unit as the point of contact.

Required departments/teams for an effective ICP

Chief Export Compliance Officer: He will be in charge of final approval of all export deals. This person is in charge of maintaining strict control over all departments involved in product exportation. He must ensure that the dual-use item classification and authorization decisions he makes are compliant with EU dual-use legislation.

Classification Group & Technical Team: These personnel will be in charge of classifying company products. These people work with technical team to determine whether the item or software created by company is dual-use item or not. The technical team employees are expert in products while the classification group is expert in item classification.

Transaction Screening Group & Sales Team: Transaction Screening Group works along with the sales group to determine the risk associated with the customer, transaction clearance from banks. They also work on determination and application of license, along with brokering, transfer and transit of dual-use items.

Education & Training Group: Training group main responsibility is to enhance awareness of export control problems and promote a culture of accountability throughout the organization by providing periodic and mandatory training for all staff members who may be involved in export regulated dual-use activities.

Auditing Group: This team audits the whole structure of Internal Compliance Program. They report directly to either Chief Export Compliance Officer (CECO) or to the CEO of the company Bas well as auditing, recordkeeping, and documentation. They have complete autonomy and flexibility in making recommendations to improve the company's compliance program and analyze and manage risks and vulnerabilities.

Every firm has its own organizational structure, so finding one that is unique is difficult. The CEO must ensure that sufficient resources are provided to the ICP, taking into account the required legal and technological competence. Below is the general flow-chart of small, medium, and large company:

1. For small-sized companies:

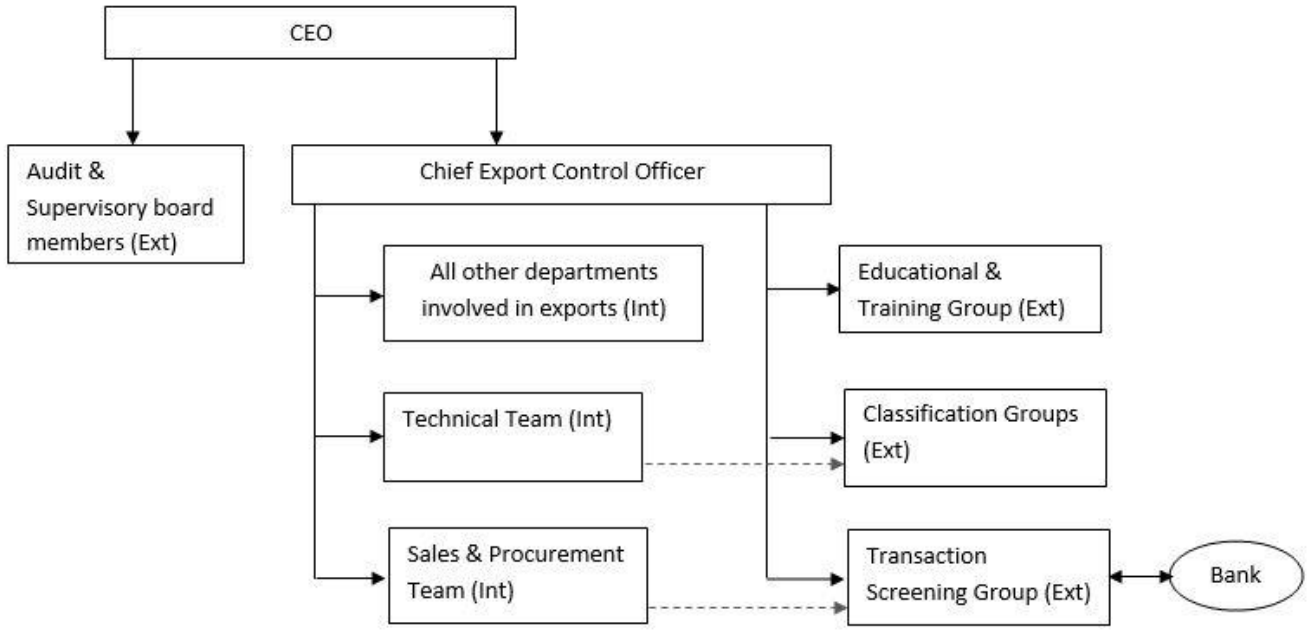

Figure 4: Organizational Structure for small-sized company

For small sized company education & training group, classification group and transaction screening group should be outsourced as in smaller companies have shortage of human resources. Chief Executive Control Officer is the person is charge for implementation and running of an effective ICP. He applies vertical control mechanism over the internal departments and along with external groups.

Technical team works in parallel with classification group horizontally following the cooperation mechanism to classify the items produced in the company. Also, sales & procurement team works together in parallel with transaction screening group following the cooperation mechanism in order to do customer risk analysis, authorization application process and in coordination with Bank to obtain transaction clearance certificate. While education & training group gives training to all the employees involved in export of dual-use items. Audit members should be outsourced so that they do an unbiased review of the ICP process and should report to CECO with their findings and suggestions.

2. For medium-sized companies:

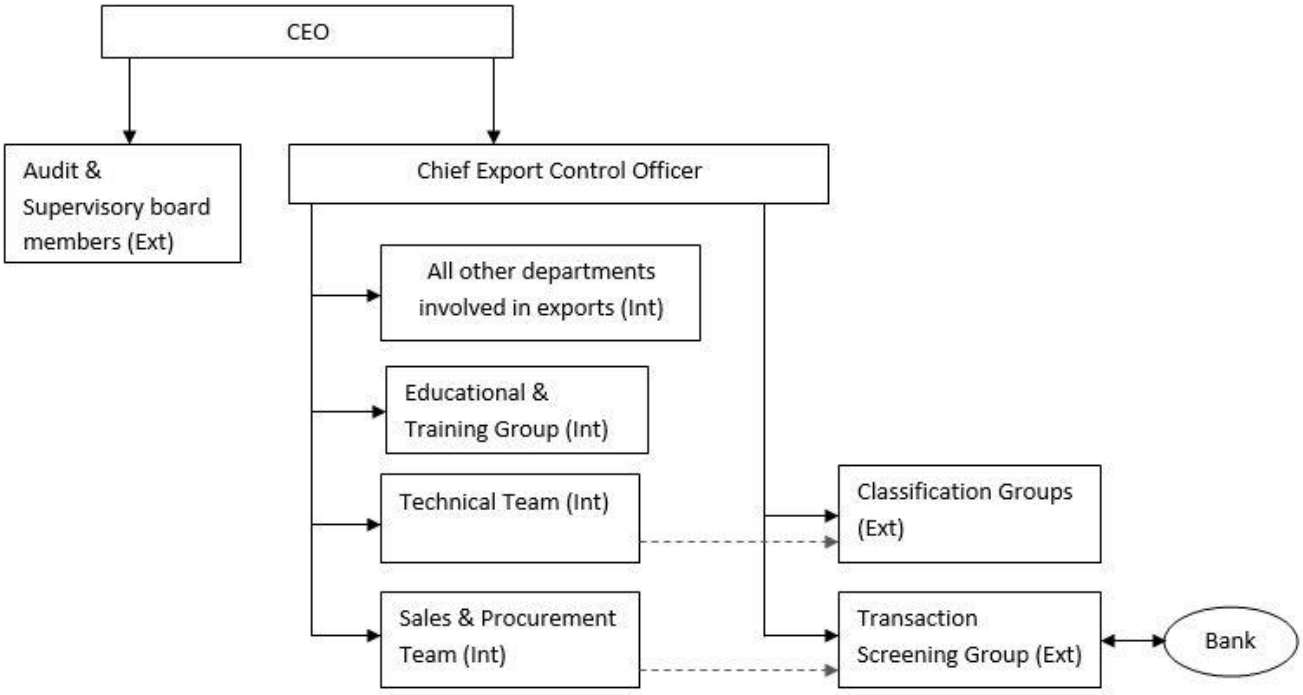

Figure 5: Organizational Structure for medium-sized company

For medium size company everything remains same as small-sized companies with two minor changes: First, since company is larger than smaller-sized then it is expected to have its own

internal Educational & Training Group. Second, for an effective control, Audit members could report directly to the CEO so that performance of CECO could be monitored properly.

