

Guidance Documents for Aviation, Space and Defence Organizations

Appendix-5

- Work Transfer Management -

Table of contents



1. Objectives
2. Scope
3. Terms and abbreviations
4. Control of Work transfers
 - 4.1 Work transfer management process
 - 4.2 Study and proposal of work transfer
 - 4.3 Selection and approval of the suppliers to be transferred
 - 4.4 Work transfer planning
 - 4.5 Work transfer execution
 - 4.6 Evaluation and recording after the work transfer
5. Reference materials
6. Editor's Note

1. Objectives

Work transfers could occur anytime, which would possibly impair the conformity to the product requirements, so that the process of work transfer should be executed under control (refer to AS/EN/JIS Q 9100).

There are several types for work transfers. The purpose of this material is to provide the guideline for effective management/risk management for the work transfers of the parts machining, assembling or functional testing, etc. with an emphasis on the transfer types (i) and (ii) shown below in particular.

Each organization refers to necessary requirements for the contents of transfer and the risks.

☆ **Types of transfer (i) From the organization to the supplier and vice versa**

(ii) From supplier A to supplier B

(iii) Transfer within the organization or the supplier

* **From factory a to factory b**

* **To a division of different QMS**



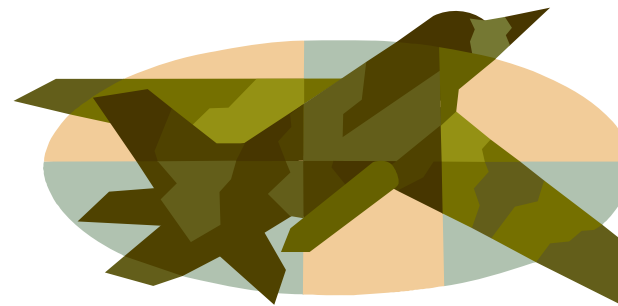
2. Scope

This material would cover the followings.

All organizations in Aviation, Space and Defense.

Divisions of manufacturing, testing and inspection of products.

Note that this material can also be used in other areas.



3. Terms and abbreviations



The definitions of the terms used in this material are as follows.

- Compliance ••• Complying with laws and regulations, company rules and regulations, business ethics and social norms
- Assessment Commission ••• A meeting organization operated by the cross-functional members within the organization that assesses and approves implementation, planning, and the results of tasks for work transfers
- Double sourcing conversion ••• Purchasing the same goods from the two suppliers
- Review ••• The activity carried out in order to determine the appropriateness, validity, and effectiveness of the targeted items to achieve the set goals.
- Know-how ••• The technology, knowledge, and experience that are necessary to realize the products and accumulated in the individual section.

4. Control of Work transfers

☆ Introduction

Do the following circumstances arise in your organization?

- The work transfer management depends on how things turn out.

It is unclear which section is responsible for

- Quality changes immediately after work transfers

Quality becomes worse in many cases

- Higher risks after the work transfer.