3. For large companies:

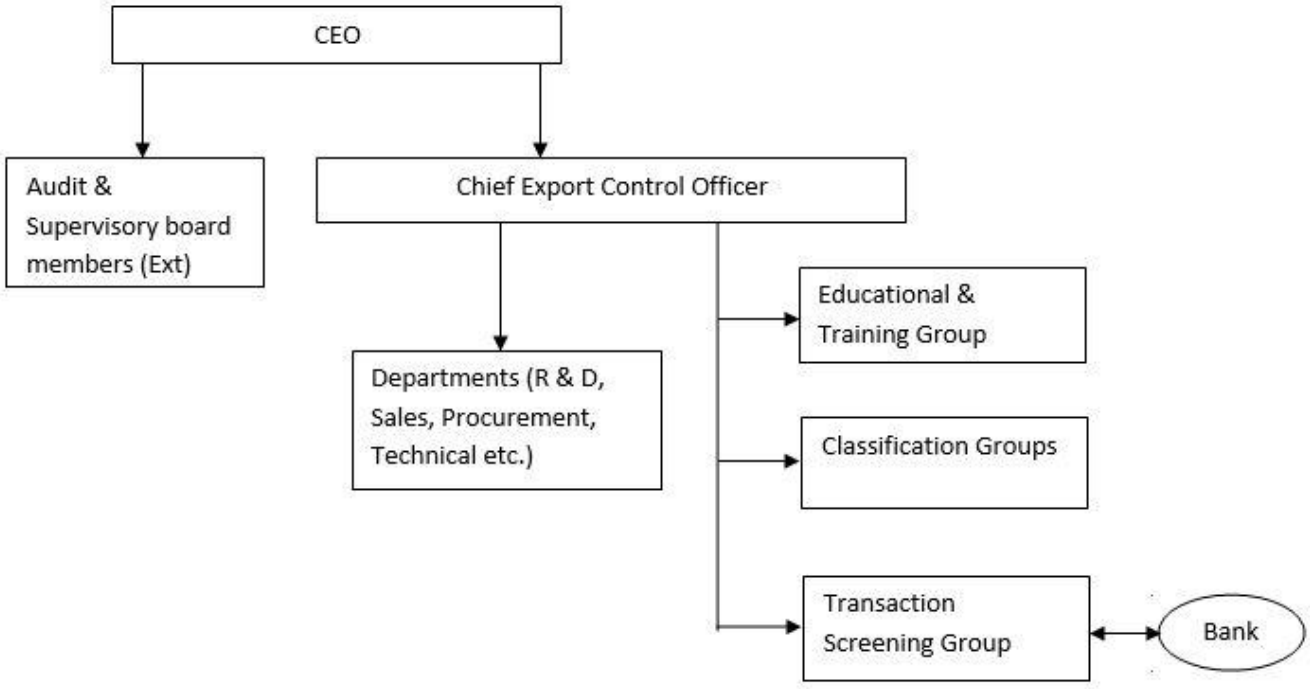

Figure 6: Organizational Structure for large company

For large companies, it is expected to have inhouse separate units of education & training group, classification group and transaction screening group working with other required departments internally. But audit & supervisory board could be outsourced for better performance evaluation of whole ICP.

3.3.3 Training & Awareness Rising

One of the most important aspects of a company's export management and internal compliance program is training, which should be adapted to the specific situation of a research organization. Staff must be trained and educated on dual-use trade control in order to properly perform their jobs and take compliance obligations seriously. Organizations must include a training component

in their internal compliance program since export control laws, as well as items and their end-uses, are continually changing. It's the first step toward ensuring that all employees are aware of security risks and can fulfill their obligations under export control legislation and the company's ICP.

What is expected?

The organizations ensure via training that the dual-use trade control staffs have knowledge about all relevant export control legislation, as well as the company's ICP and any modification to it. External seminars, subscriptions to information sessions offered by competent authorities, in-house training activities, and so on are few examples of training material. Additionally, the organization conducts staff awareness raising at all relevant levels.

What are the steps involved?

- To enhance awareness of export control problems and promote a culture of accountability throughout the organization, provide mandatory, periodic training for all staff members who may be involved in export regulated dual-use activities.
- Training should highlight many points including: Dual-use and Military Trade Controls, Reading, understanding, and use of EU regulations; Dual-use and Customs Classification; Customs regulation and controls; Export authorization process; The "red flags" that indicate possible export infringement; Consequences of illegal actions; Identification of high-risk areas; Recordkeeping procedures; Auditing procedures.
- Through training ensure that all concerned personnel are aware of all necessary dual-use export control items list, rules & regulations, policies, as well as any changes to them as soon as they are made public by competent authorities. Also ask employees to participate in national or EU training program for dual-use trade control.
- Develop a general awareness campaign for all employees as well as specific training for departments involved in purchasing, engineering, project management, shipping, customer service, and invoicing etc. Also incorporate lessons learned from performance reviews, audits, reporting, and remedial measures into the training or export awareness campaigns.

3.3.4 Transaction Screening Process & Procedures

In terms of actual implementation, transaction screening is the most important aspect of an ICP. This section contains the company's internal control measures to ensure that no transactions are completed without the necessary authorization or no violation of any applicable trade restriction or ban. The transaction screening mechanisms gather and analyze all the information on classification of items, transaction risk assessment of items, license determination and application procedure for product, and the post-licensing controls on exported product.

What is expected?

The firm develops a system for determining if a transaction involving dual-use items is subject to EU or national dual-use trade rules, along with the protocols and processes that may apply. Transaction screening must be done on a regular basis in the case of recurring transactions. If the firm has any doubts or suspicions throughout the transaction screening process, it is expected to consult with the responsible authority. The core elements are:

- Item classification for products, software, and technology
- Transaction risk assessment: Checks on trade-related embargoed, risks associated with sanctioned or 'sensitive destinations and entities', screening of Stated end-use and end users, screening of diversion risk of dual use items and catch-all control for non-listed dual use items
- Determination of license requirements and license application procedures
- Post licensing controls: Shipment control and the compliance with the authorization conditions in the future.

What are the steps involved?

3.3.4.1 Items Classifications

The purpose of item classification is to determine whether the products produced by company is listed in Annex I or Annex IV or not. This is accomplished by comparing an item's technical attributes against national and/or dual-use export control lists. Also, determination of any other

restricted measures (like sanctions) is taken into count. It is even company's responsibility to verify the supplier's classification (s). The company should request information from the suppliers on the dual-use classification of materials, subsystems, and components that your company processes or integrates, as well as machinery utilized in the manufacturing process.

Dual-use objects are typically distinguishable from military items. Military products are goods (equipment, materials, systems, technology, components, or software) designed or modified expressly for military use. Military products are listed on the Common Military List of the European Union, as well as national lists in EU Member States. Military export control is controlled by each EU Member State, unlike the EU's dual-use export control framework. These EU dual-use commodities are specified in Annex I for export to other countries and Annex VI for transfer within the EU.

The export screening process must determine whether a non-listed dual-use item may beutilized in conjunction with the sensitive end-uses indicated in Article 4 of Regulation (EU) 2021/821 [18]:

"Where an exporter is aware that dual-use items which he proposes to export, not listedin Annex I, are intended, in their entirety or in part, for any of the uses referred to in paragraph 1 of this Article, the exporter shall notify the competent authority. That competent authority shall decide whether or not to make the export concerned subject to authorization."

How to do Items Classification?

A classification number is assigned to each dual-use item. This is a mixture of numbers and letters (which includes the Category, Subcategory, and regime) that is required for item classification and authorization documentation. The classification number is not generated at random; it refers to the type of the item as well as the source of export control under the relevantexport control system [19]

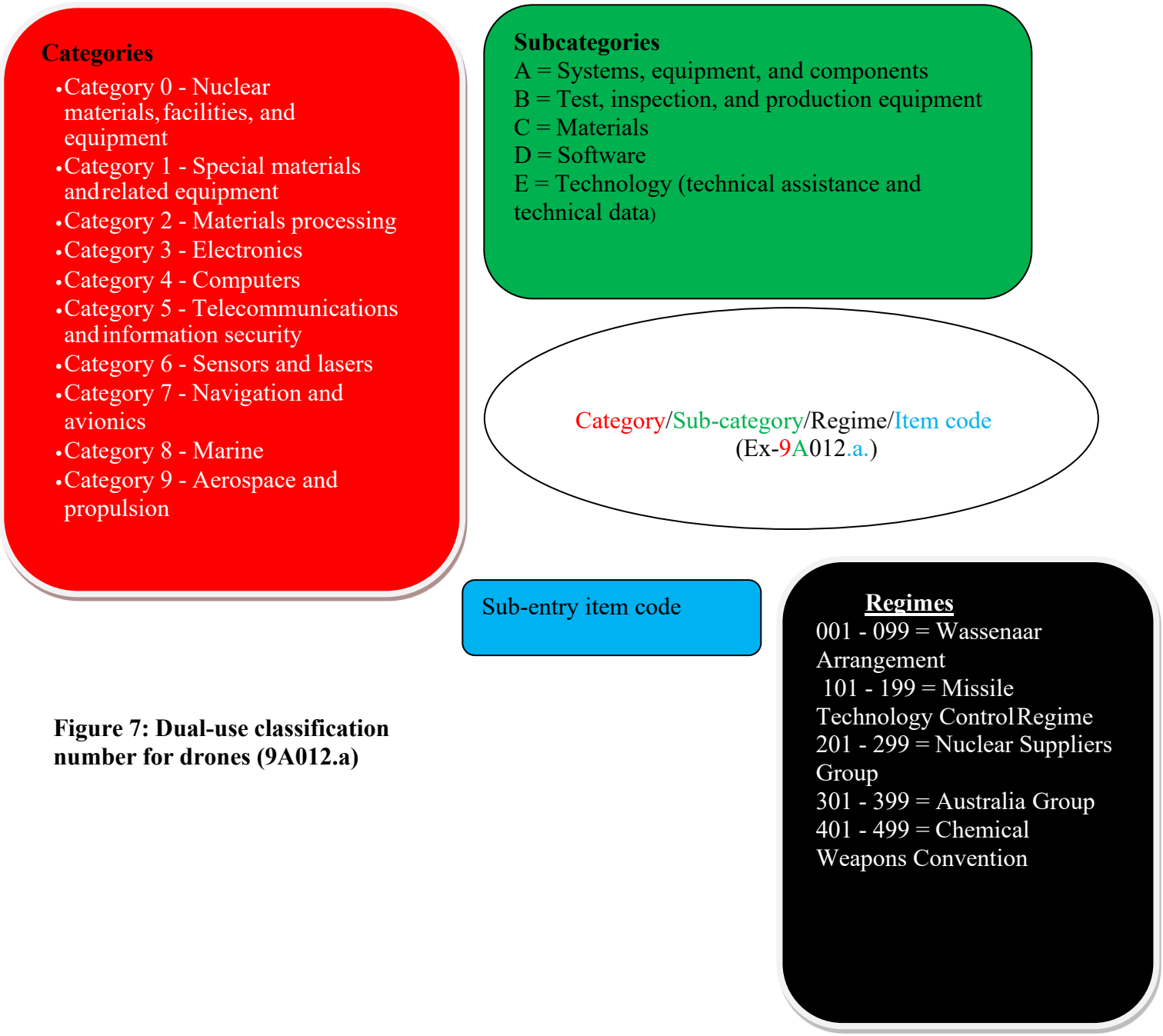

Figure 7: Dual-use classification number for drones (9A012.a)

3.3.4.2 Transaction Risk Assessment

The export screening technique is the most sensitive aspect of the compliance program since it controls the riskier parts of the business. In its ICP, the company should detail how it screens consignees, end-users, and other parties involved, as well as how it ensures that no items are transported to sanctioned parties or parties linked with hazards (such as brokering of items).