Cost increases, delivery delays

- Insufficient transfer of knowledge and technology

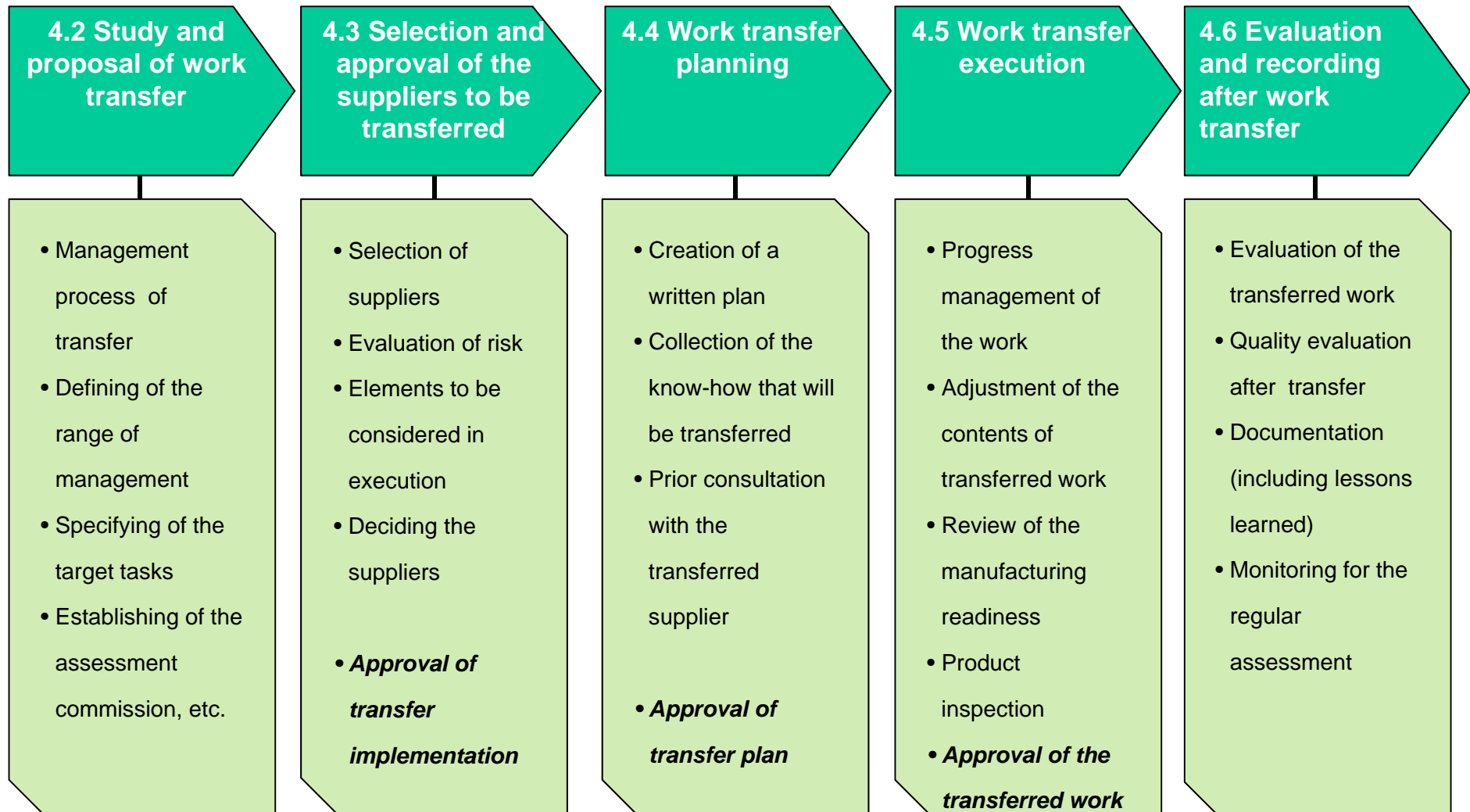
Loss of the accumulated technology and know-how



Validation process for the compliance is needed during the work transfer

4. Control of Work transfers

☆ Steps and reviews of work transfers



4. Control of Work transfers



4.1 Work transfer management process

JIS Q 9100: 2009 requirements:

7.1.4 Control of Work Transfers

The organization shall establish, implement and maintain a process to plan and control the temporary or permanent transfer of work (e.g., from one organization facility to another, from the organization to a supplier, from one supplier to another supplier) and to verify the conformity of the work to requirements.

- The 9100 standard requires to construct the process for work transfer and to verify that the operations comply with the requirements.
- FAI should be necessary for verification after work transfer.
- Control of Production Process Changes is required.

4. Control of Work transfers



4.1 Work transfer management process

- Decide the range of management in advance, based on the contents of transfer, the scale of the appropriate project, the possible risks, and the difficulty level of the contract contents, and so on.
- The review is carried out by the appropriate key personnel based on the transferred contents, the scale of the organization, etc. If necessary, establish the assessment commission on transfers within the organization. Decide the approval process for transfers in advance within the organization.

Note: Select the key personnel based on the risks related to the products, the applicable laws and regulations, the complexity of technology, the level of impact on businesses. As required, the customers, regulatory authorities, licensors, suppliers, etc. must be included. (including re-examination, discontinuation, etc.).

- Ideally, the appropriate reviews should be carried out in a timely manner to promote smooth progress of the transferred work and the risks arising from the transfers should be monitored at all times. The appropriate judgments should be made in reviewing according to the progress of the transfer (including re-examination, discontinuation, etc.).

4. Control of Work transfers

4.2 Study and proposal of work transfer

In a proposal for work transfer, it is necessary to exhaustively examine feasibility of the work transfer needed due to cost reductions, double sourcing and new entry or withdrawal of suppliers, etc.

To review the feasibility, the followings are the key points.

- (i) Identify the scope of the work transfer.
- (ii) Collect enough objective information to decide whether the proposal will be accepted or not.
- (iii) Identify the scope of the work transfer.
- (iv) If the work transfer proposal involves the organizational strategies of the time, it is desirable to cooperate with those.