The company must ensure that none of the parties participating in a project or sensitive activity are subject to restrictive measures by assessing the EU consolidated list of sanctions or the national list (sanctions and embargoes). The EU sanctions map could be a helpful tool for a research team looking for applicable EU restrictions [21].

Keep an eye out and for indicators of diversion risk and strange requests from end users. There may be indicators that a partner will use dual-use materials provided or delivered by organization in unauthorized military research, WMDs and their delivery methods, or for the other criminal reasons. Also keep in mind that non-listed dual-use commodities may also require an export authorization if the claimed end-use, associated parties, or diversion risk screening raise any concerns under the catch-all provisions in Article 4 of the EU dual-use Regulation [18]. Typically, this circumstance involves goods with technical specifications that are close to the ones that are controlled.

Under Article 12(4) of Regulation (EU) 2021/821 [18]:

"Individual export authorisations shall be subject to an end-use statement. The competentauthority may exempt certain applications from the obligation of providing an end-use statement. Global export authorisations may be subject to an end-use statement ifappropriate."

3.3.4.3 License determination and application, including for brokering, transfer and transit activities

The item classification and risk evaluation of the activity may indicate that an authorization is required. Companies must be aware that the goods they are exporting may be subject to licensing requirements and should be aware of the conditions that may apply.

The company must be aware of various licensing categories (including licenses for individual, global and general export) and various restrictive activities (including exporting, brokering, transferring and transit activities), and license application procedures relating to the applicable national or/and EU dual-use trade controls. Also, other operations, such as technical assistance, are subject to national dual-use export control regulations.

3.3.4.4 Post-licensing controls, including shipment control and compliance

Before the shipment of products, a final check should be performed to ensure that the compliance have been applied properly. The firm must decide whether the license's terms and conditions have been met, and it must be aware that a license may limit the transfer of technology and software to only particular end-users. Even end-user information such as name, address, and legal status must be reviewed before shipment.

This is an excellent time to check if products have been accurately categorized, if ‘red flags' have been found, if entity screening has been completed effectively, and if the shipment has a valid license. A method should be implemented that allows items to be stopped or put on pause if any of the conditions are not met, or if any 'red flags' are triggered. The things should only be released by someone who is in charge of compliance. License's terms and conditions should be followed in the whole process of export. Also be aware that any changes to the details of the exporting company (such as name, address, and legal status), the end-user and/or intermediaries, and the approved items may impact the validity of the license.

3.3.5 Performance review, audits, reporting & corrective actions

Since Internal Compliance Program is not a static process, it must be evaluated, tested, and altered as needed to ensure compliance. Performance assessments and audits ensure that the internal compliance program is being implemented effectively and in accordance with applicable EU or/and national export control regulations. If a suspected or known event of non-compliance occurs, a well-functioning ICP should have defined reporting protocols for employee notification and escalation steps, employees must feel confident and reassured when they raise inquiries or report concerns about compliance. Performance reviews, reporting procedures and audits are there to detect irregularities in order to clarify and change processes if they (may) lead to noncompliance.

3.3.5.1 Performance Reviews

What is expected?

The performance review methods should be established in a company to verify the company's day-to-day compliance works and to ensure that export control operations are carried out in accordance with the ICP. Internal performance reviews enable the early detection of instances of non-compliance and the formulation of damage control follow-up procedures. As a result, the company's risk is reduced through performance reviews.

Steps Involved: As part of daily operations, random control methods should be established in order to monitor the trade control workflow within the organization to guarantee that any wrongdoings are caught early. Another option is to adopt the 'four eyes principle,' which involves reviewing and double-checking trade control decisions.

3.3.5.2 Audits

What is expected?

Every company should have an auditing mechanism in place that are systematic, targeted, and well documented to ensure that the ICP is properly implemented. Audits might be conducted internally or by certified outside consultants.

Steps Involved: It's critical to have skilled employees who can conduct audits in a professional manner. Furthermore, conflicts of interest might make it difficult for auditors to uncover potential areas of risk. The auditor(s) should have complete autonomy and flexibility in making recommendations to improve the company's compliance program and analyze and manage risks and vulnerabilities. Annual audit personnel training should be a top focus in a company's ICP. The auditors should be well-versed in auditing notions, techniques, and procedures, as well as explanations of EU export norms and regulations. In addition, an audit of the authorization process and standards should be a top priority to consider.

3.3.5.3 Reporting & Corrective Actions

What is expected?

Dual-use trade control personnel and other relevant workers must follow a set of processes for reporting and escalation in the case of suspected or known incidents of dual-use trade noncompliance. Corrective actions are a collection of steps taken to ensure that the ICP is implemented correctly and that identified vulnerabilities in compliance procedures are addressed.

Steps Involved: Ensure that staff are confident and comforted when they raise legitimate questions or concerns regarding compliance. Establish mechanisms for employee whistleblowing and escalation in the event of a suspected or known incident of dual-use trade non-compliance. This option may also be given to third parties. Any alleged violations of national and EU dual-use control regulations, as well as the corrective steps, should be documented in writing.

An effective corrective action should be taken to alter export control operations or the ICP in light of the results of the performance assessment, ICP system audit, or reporting. It is advised that dual-use trade control staff and management be informed of these results, including procedural revisions and corrective actions. Once the corrective actions have been taken, all affected employees should be informed of the new processes.

3.3.6 Recordkeeping & Documentation

A robust recordkeeping system can assist organization to perform performance reviews and audits, complying with European Union or national documentation retention standards, and collaborating with relevant authorities in the event of a dual-use trade control investigation. In order to support company's goal, an effective records management as a critical component must be integrated into firm business processes.

Under article 27 of Regulation (EU) 2021/821 [18]:

"Exporters of dual-use items shall keep detailed registers or records of their exports, in accordance with the national law or practice in force in the Member State concerned. Such registers or records shall include in particular commercial documents such as invoices, manifests and transport and other dispatch documents containing sufficient information to allow the following to be identified:"

What should be expected?

Recordkeeping is a collection of rules and guidelines for storing legal documents, managing records, and tracing dual-use trade control actions. Some papers must be kept for legal reasons, for example, an internal document outlining the technical decision to classify an item. When all relevant records are recorded and properly filed, it is easier to look for and retrieve them during daily dual-use trade control activities, as well as during periodic audits.

What are the steps involved?

- Check the recordkeeping requirements (like safekeeping duration, scope of documents) in appropriate EU and national legislation of the EU Member State where the company is based.
- Consider evaluating the record retention requirements in contracts with business partners, freight forwarders, suppliers and distributors in order to ensure that all essential documentation is readily available.

- For dual-use trade control, create an adequate filing and retrieval system. Performance indexing and search capabilities are critical for both paper and electronic systems.
- Ensure that export control-related papers are kept in a consistent way and are readily available for inspection or audit by the competent authority or other external parties.
- It's a good idea to keep track of previous interactions with the competent authority, especially when it comes to end-use(r) controls for non-listed dual-use items and technical categorization advice.

Under article 27 of Regulation (EU) 2021/821, the registers, records, and documents article 27 must be kept for at least five years for exporting outside EU territory and 3 years for intra-union transfers [18].

Paragraph 3 states that:

"The registers or records and the documents referred to in paragraphs 1 and 2 shall be kept for at least five years from the end of the calendar year in which the export took place or the brokering services or technical assistance were provided. They shall be produced, on request, to the competent authority."

Paragraph 4 states that:

"Documents and records of intra-Union transfers of dual-use items listed in Annex I shallbe kept for at least three years from the end of the calendar year in which a transfer tookplace and shall be produced, on request, to the competent authority of the Member Statefrom which these items were transferred."

3.3.7 Physical & Information Security

Dual-use commodities, such as software and technology, are subject to trade restrictions for (inter)national security and foreign policy concerns. Dual-use objects should be 'protected' due to their sensitivity and having proper security measures helps to reduce the danger of unauthorized removal or access to regulated items. Physical security measures are vital, but due to the nature of restricted software or technology in electronic form, guaranteeing compliance with dual-use trade restrictions can be very difficult and necessitates information security measures as well.

What should be expected?

Physical and information security refers to a system of internal procedures meant to prevent employees, contractors, suppliers, or visitors from gaining unauthorized access to or removing dual-use assets. These policies establish a security culture inside the organization and ensure that dual-use products, such as software and technology, do not go missing, are readily stolen, or are exported without a legal license.

What are the steps involved?

Physical Security: Ensure that restricted dual-use products are protected against unauthorized removal by workers or third parties, according to the company's risk assessment. Physical security of the assets, the introduction of restricted access areas, and personnel access or exit controls are all options that could be considered.

Information Security: Safeguarding measures and procedures, such as file encryption, antivirus checks, user access control, audit trails and logs, and a firewall should be established for secure storage purpose and for access of controlled dual-use software or technology. Protective measures should be considered for uploading software or technology to the Cloud, or storing it in the Cloud, or transferring it over the Cloud.

3.4 Questionnaire for Development or Review of ICP

Certain questions have been identified below for each core element as a construction method of the Internal Compliance Program. If these questions can be answered by the company an effective ICP can be developed. These questions could be also used to review an existing ICP.

1. Top-level management commitment to compliance

- Is there a top-level management commitment about company's commitment to dual-use export controls?
- Is that statement easily accessible to employees?

2. Organizational structure, responsibilities, and resources

- Did your company have appointed someone to answer employees' questions about the company's compliance procedures or about any suspicious inquiry, or about any possible violations? Is the contact information of the responsible person is available to all export related employees?
- What are the activities of your company that are affected by dual-use export control and compliance?
- Where are the dual-use trade compliance personnel located in your organization? Is there a potential conflict of interest?
- How is interaction with your company organized if your company decides to outsource dual-use trade compliance management?
- How many personal are employed only to deal with dual-use export control or how many employees have responsibility for it in addition to other responsibilities? Are there any backup available?
- How is the relationship between person controlling export of dual-use items and top-level management (ex-in terms of information exchange)?
- Do your company have certain documented policies and procedures to address dual-use export controls and are these documents distributed to all relevant personnel?
- Are there any electronic tools at your company that can support in compliance procedures?

3. Training and awareness raising

- Do your company offer customized training for compliance or the program to raise awareness about regulations?
- What types of compliance training or awareness raising does the company provide?
- How is it ensured that all relevant laws and regulations are available to dual-use export control employees?

4. Transaction screening process & procedure

1.1. Classification of Items

- Is the EU and national dual-use control lists are applied to all relevant products, and who is responsible person employed to look at all these?
- Is your company business is to deal with electronic transfer of dual-use software or technology? If it is the case, how your company ensures compliance with transmission of electronic software or technology?
- Are there any procedures to allow employees to access controlled technology or software while traveling abroad?
- Is there any record process for classification of products received from supplier or produced?
- Are changes to the national and EU dual-use control lists reflected in the classification procedures of the company?

1.2. Transaction risk assessment

- Is there any procedure for dealing with positive and negative transaction risk assessment?
- How false positive result from transaction risk assessments are resolved?
- How does your company consider restrictive measures (including sanctions) during the transaction risk assessment?
- What are the company procedures for the stated end-use and screening process for involved parties?
- How are new customers screened? Do you re-screen existing customers on a regular basis?
- How is information of concern about the stated end-use collected and used (in the sense of the catch-all control)?
- What is the risk diversion screening procedure at your company?

1.3. License determination and application (including controlled brokering, transfer and transit activities)

- How it is ensured that correct license i.e., individual type, global type, or union general type license is applied for each individual case?
- How less obvious types of exports or activities which can violate EU or Member State dual-use export control laws are recognized?

1.4. Post-licensing (including shipment control and compliance)

- Is there any final transaction risk assessment before shipment of product?
- How company make sure that all the terms and conditions of the licenses are followed?

5. Performance reviews, audits, internal reporting, and corrective actions

- Do daily relevant business operating procedures go through performance reviews for dual-use trade control?
- Do you have internal/external audit procedures at your company?
- Is there a whistleblowing or escalation procedure at your company?
- In the event of non-compliance, what corrective actions your company takes?

6. Recordkeeping and documentation

- Is What are the company processes for filing and retrieving dual-use trade control documents? Did your company include record of previous contacts with competent authorities?
- Are the dual-use trade control employees and relevant trade partners aware of the legal requirements for recordkeeping?
- Is there regular checking of completeness, accuracy, and quality of records?

7. Physical and information security

- Is cybersecurity there in your company to protect dual-use software and technology so that it is not stolen, lost, or exported without license permit?
- Have your company identified all the necessary steps to deal with physical and information security of dual-use items?

3.5 Risk Analysis

Risk Analysis is essential for identifying and assessing compliance issues in international trade. Compliance standards effect businesses differently depending on factors including their size, structure, scope of operations, customer portfolio, and distinctive business activity and types of commodities. The goal of the risk analysis is to establish which elements of the company should be included in the internal export control program and to support the company's export compliance needs.

In international trade, companies must establish which legal norms must be obeyed. The legal environment is constantly changing. The same reasoning can be applied to the criteria that affect how much a corporation is subject to export controls. As a result, risk analysis is an ongoing process that necessitates continuous development. Changes in the product portfolio, client base, and business operations, like changes in the legal environment, must be watched and evaluated.

3.5.1 Product Risk Assessment

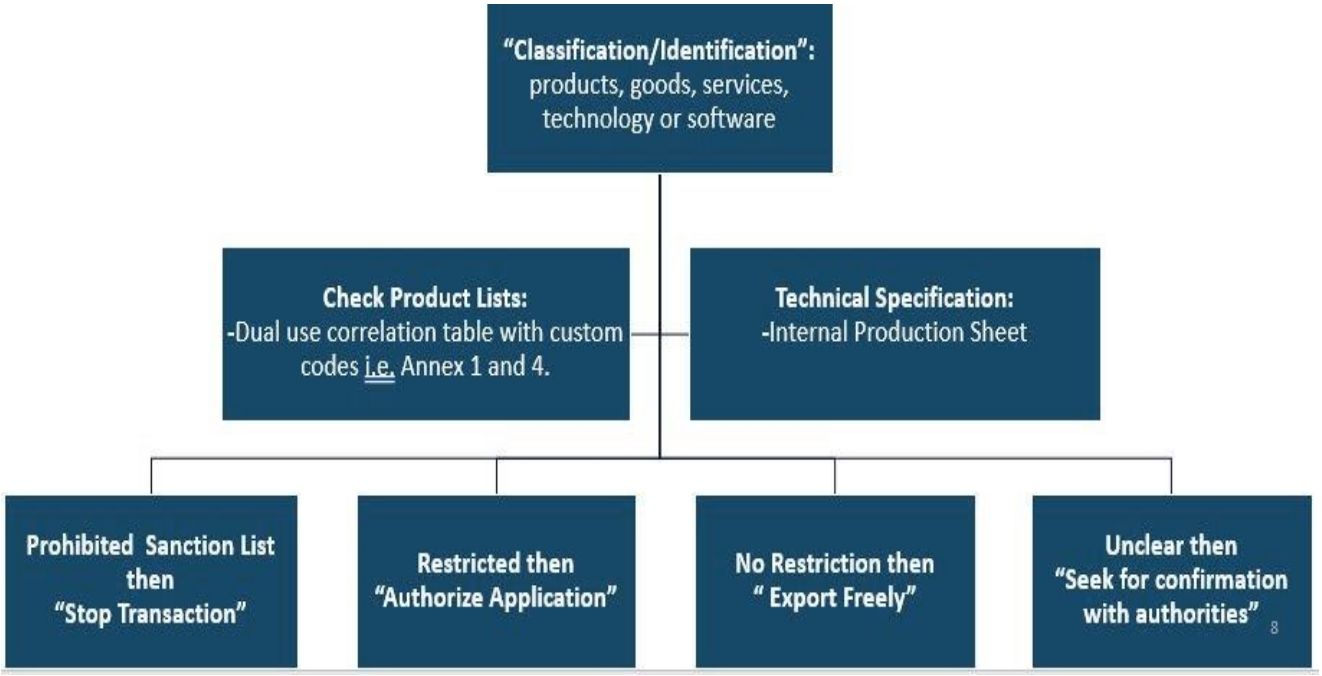

Figure 8: Product risk assessment

The classification of a firm's products is a crucial decision governed by EU Dual-use legislation. It must first define its possible exports, such as commodities, software, technical data, and service, among other things. It should also include a decision-making process for determining the appropriate export license. It is necessary to document the process for determining dual-use classification and licensing.

In the above figure, a general working model have been developed for the classification of the products getting produced in a company. According to this model, most important requirement is specification of the product produced in the company. Compare the product's specification with the dual use correlation table with custom codes i.e., Annex I and Annex IV. After the comparison there could be four outcomes, on basis of each outcome a separate decision should be taken. Firstly, if the outcome of product comes under the "Prohibited or Sanctioned List" then the risk associated with the export is very high and company should immediately stop the export process. Secondly, if the product falls under the category of "restricted item" then there should be proper screening of end uses and end users, financial transactions and the company should apply for authorizations certificates from the competent authorities. Thirdly, if the product is normal good with no restrictions, then export freely. Fourthly, if company does not find conclusive result after comparing or if something is doubtful then the company should seek for conformation from the competent authorities.

3.5.2 Customer Risk Assessment

Figure 9: Customer risk assessment

As an exporter the firm is responsible for understanding its end-user and completing the export procedure with the necessary mitigation measures and permissions. A model has been developed to find each Customer Effective Risk which is a double weighted average methos of three main

criteria. First criteria is “Identification of Customer” in which customers along with their business units and the final products they produce should be evaluated based on documents provided by them. Second criteria is “Identification of other interested parties or the end users” in which investigation about customer’s partners, suppliers, their customer base, and end users is done. Third criteria is to filter out any negative news about customer and other interested parties, also they should be looked in the sanction list. Weight should be assigned to sub-criteria within main criteria to get the risk of all three main criteria individually and then weight should be given to each main criteria and Customer Effective Risk should be calculated.