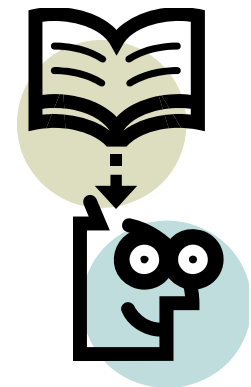
4. Control of Work transfers

4.2 Examination and proposal of work transfers (continued)

In the proposal of work transfer, the potential factors for risks should be identified, and necessary information to implement the work transfer under control should be collected.

In the proposal document, the followings should be included.

- (i) Describe the necessity of the proposed transfer.
- (ii) Describe the names of the products under proposal.
- (iii) Identify the necessary elements (work items under control, method of control and schedule) for the smooth conduct of transfer.
- (iv) Identify the possible risks
- (v) Identify the constraints due to the customer's or the organizational conditions and so on.
- (vi) Review and identify the necessity of reporting to and approval from the customer/the regulatory authorities.
- (vii) Describe the goals to aim.



4. Control of Work transfers



4.3 Selection and approval of the supplier to be transferred

1) Selection of the supplier to be transferred and the risk assessment

Selection of the supplier is critical to success of work transfer. The elements of the risk assessment include the following items but they are not limited to these.

- Quality
- QMS authentication
- Outsourcing management
- Safety
- Customer satisfaction
- Location
- Cost
- customer authentication is needed or not
- Process design capacity
- Compliance
- Human resources
- Financial condition
- On-time delivery
- Approval for the Special Process (Nadcap, etc.)
- Manufacturing capacity
- Information management
- Culture
- Transportation
- Business Culture
- Laws

4. Control of Work transfers



4.3 Selection and approval of the supplier to be transferred

(ii) Examples of the elements to be considered for the implementation of work transfer

- Describe(identify) the reason for necessity of the work transfer.
- Confirm the required activities and the key milestones for transfer.
- Estimate the cost to implement the work transfer, including the temporal (or the initial) and the maintenance cost for repetition, and the management cost.
- Include the estimate standards (grounds) for the proposed cost and the reduction for adequate explanation of validity of the budget.
- Identify and evaluate the risks, and prepare the risk mitigation plan.
- Estimate the cost of the risk mitigation plan.

4. Control of Work transfers



4.3 Selection and determination of the suppliers that will transfer (continued)

(ii) Examples of the elements to be considered for the implementation of work transfer (continued)

- Ensure the transferred supplier to comply with the requirements of customers and organization or to be expected to comply with them. If necessary, clarify in the plan for the work transfer all of the processes up until matching
- Quantify or clarify the expected profits from implementation of the work transfer.
- Create a summary of the contents implemented of the work transfer to provide their overview to the top management class including the proposed action, the expected period until completion of the action and the place affected by the action.

4. Control of Work transfers



4.4 Work transfer planning

(i) Documentation of planning

When the supplier to be transferred is designated, create a documented plan considering the following items.

- Costs for the transfer
- Schedule for the transfer
- The transfer risks and the appropriate measures to mitigate the risks

In an establishment of the transfer plan, the members of the concerned divisions (the cross-sectional team are recommended to be formed in a large scale /the complicating transfer) meet to review the above items for the details in the plan.

4. Control of Work transfers

4.4 Work transfer planning

(i) Documentation of planning (continued)

The plan must include the following items.

- The items to be implemented until transfer
- The responsible personnel to implement each item
- Secure the required sources (funds for jigs and re-testing and so on)
- The scheduled dates to start and to complete the actual transfer
- Actions to reduce risks (secure the safety etc.)
- Consecutive supplying of the parts, and the overlapped delivery
- Planning to secure the capabilities
- Transfer of knowledge and know-how

4. Control of Work transfers



4.4 Work transfer planning

(i) Documentation of planning (continued)

- Confirmation of the contract requirements and deployment of the resources
- Requirements for confirmation of the validity and certificate.
- Notification and approval from the regulatory authorities and the customer
- Development of jigs and tools
- Management of risks and progress related to the transfer (schedule, costs, etc.)
- Confirming the laws and the regulations related to imports and exports (for the overseas supplier)
- Preparation of the necessary documents for the transfer (including translation)

4. Control of Work transfers

4.4 Work transfer planning

(ii) Transfer of know-how

The following information is needed to collect for the successful work transfer.

- Definition of the product and the process to be transferred
- Requirements for the transferred product
- Required jigs, tools and the testing equipment
- Required quality level
- Allowable production costs

Ensure to give or transfer of the drawings and the work instructions to the transferred supplier prior to the work transfer.

Implement OJT(On the Job Training) for the transferred supplier as necessary.