Example of Calculation of Customer Effective Risk

		Criteria	Sub-criteria	Weight(100%)	Risk Rating High-5, Medium-3, Low-1	Rating Value	
	RISK FACTOR 1	Identification of Customers		50%			
Your Customers	Risk Indicator 1	Nationality	Black List-5, Gray List-3, White List-1	20%	Medium	3	
	Risk Indicator 2	Sources of Finance	Opeque-5, Semi-transparent-3, Transparent-1	20%	High	5	
	Risk Indicator 3	Final Products & Services	Dual use-5, Semi-dual use-3, Civil use-1	40%	High	5	
	Risk Indicator 4	Duration of Business	<0 years-5, <=3 years-3, >3 years-1	10%	Medium	3	
	Risk Indicator 5	Change in Behaviour/Business	Drastic-5, Medium-3, No change-1	10%	Low	1	4
	RISK FACTOR 2	Identification of Third Parties & End Users		20%			
Suppliers/Partners	RisK Indicator 1	Nationality	Black List-5, Gray List-3, White List-1	10%	Low	1	
	RisK Indicator 2	Sources of Finance	Opeque-5, Semi-transparent-3, Transparent-1	5%	Low	1	
	RisK Indicator 3	Final Products & Services	Dual use-5, Semi-dual use-3, Civil use-1	30%	Low	1	
End Users	RisK Indicator 4	Nationality	Black List-5, Gray List-3, White List-1	10%	Low	1	
	RisK Indicator 5	Customer Base Type	Unknown-5, Civilian-1	5%	High	5	
	RisK Indicator 6	Final Products Use	Dual use-5, Semi-dual use-3, Civil use-1	40%	High	5	2,8
	RISK FACTOR 3	Watch List Scan & Negative News Search		30%			
Your Customers	RisK Indicator 1	Watch List Scan	Black Listed-5, Gray Listed-3, White Listed-1	30%	High	5	
	RisK Indicator 2	Negative News Search	Too many-5, Some-3, Nothing-1	30%	Medium	3	
Customer's Suppliers/Partners	RisK Indicator 3	Watch List Scan	Black Listed-5, Gray Listed-3, White Listed-1	10%	Low	1	
	RisK Indicator 4	Negative News Search	Too many-5, Some-3, Nothing-1	10%	Low	1	
	RisK Indicator 5	Watch List Scan	Black Listed-5, Gray Listed-3, White Listed-1	10%	High	5	
	RisK Indicator 6	Negative News Search	Too many-5, Some-3, Nothing-1	10%	High	5	3,6
						CER	3,64

Figure 10: Calculation of customer effective risk

Here, three components as main criteria have been identified as “Identification of Customer”, “Identification of third parties and end-users” and “Watch List Scan & Negative News Search” and their weights are 50%, 20% and 30% based on the importance according to the importance of

each criterion. Sum of their weights is 100%.

Then, under each component different risk indicators have been identified as sub-criteria and with their weight based on their importance and risk rating data. Total sum of all sub-criteria under a component is 100%. Each component risk is equal to summation of all the risk indicators rating multiplied by their individual weights. And Customer Effective Risk is equal to summation of all components risk multiplied by weights of each component.

4 Export Process for dual-use items

4.1 Key responsibilities of the Sales Department

The main objectives of a sales department vary based on the company and the size of the workforce. However, a sales department's initial task is normally to find and identify potential clients i.e., market research. It is to identify new business opportunities by tapping the potential customers from different countries. It is the process of determining the viability of a new product or service by conducting direct customer research. This strategy enables organizations or businesses to identify their target market, gather and document feedback, and make educated decisions.

Secondly, sales team plan, design, develop and implement different sales activities by researching the customer's needs and requirements for each customer segment based on their geographical locations. The sales department's next task is to call those potential clients and initiate contact, at which point the relationship-building process begins in earnest. A salesperson also determines the client's demands and gather all the pertinent information needed to close the deal.

Following that, the sales staff is in charge of makes presentations and proposals to convert the customer. Now, sales department puts together a presentation for the customer that illustrates their demands. Usually, a team member is also allocated with the business proposal along with quotations. After this, it’s time to close the deal if the prospective client is satisfied with the sales staff's customer service and the bottom-line proposals. Successfully closing the deal is also the responsibility of the sales staff i.e., executing transactions and guaranteeing smooth payments [22].

Finally, the sales department is in charge to maintain customer relationships and ensures customers long-term satisfaction. The sales department is responsible for maintaining good customer relationships and ensuring that all clients are satisfied. Customer retention is critical to corporate success, and it is typically the responsibility of the sales staff to follow up with and meet the demands of customers. They also make sure that existing clients should keep doing the

business with them while they should focus to develop new customer bases. Sales department had also to ensure that the all the sales and marketing activities are carried out within the agreed budgets, volume, sales, and within the given time scales. And they should take initiative and efforts to develop constructive and effective solutions to any issues that slow down or hamper the export procedures and activities [22].

4.2 Shipping Process of dual-use items

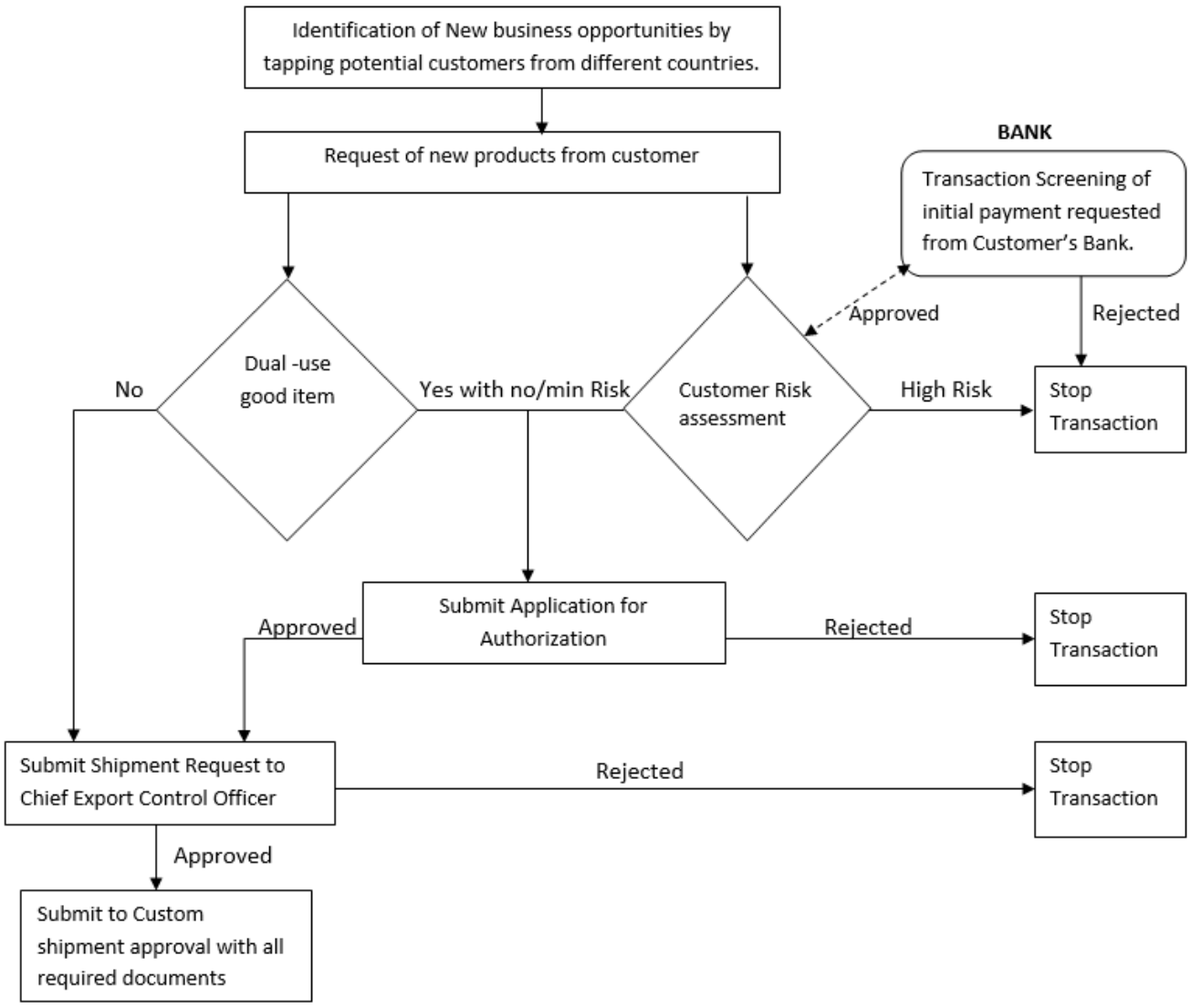

Figure 11: Shipping Process flow chart of dual-use goods

The first stage of the shipping procedure begins with the identification of the customer and the importer (consignee) placing an order with a supplier (consignor). Buyers commonly obtain quotations from vendors for the products they want to buy in a normal import. A quote is frequently accompanied by a proforma invoice from vendors. A proforma invoice is an estimate that can be revised in the future. Following that, the buyer and seller will begin negotiation about the transaction's price, quantity, and other details. The company will normally generate a purchase order after the quote has been approved. A purchase order is just a contract that specifies the order's contents as well as the goods costs. The buyer and seller agree on payment arrangements at this point. A common technique of paying a supplier is to obtain a letter of credit after placing a purchase order. Because it is one of the most widely used and secure methods of international payment. It's basically a legally enforceable contract signed by a financial institution that guarantees payment for merchandise (such as a bank). With their detailed order, a buyer would normally obtain a letter of credit from a bank.

At the second stage, once the purchase order is approved, two important processes will take place: firstly is transfer of customers data to transaction screening group to check the amount of risk associated with the export of ordered goods to the customer , secondly is transfer of initial payment data or letter of credit from customer's bank to suppliers bank to evaluate if transaction is possible or not and thirdly is transfer of product specification details to the item classification group to evaluate that the ordered product from customer is dual use item or not.

Process 1: Customer screening group (CSG) would require customer detail i.e., country of origin, source of finance in the form of Letter of Credit from bank and the end user's details. They should check in their existing database, if the customer is old, CSG should determine new customer effective risk (CER) on basis of previous CER, previous business experiences, considering any recent negative news about customer and other interested parties related to the buyer and by looking for them in sanction list. If the customer is new, CSG should conduct full customer risk assessment from scratch in order to determine CER.

Process 2: During the evaluation of customer effective risk, CSG should ask the new customer (even old customer if their bank have changed) to make some initial payment to the supplier's bank or Letter of Credit from customer's bank. Then they should transfer initial payment or letter of credit to the supplier's bank to check that if the financial transactions between the customer' bank and the supplier bank is possible or not? If supplier's bank gives clearance, then they should proceed with the further risk assessment. If bank rejects do not give letter of clearance for transaction than then CSG should ask the customer to change their bank and the above process should be repeated. If customer's payment transaction is more than two time, then the whole process of export should be immediately stopped.

Process 3: Firstly, the sales team should search requested product specification in the existing database of the company and determine that the requested product is dual-use good or not. In case they do not find they should transfer the requested product specification to technical team. Item Classification Group working in parallel with internal technical team should use the customer's product specification data to determine if the requested product is dual-use item or not.

At the third stage, there can be three different situations: if item is not dual-use item and if there is no or mitigable customer effective risk, then the sales team should request for the manufacturing request followed by request of shipment request to Chief Export Control Officer (CECO). If the item is dual-use item and if there is high customer effective risk, then then the transaction screening group should stop the export transaction process immediately. If the item is dual-use item and if there is no or mitigable customer effective risk, then then the technical team should submit application for authorization for export of requested dual-use product. This application should consist of documents indicating product is dual-use item and customer details (including customer effective risk assessment) and Financial Transaction Clearance obtained from the bank. After evaluating all the documents if the competent authority gives the authorization for the export of product, then the sales team should submit the manufacturing request followed by shipment request to Chief Export Control Officer (CECO) with all the required documents that to be needed for custom approval.

Final authority for the export of any product is Chief Export Control Officer. After evaluating all the documents, if he finds something is unclear or misleading then CECO can reject, and the

export process should be immediately stopped. While if everything is good and CECO approves then transaction then, application should be submitted along with all the required documents for custom clearance for shipment of product. The products are handled via export customs clearance before departure. All documentation is evaluated and double-checked here by government authorities. The goods are shipped after this point and once it reaches the destination country; they must go through an import clearance process

4.3 Flow of documents during export process

First stage: External flow of documents between customer & sales department

1. **Customer Specification Requisition:** Customer specifications are product requirements that the customer defines, with the expectation that the supplier will identify, execute, and audit these customer-specific demands with the same zeal as the core requirements of the standard.
2. **Performa Invoice:** A proforma invoice is a draft or anticipated invoice used to obtain payment from a committed buyer for goods or services before they are delivered. It's a promise to deliver things or services that have yet to come. It specifies the work to be done as well as the amount and price the business will charge for the goods or services. Because proforma invoices have not yet been finalized, they do not include an invoice number, which is required for all legal invoices. Unlike an invoice, a proforma invoice is a quote or estimate that specifies the products and services that a seller commits to sell [23].
3. **Purchase order:** It is a document that a customer creates to convey what it wants from a supplier. It's basically a shopping list of items or services that a corporation wishes to purchase. The purchase order includes description of product, quantity of goods required, price, terms of payments, and all other required delivery details [24]. A purchase order becomes legally binding when it is accepted by a supplier. After this they reached on an agreement and now, they are obligated to provide the product.
4. **Letter of credit:** A letter of credit, also called as "credit letter," is a bank guarantee that the seller will receive timely payments from the buyer. If the buyer is unable to make a payment on the acquisition, the bank will be required to cover the entire or remaining cost of the transaction [25].

Second Stage: Internal flow of documents between sales department, classification group, customer screening group & Bank

1. **Product Specification:** Sales department should forward product specifications obtained from customer under customer specification requisition to sales database or classification group so that they can identify that the ordered product is dual use good or not?

2. **Customer details:** Sells department should forward all the details of customers i.e., country of origin, source of finance, initial payment data, letter of credit, end user's details, etc. to the transaction screening group which will be helpful in determining customer effective risk.

3. **Initial Payment Data/ Letter of credit:** Transaction screening group should forward the Initial Payment data/ Letter of credit received from bank to check that financial transactions are possible from the customer's bank or not? After the proper screening of transaction, the bank should give back transaction clearance to transaction screening group.

Third Stage: Flow of documents from company to competent authority and custom

1. Documents indicating product is dual-use item which will be obtained either from sells department database or from technical department findings, customer details (including customer risk assessment) which will be obtained from transaction screening group and financial transaction clearance obtained from bank. All these documents should be submitted to the competent authority for the authorization of export of dual-use goods. Once the competent authority is fully satisfied, they will issue authorization for export.

2. **Commercial Invoice:** A commercial invoice is a document used to clear merchandise through customs. It should be signed by chef export control officer before exporting an item across international borders as a customs declaration.Despite the lack of a consistent structure, the document must have a few key details, like [26]:

- Name and address of the consignor
- Name and address of the customer
- Date and number of invoices

- Purchase order
- Description of items being shipped
- Authorization Certificate for dual-use item
- Country of origin
- Shipper's signature along with date

5 ISO:9000

5.1 What is ISO 9000?

ISO 9000 is a set of globally recognized quality assurance and performance management standards for corporations and other organizations. For quality management systems, it gives out best practices, norms, and a consistent terminology. The International Organization for Standardization (ISO) publishes it with the goal of encouraging the production of goods and services that satisfy a globally recognized standard of quality [27].

The ISO 9000 standards were created to assist manufacturers in properly documenting the quality system components that must be implemented in order to maintain a productive quality system. They're being used in more and more organizations and industries. The fundamentals and vocabulary of quality management systems are laid out in ISO 9000. ISO 9001 is the only part of ISO 9000 that can be implemented in the companies. Organizations that acquire certification are considered to be compliant with ISO 9001. Obtaining certification takes over a year and necessitates extensive documentation to establish compliance with the criteria [27].

Standards of ISO 9000 family contains [26]:

- **ISO 9000:2015:** It contain the fundamentals and vocabulary (definitions) of quality management system.
- **ISO 9001:2015:** It specifies requirements for implementation of an effective quality management system.
- **ISO 9004:2009:** It deals with the continuous improvement of the Quality Management System. Its purpose is to provide direction on how to implement and update procedures designed in accordance with ISO 9001 regulations in order to ensure the quality management system's long-term success.
- **ISO 19011:2011:** It provides guidelines for auditing of implemented quality management system

5.2 Requirements of ISO 9001: 2015

In order to accomplish continuous improvement within your Quality Management System, the ISO 9001 standard requires your organization to address seven critical areas: Context of the organisation, Leadership, Planning, Support, Operation, Performance evaluation, Continuous Improvement [28]. These requirements are supported by quality management principals which helps company in the successful implementation of an effective QMS.

5.2.1 Context of the organization

In terms of quality, it's all about defining your company's mission and strategic direction. It addresses the following key points:

- Identifying the internal and external elements that have an impact on the quality of your services
- Identifying your company's stakeholders, such as employees, suppliers, and other interested parties
- Knowing your customers and their requirements

5.2.2 Leadership

It is about commitment of organization’s senior management toward total quality management. Leadership team should take responsibility for:

- Creation and implementation of Quality Management System
- Development of quality policies and objectives
- Employees responsible for the quality of the company's products and services should be informed about policies and objectives by top management.
- Managing audits and annual reviews of the implemented QMS.

5.2.3 Planning

A good quality management system is founded on risk-based thinking, which considers both risks and opportunities at the same time. Companies must:

- Document potential risks, along with their severity and likelihood of occurrence
- Plan to minimize or mitigate unfavorable impacts
- Integrate strategies to enhance desired effects.

5.2.4 Support

An efficient Quality Management System requires enough resources from the organization. Like adequate resources should be provided for:

- Excellent infrastructure (including equipment, hardware, software and building facilities)
- Efficient working conditions (including temperature, humidity, dust, and sterilization control)
- HR Management that is effective

5.2.5 Operation

The operation section explains the work your organization must conduct to produce and provide items or services to your clients. Your procedures should include:

- Your product or service's standards and quality objectives
- Your employees' procedural manuals, documents, resources and tools to successfully produce products or services that meet quality objectives
- Your company's monitoring, inspection, or testing requirements to assure the quality of its products or services

- The guidelines for creating and storing the records so that it can be used in the future

5.2.6. Performance Evaluation

This section provides the standards for evaluating customer satisfaction, internal auditing, process monitoring, analysis, and evaluation. The management review's requirements, including the review's mandatory inputs and outputs, are also included. It entails measuring and analyzing the organization's processes and recording the results to:

- Demonstrate compliance with the ISO 9001 standard.
- Ensure all aspects of the Quality Management System are implemented.
- Support continuous improvement in quality management throughout the organization.

5.2.7 Continuous Improvement

The ISO 9001:2015 standard's final clause emphasizes the need of continuous improvement within a company. It is identification of processes that are not achieving their goals and update them accordingly. Measures should be implemented to:

- Improve products and services to help the company succeed in future.
- Improve client satisfaction by better aligning consumer needs.
- Identify instances where processes are failing to meet their objectives and make necessary changes.