4. Control of Work transfers

4.4 Work transfer planning

(ii) Transfer of know-how (continued)

The key to success of the work transfer is to ensure to carry over know-how as shown below from the original supplier to the transferred supplier.

- Non-documented production procedures
- Actions of the operators
- Lessons learned from manufacturing

In order to ensure the above, it is recommended for the transfer implementation team to observe the above mentioned items prior to transfer in the regular quality system audit and acquire the production process of the original supplier.

As the intellectual property rights issue may be raised about know-how, it should be handled carefully.

4. Control of Work transfers



4.5 Work transfer implementation

It is important for this process to be implemented based on the transfer plan documented in advance.

4.5.1 Progress management of work transfer

Implement the work transfer according to the contents planned and the schedule with notice of the followings during transferring.

- Progress of the plan
- Implementation of the work within the allocated source
- Monitoring and management of the differences between the plan and the status.

4. Control of Work transfers



4.5 Execution of the work transfer

4.5.2 Consultation with the transferred supplier about the contents of transfer

Consult with the transferred supplier about at least the following items and adjust them (at the planning stage if possible)

- The overview of the transfer work
- The requirements of drawings/specs
- The terms and conditions of the purchasing contract

4. Control of Work transfers



4.5 Execution of the work transfer

4.5.3 Production readiness review

Conduct the Production Readiness Review planned in advance on the following items during transferring.

Identify the items which will need actions to be taken and the risks for manufacturing of the transfer product with the facility of the transferred supplier through the review. The all action items shall be completed and risks shall be reduced before starting production.

- **QMS management status**
- **Trial of the jigs and tools**
- **Calibration plan**
- **Status of approval of the sub-tier supplier**
- **Personnel Plan**
- **Work instructions**
- **Materials with the long lead time**
- **Flow down of the requirements to the sub-tier supplier**
- **Education**

Actions should be implemented under control and follow their progress.

4. Control of Work transfers

4.5 Execution of the work transfer

4.5.4 First Article Inspection, etc.

First Article Inspection (FAI)

Implement the First Article Inspection at the transferred supplier. This inspection should be conducted in accordance with AS/EN/SJAC 9102. Also, refer to JIS Q 9100 for FAI.

Last Article Inspection (LAI)

In the case of higher risks, the same inspection as FAI should be conducted to the last product of the original supplier to verify the achievements of the work transfer.

4. Control of Work transfers



4.5 Execution of the work transfer

4.5.5 Transfer of knowledge and know-how (after the work transferring)

Information collected on the followings should be used to verify the receipt of all necessary information at the transferred supplier.

- Definition of the product and the process
- Requirements
- Quality level
- Jigs and Tools
- Costs

4.5.6 Reviewing completion of the work transfer

After completion of the work transfer, the Commission must review if the work transfer implemented complies with the plan and if any lessons are learned.

4. Control of Work transfers



4.6 Evaluation and recording after the work transfer

4.6.1 Securing the mass production quality

- Evaluation after the work transfer (ensuring of mass production quality) should be implemented within a certain amount of quantity (or a certain period).
- Determine the aiming scope by considering the product importance and the production rate.
- While the quality, the delivery and the costs will be evaluated., the most important thing is the evaluation of the product quality not to decrease by the transfer
- The action should be completed by recording the evaluation results on the work transfer document in which the transfer was decided. The document should be kept as the quality record.

4. Control of Work transfers



4.6 Evaluation and recording after the work transfer (continued)

4.6.2 Evaluation after completion of ensuring the mass production quality

- After completion of ensuring the quality of mass production, monitoring should be conducted with the regular rating assessment (integrated evaluation of quality, delivery and costs) of the supplier and/or with the quality audits of the supplier.

5. Reference materials

(i) IAQG SCMH 11.1 Work Transfer Management

Anybody can read. English only.

IAQG Public Web (<http://www.sae.org/iaqg/>)

> SCMH

(ii) Japanese Translation appearing on the web for JAQG members only

Japanese translation of (i) For JAQG members only



6. Editor's Note



- Although there are only several lines described for the work transfer in 9100 standards, there are a wide variety of works to be implemented during the actual work transfer. If the work transfer management is neglected, some variations may occur in the process for verification of the compliance. In this document, we focused on describing the items to be implemented in the work transfer management with the notes to be considered.
- The underlying idea of the products in Aviation, Aerospace and Defense areas is to ensure the quality of the products by creating the design and the process which are verified and confirmed their validity, and sustaining them with firm establishment. Because the work transfer breaks this work flow, any risks will occur in high possibility We hope that this guidance document will help organizations to reduce that risk within an acceptable range.

From the members of Work Transfer Management Guidance Writing Team