5.3 Case Study: TOOLSIFY Quality Manual

5.3.1 MISSION STATEMENT

TOOLSIFY Spa is a manufacturing company with over 60 years of experience in the high precision tools industry, one of the leading companies in the production of taps, thread mills, hobs, punching tools and dies. Our mission is to become a value-added supplier to our customers while building trust with each client. We are primarily concerned with developing relationships and providing solutions. Our promise is to exceed customer expectations by providing high quality tools and superior customer service. TOOLSIFY employees will work hard, both individually and collectively, to create a professional and well-organized working environment. We also want to create a work environment that encourages each employee to do his or her best work while also providing opportunities for personal growth and development.

5.3.2 CONTEXT OF THE ORGANIZATION

5.3.2.1 Understanding of the Organization and its context

TOOLSIFY Spa understands its responsibilities as a manufacturer of high-quality goods and services. A quality management system has been developed and documented by TOOLSIFY Spa. The quality management system adheres to the ISO 9001:2015 international standard. This manual explains quality management system and provide comprehensive evidence to all customers, suppliers & employees of the specific controls that are in placed in order to ensure that company's products and services meet and exceed customer requirements on a consistent basis. TOOLSIFY Spa also intends to improve customer service by implementing this system comprehensively.

5.3.2.2 Determining the scope of the Quality Management System

TOOLSIFY Spa formalizes existing processes and procedures and organizes the system to meet the requirements of ISO 9001:2015 by establishing this Quality Management System. The company reviewed the ISO 9001:2015 requirements and integrated them in the require order to ensure comprehensive interaction of the established processes across all applications within the company. The company has directed that the necessary financial, human, and operational resources be used to ensure the effective implementation and ongoing execution of the "system's" elements, processes, and procedures. Monitoring, measuring, and analyzing actions are in place to ensure that expected outcomes are met, and if they are not met the appropriate authority and processes are in place to ensure immediate corrective action and continuous improvement.

5.3.3 LEADERSHIP

5.3.3.1 Leadership & Commitment

TOOLSIFY Spa CEO is committed to meeting or exceeding customer expectations by ensuring that company objectives and internal processes lead to continuous improvement and the prevention of issues that limit company's ability to meet customer expectations. Establishing a Quality Manual and Quality Policy, as well as dedicating the resources required to ensure proper implementation of these Policies, Goals and Objectives established in the annual Business Plan demonstrates top leadership commitment. Periodic QC meetings and quarterly reviews ensure that management is effectively monitoring the progress of the company various initiatives and objectives. Senior management will ensure that customer requirements are identified and met or exceeded in order to improve customer satisfaction.

5.3.3.2 Quality Policy

TOOLSIFY accepts responsibility for customer satisfaction. Company takes this responsibility by providing comprehensive employee training, ensuring compliance to established procedures, committing to meeting or exceeding customer expectations, and maintaining a company culture that promotes continuous improvement. Because TOOLSIFY Spa is a small business, senior

management will ensure that the quality policy is implemented across all functional departments. To maintain high standards within the Organization, it is included in employee training and posted prominently throughout the facility. QC Reviews and Annual Business Plan Meetings should be attended by all managers.

5.3.4 PLANNING

5.3.4.1 Actions to address risks and opportunities

At regular intervals, the Quality Manager should compile all the information for the CEO to review. Following a successful review of the data, the Quality Manager should brief all employees. The purpose of these reviews is to ensure suitability, adequacy, and effectiveness of the organization's quality management system with changing environment. These reviews must include areas for improvement and the need for changes in the quality management system, including quality policy and quality objectives. These review's input should be gathered throughout the year.

5.3.4.2 Quality Objectives and planning to achieve them

Required inputs for top management to review existing quality management system by gathering data from the following sources:

1. From quarterly Quality Control (QC) reports
    - A list of all failed and returned items
    - Actions that have already been taken in response to previous reviews
    - Delivery time of products to customers
2. Using Key Performance Indicators (KPI) reports that are to be issued quarterly

At the end, the Quality Manager reviews all these Inputs, and the managers from each department are present there for the review briefing. The management review output includes a summary of all the inputs gathered by the Quality Manager, summary of the decisions made along with the necessary actions to be taken in order to improve the Quality Management System, as well as if any additional resources may be needed for these improvements.

5.3.4.3 Planning for Changes

CEO and all employees have developed the planning system that so systematic evaluation of customer expectations and determines the financial, managerial, operational, and personnel resources required to meet or exceed the expectations of the customers, and then a feedback system have been developed to ensure compliance and continuous improvement. The Quality Manager reviews the quality management system planning process with all employees at the start of each year. Any process in the company follows the PDCA cycle to ensure its productivity. There are mainly four important steps in PDCA Cycle [29]:

- **Plan**: identification of the problem with possible solutions
- **Do**: execute the plan and test the solution(s) that have been identified
- **Check**: evaluate the result and lessons learned after execution of the plan
- **Act**: improve the plan or process for better solution in the future

5.3.5 SUPPORT

5.3.5.1 Resources

TOOLSIFY Spa determines and provide the adequate required resources to implement and maintain the quality management system, as well as to continuously improve its effectiveness and to improve customer satisfaction by meeting customer needs.

- **Human Resource:** All employees have all the necessary education, training, skills, and experience to ensure that customer product meet their specifications. TOOLSIFY Spa specifies all the qualifications and competencies required for each position in the company, which can be found in the job description for that position. The company conducts product, sales, and procedure training throughout the year to ensure ongoing competency.
- **Infrastructure:** Company determines, provides, and maintains the required infrastructure in order to achieve product conformity and customer specifications. The

infrastructure includes physical facility, manufacturing equipment, inspection equipment, and any necessary support services.

- **Monitoring and measuring resources:** TOOLSIFY maintain all the necessary monitoring and measuring equipment's needed to demonstrate product conformity and customer specifications. If customer requests for the copy of evidence of conformity (Certificate of Conformance, Material Reports, Dimensional Reports, etc.), the requested certificate gets prepared and is sent immediately to the customer. TOOLSIFY also provides product measurement (dimensional inspections) upon receipt from company to ensure that the items provided by the company meets the requested specifications from the customer.

5.3.5.2 Competence

The company's Employee Skill Log is used to track employee training. Once a year, written performance reviews are conducted for each employee focused on their performance against the job description and the specific goals or objectives that the employee and their manager may have agreed upon.

5.3.5.3 Awareness

TOOLSIFY ensures that all employees working under its supervision are aware of the Quality Policy, relevant quality objectives, their role in the QMS' effectiveness, and the consequences of noncompliance with QMS requirements.

5.3.5.4 Communication

TOOLSIFY CEO has established a quarterly review of all quality-related issues and objectives. The Quality Manager is in charge of gathering and communicating this data to the rest of the organization. These findings are then tabulated and presented, with trends identified and corrective actions implemented across the company. E-mail, the QC database, Monthly Reports, and Quarterly Reports are among the communication tools available for communicating this information.

5.3.5.5 Documented Information

- **Creating & Updating:** Since TOOLSIFY is a small company, company maintain one set of the Quality Manual, and the Quality Manager is in charge of this manual. All other employees have access to the same version via the internet. This manual will be stored electronically on the company file server under the heading Data/Quality Manual. The files are either password protected or "read-only" documents, which means they can't be changed without permission.
- **Control of Documented information:** TOOLSIFY have developed mechanism that show that records are in conformance to ISO and company requirements along with written confirmation of the quality management system's effectiveness. A procedure has been developed that clearly describes identification, storage, protection, retrieval, and retention controls of records along with method for disposition of records.

5.3.6 OPERATION

5.3.6.1 Operational planning and control

The term "product realization" is referred as effort that organization takes to create, manufacture, and distribute finished products or services. TOOLSIFY is specialized in manufacturing of tools, so they are involved in product design, manufacturing, inspection, and distribution to the customer. Because all of company's key suppliers and customers are ISO certified, company product realization planning entails: product quality targets and requirements; acceptance inspection after delivery of the product; and preserving the documents required to verify product realization.

5.3.6.2 Requirements for products and services

- **Customer Communication:** TOOLSIFY have established and implemented effective communication system with customers in the following areas: product information, contracts, inquiries, or order processing, including modification in orders; customer feedback and customer complaints.

- **Determination of requirements related to products and services:** The customer specifies product requirements typically in the Purchase Order or on a customer-supplied print. If the customer does not provide product design requirements in the form of a print the TOOLSIFY creates an engineering drawing for the product in accordance ISO and obtains customer approval before proceeding with manufacturing. In the client's purchase order, the customer specifies all other additional criteria for the product like delivery date, delivery method, packaging requirements etc.
- **Review of requirements related to products and services:** Before accepting the order from customer, company review the customer's product needs. Sales and operations team ensure that the customer order have the customer requirements, and company can meet the established criteria. TOOLSIFY acknowledges and accepts the customer's purchase order by returning an e-mail to the customer, and a copy of that acknowledgement is filed with the customer's sales order.

5.3.6.3 Design and development of products and services

- **Design and development Inputs:** TOOLSIFY offers both its own standard product catalog and customized products and modifications based on customer requests. Customer provides design input for product, which is received by sales team in the form of sales order noted by the customer's drawing number.
- **Design and development Planning:** Company is in charge of determining the feasibility of design orders, as well as identifying the required material for production of tools and scheduling for production.
- **Design and development controls:** Company does not change the design that the customer has requested. Customers have complete control over the things they purchase.

5.3.6.4 Production and service provision

Procedures guarantee that quality-related processes are under control. The processes are planned, recorded, and carried out by trained individuals in accordance with relevant standards/codes, procedures, work instructions, and quality/test/control plans. A proper working environment is

provided, including facilities with controlled temperature and humidity. The use of appropriate controls such as visual inspections, in-process inspections, and final testing is used to monitor and control process parameters and product qualities. Equipment and processes are evaluated and approved.

TOOLSIFY have designed and maintained protocols for identifying raw materials received and used in the manufacturing process. The results of inspections and tests are documented and indicate whether the product is conforming or not. Inspection and testing results are kept in accordance with processes to guarantee that products have passed all needed inspections.

Company has designed and maintains policies for preventing damage to raw materials and products during all stages of production, storage, and delivery. Team members receive instruction in proper handling techniques.

The packing, packaging, and marking of items is monitored throughout the manufacturing process to ensure that they meet customer specifications and avoid damage. To ensure product quality, the final product is protected and sent. Company does not offer any maintenance or other aftermarket services as it is mostly due to the numerous external variables that the items are exposed to, such as pressure and temperature, which wear down the thermocouple's quality.

5.3.7 PERFORMANCE EVALUATION

5.3.7.1 Monitoring, measurement, analysis, and evaluation

TOOLSIFY have design and implement the monitoring, measurement, analysis, and improvement processes required to demonstration of product conformance, ensuring the QMS conformity and the continuous enhancement of the QMS effectiveness. This process includes appropriate approaches, including statistical techniques.

- **Customer Satisfaction:** Customer satisfaction surveys is the primary source of collecting data, and they are used extensively. Company monitors all the information relating to customer perceptions of whether company has met customer requirements or not and customer satisfaction is most effective way to measure QMS.

- **Analysis and evaluation:** Company determine, collect, and analyze all the necessary data to demonstrate the applicability and efficacy of the QMS, as well as to areas where the quality management system effectiveness can be improved. This includes data collected through monitoring and measurement as well as data from other sources i.e., Customer satisfaction, conformity to product specifications, characteristics and trends of processes and products, including chances for preventive action. Also, the supplier performance will all be revealed through data analysis.

5.3.7.2 External audit

Since TOOLSIFY is a small company, it conducts external audits at predetermined intervals to determine whether the quality management system is effectively implemented, maintained and complied with the requirements of International Standard, and the company's quality management system requirements. The scope, frequency, and techniques of the audit is determined. The appointment of auditors and the performance of audits assures the audit process objectivity and impartiality. The audits' results and records must be kept. The management in charge of the audited area must ensure that all necessary corrections and corrective actions should be implemented as soon as possible to eliminate nonconformities and their causes. There should be follow-up activities for verification of actions taken and reporting of verification results.

5.3.8 Continuous Improvements

TOOLSIFY's management has taken the all the essential steps to ensure that it continuously evolve by focusing on continuous improvement. The quarterly assessments give a forum for business executives to offer suggestions for improving not only the quality of the services offered, but also the way they are delivered. It also contains preventive and corrective action so that if a circumstance arises where TOOLSIFY needs to take a specific measure to prevent the same issue from reoccurring, company will take the initiative to implemented it.

5.3.8.1 Nonconformity and Corrective Action

5.3.8.1.1 Corrective Action

To avoid recurrence, the company takes all the necessary steps to eliminate the causes of nonconformities. Corrective actions must be proportional to the severity of the nonconformities. A documented procedure has been developed to define following requirements:

- Reviewing non-conformities (customer complaints should also be included)
- Determining the main cause of non-conformities
- Evaluating the required action to ensure that nonconformities do not recur
- Determining and implementing the required action
- Recording of the results from the actions that have been taken
- Reviewing the effectiveness of action that has been taken as corrective measures.

5.3.8.1.2 Preventive Action

TOOLSIFY have establish the steps that must be taken to remove the main cause of potential nonconformities in order to avoid them. Preventive measures must be tailored to the impacts of prospective problems. A documented procedure has been developed to define following requirements:

- Identifying non-conformities and their causes
- evaluating the need for action taken to avoid nonconformities to recur
- Identifying and implementing all needed action
- Recording of the results from the actions that have been taken
- Reviewing the effectiveness of action that has been taken as corrective measures.

5.3.8.2 Continual Improvement

TOOLSIFY uses the quality policy, quality objectives, audit results, data analysis, corrective & preventative actions and management reviews to continuously improve the effectiveness of the quality management system

5.4 Comparison of ICP and ISO 9001

Requirements (both ICP & ISO 9001)	ICP	ISO 9001
Context of the Organization	It is about understanding products and customers	It is present
Leadership Commitment	It is present	It is present
Planning	It is present as Risk Analysis	It is Present
Organizational Structure /Support	It is present as Organizational Structure	It is present as support
Training & Awareness Rising	It is present	It is present in support section
Transaction Screening Process & Procedures / Operation	It is present as Transaction Screening Process & Procedures	It is present as operation
Performance Evaluation	It is present	It is present
Recordkeeping & Documentation	It is present	It is present in support section
Continuous Improvement	It is not present and required	It is present
Physical & Information Security	It is present	It is present in support section

Figure 12: Comparison of ICP & ISO 9001 requirements

5.4.1 Similarities between ISO 9001 & ICP

Top leadership commitment is very important in both ICP and ISO 9001 which deals with the total quality management. Leadership team should take responsibility to create an effective Internal Compliance Program & an effective Quality Management System. They should establish policies and goals for both ICP and quality so that in ICP company can meet all the compliance requirements and in ISO 9001 company can meet all the quality objectives. It is important for the leadership to communicate these policies and objectives to the employees which are responsible for managing ICP and QMS respectively. Along with these, top management should also conduct audits and annual reviews in order to check that all the requirements of ICP & ISO 9001 are meet and in ISO 9001 these reviews help in the process of continuous improvements.

First requirement of ISO 9001, context of organization is all about defining strategic direction of the company while in ICP it is all about understanding company products and its customer base. Leadership commitment is equally important in both ICP 9001 and ICP. In the planning phase of ISO 9001 we try to determine the potential risks and opportunities associated with quality due to rapid change in the business environment. These risks and opportunities are planned properly to take maximum benefit from the upcoming opportunity while mitigating the risk to lower the loss. While in ICP we try to determine the risk associated with both items and customer including their severity and chance of occurrence so that we do not fall under the risks of non-compliance of regulations which can have serious consequences. In both ISO 9001 and ICP company should provide adequate resources for operation of an effective quality management system and ICP respectively. In ICP we deal with resources in the organizational design section while in ISO 9001 we deal with resources in support section.

Training and Awareness rising is present in support section in ISO 9001 and is very important requirement for both ICP and ISO 9001. The main element of ICP is Transaction Screening Process where we design the process flow to check the export of dual-use items while in ISO 9001 it is Operation under which we determine how the product will be manufactured, what will be design requirements, after service etc., keeping in mind that quality of product or service should not be deteriorated.

There is similarity of requirements for documentation and record keeping. In ICP 9001, under operation phase, rules are defined to govern the creation and storage of records. While in ICP it is mandatory to keep records for 5 years for export Annex I items and three years for export of Annex IV items, it should be constantly maintained & easily available so that it can be presented to competent authorities whenever needed. Along with this there is also similar requirements about performance reviews, audits & corrective actions. In both ICP and ISO 9001 performance of implemented process should be measured, analyzed and the results should be recorded so that in future it can demonstrate that it satisfies all the requirements of both ISO 9001 standard & ICP and if something is missing corrective actions could be taken from the experience of these reviews.

5.4.2 Differences between ISO 9001 & ICP

Although there are many similarities between the ICP and ISO 9001. There are significant differences in the organization of both as the objectives of ICP based on compliance of export process so that dual-use goods do not fall in wrong hands while the objective of the ISO 9001 is to meet the quality requirements so that customers are satisfied with the products or services. Due to change in the objectives the focus becomes completely different in spite of having similarities in the requirements. At the end implementation of these objectives (both ICP and ISO 9001) have similar outcomes: lowering the risk which helps to save money, build organization image, and take advantage from more business opportunities.

Other than the difference of objectivity, one main difference is presence of continuous improvement in ISO 9001, but it is absent in ICP. It is identification of processes that are not achieving their goals and we update them accordingly in the future. In ICP concept is that we have to be perfect in implementation otherwise there could be serious consequences while in ISO 9001 you can do something in different way and take learnings from this experience to do same thing in future in much effective way. This allows us to do mistake, learn from mistake and come up with better solution in the future, which allow the ISO 9001 be more effective than ICP in terms of achieving final objective.

If Continuous improvement is added into ICP as a one of core element, it can increase the effectiveness of the program. People working for ICP will be focused more on improving the system rather than trying to overcome the process to avoid risks and penalties. This will make ICP a better tool for fighting export compliance problems as each problem will give some significant learnings which can be recorded and used as an experience if similar case comes.

6 Summary

Even though EU has developed numerous regulations to govern the export, transfer, brokering, and transit of dual-use products in order to prevent the spread of weapons of mass destruction. Still controlling export of dual-use items have emerged as a big challenge for states and companies as terrorists have developed highly complicated way to procure and acquire materials and equipment's to produce or obtain WMD.

Due to these regulations many companies are under serious threat of penalties in the case of non-compliance. This report outlines the threats that firms may face during the export process both internally and externally. To mitigate these risks an effective ICP system should be implemented in the companies consider factors such as size, location, product, end-user, market etc. In this report, there is detail discussion of all the elements of export process, ICP and associated risks which can be used as a reference for small and medium sized companies to construct or review their ICP. This paper also suggests that there should be inclusion of Continuous Improvement as one of important element of ICP as it could increase the effectiveness of Internal Compliance Program.

Industry awareness is critical in combating the proliferation of weapons of mass destruction. These regulations can be effective only if all the involved stakeholders follow these regulations strictly. Even after all the efforts, violations may occur either intentionally or unintentionally. Nevertheless, this report can be a strong support for companies to mitigate their risks, to protect their reputationand contribute to the development of human civilization.

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