



How to Establish an ATC Training Center

Kjell Arne Kamben
EDDA SYSTEMS AS, NORWAY

Thinking about starting up professional air traffic controller education? This e-book is made for you!

It applies from very large centers down to minor installations with low budget and low initial demand, but with potential for later expansion.

Threshold cost to get started is as low as it gets.

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Introduction

The intended audience of this e-book is people who want to establish or upgrade an ATC training center for education of new or provide continuation training of already certified air traffic controllers (ATCOs). Such training can be one or more of the following:

1. Tower control (TWR).
2. Approach / departure control (APP).
3. Area control (ACC).

Flight Information Service (AFIS) training can be provided in the same premises. Students can be experienced professional ATCOs, or completely new to air traffic control (ATC).

This e-book is written based on experiences from several [eCoach](#) deliveries, ranging in size from a single computer up to large-scale training facilities serving controllers from 20 airports in the same premises. Based on the scale of your plans, chapters in this e-book can be of major importance or they can be omitted. In any case, the intention is that you by reading this e-book will think about issues you otherwise might have forgot when timing was ideal.

NOTE: The book is not meant to be fully detailed, but will sketch up a path that you can adjust to your own preferences.

Legal Aspects

Before you start, you want to be sure that the end product of your ATCO training efforts is valid. In your country, there are probably authorities issuing approval both to the training center as such, and to the people completing your education before they can start working as certified air traffic controllers. Requirements from such authorities might impact on aspects of your facilities and training programs, so it is wise to get a full understanding of the path to approval before anything else.

When you have a good understanding of the above and want to start execution of your project, there might also be laws and regulations regarding bid competition and similar. This might apply to construction work on buildings, as well as procurement of goods. It is out of scope of this book to address these aspects, but be sure not to get in trouble with local legislation.

Making Internal Requirements

As a starting point, state your **purposes** for establishing the ATC training, in writing. Why are you taking on the effort? Discuss with your colleagues and be sure you have the same understanding. This will in turn help you to state your **goals** for the training:

1. What type of training will you offer (Tower, ACC)?
2. What level of expertise will the students have, before and after training?
3. What certifications will be granted?
4. What capacities are needed?
 - a. I.e. the maximum and minimum number of students per year/month/week/day.
 - b. Can you plan for a safe minimum (money wise) and go for later expansion when the success is a fact and the business can start to grow?

Now it's time to state your internal requirements in order to be able to achieve your goals:

1. How to take care of your students?
 - a. Facilities for food, sleep, restrooms, transportation, spare time?
2. Where do you need help to be able to complete the project?
 - a. Building expertise.
 - b. Financial issues.
 - c. Formal issues regarding rules and regulations in a variety of areas.
3. Budgets?

You should by now have a clear picture of what you want to accomplish, and a rough idea of how. Lay it out in a plan, and discuss it with your experts to make sure it is realistic and well understood by all involved parties.

Making External Requirements

There will be contracts issued, and you need to group the various deliveries. A major part of the facilities will be the ATC Training Simulator. Its structure will dictate a lot of other issues such as power needs, data network, number of rooms, floor area for each room, ceiling height, and furniture. If you need tower control education, the solution for this can be set up in a number of different ways – each with different impact on the building structure. In turn, these issues will influence the need for cooling and ventilation. For these reasons, it is wise to determine the simulator equipment before the building facilities are planned in detail.

If you request a bid for an [eCoach](#) ATC training simulator, the following requirements are typically needed (which are easy for you to issue, given your earlier work efforts):

1. What type of training will you offer? (Tower and/or approach/area control).
2. Will you run simultaneous training sessions, e.g. tower and approach together, two independent tower simulations at the same time, etc.?
3. How many student controllers will be training at the same time?

The above is to determine the number of student working positions and the type of hardware needed for each. The number of simulator pilots needed in order to serve the students can be determined as a consequence, and we will be able to provide recommendations.

4. What airspace will you use as a basis for your training? Generic? One or more particular airports with surrounding airspace as it is today? Existing airspace but with modifications?

These are the basic requirements needed for us to provide a budget price for a simulator system. We will then be able to help you with other requirements in the areas listed at the start of this section. When more details are in place, a more detailed bid can be issued.

Determine Location

As your project moves forward, you need to decide where the center should be located. This might be an easy task – at your current premises – or more open if you will rent the space. In any case you should think through how your students can get to and from your center, and if there will be need for special transportation arrangements.

The location you end up with must of course be able to satisfy the final requirements from the previous section – floor space, power and ventilation etc.

Acquire an ATC Training Simulator

At a relatively early stage in your project, you should start a contract for the purchase of your training simulator – final delivery will be agreed to be at some later point in time, and during your project it will most likely be good to have the supplier to consult with in various contexts. As mentioned above, it is important that the simulator fits well in your premises. Normally, the contract is started when the premises are still untouched by carpenters. For our part as a simulator supplier, we will prefer to prepare the simulator delivery in parallel with your preparations of the final center premises. Our preparations will be to purchase hardware to our facilities in Norway and make it ready for final test and shipping, while working with you regarding getting the details of the building correctly prepared. When your facilities are ready, we will ship your tested simulator from us to you, and travel to your facilities for installation, site acceptance testing, and training of local personnel.

Make Floorplan

Assume that we are at the point in time where a contract is in place regarding delivery of the simulator. The building facilities are not yet prepared. In this situation, we will work together with you to form a layout of the final training center. This work will detail important aspects such as

1. Furniture.
2. Wall arrangements.
3. Power supply, including capacity, number of outlets, and locations.
4. Network cabling and access points.
5. Cabinets needed for server computers, including placement.
6. Ventilation and cooling needs.
7. Need for accessories like strip bays etc.

This should all be planned in detail before the first work starts up in order to get the final result as good as possible and without unnecessary and costly re-work during the construction phase. You don't

want to guess on furniture and end up with too small tabletops. Where an increase in size makes the room too small!

Prepare Premises

Parts of the list shown above will serve as input to companies preparing your training center. Typically, arrangements are made with local electricians, carpenters, and so on. These matters are usually handled between you and your local handy men, and are not involving us as the simulator supplier other than as mentioned above and answering questions during the work period.

Hire Personnel

Based on initial analyses, you should know what personnel you need to run the center. This includes both administrative tasks (booking of training, access to premises, financial tasks, and so on), and the operational management of the center. For the latter category, the following will be needed:

1. Technical maintenance – can be handled in various ways, but good computer skills should be available in the opening hours. This is similar to any office with some amount of technical facilities. Such skills might very well be covered by one or more simulator pilots.
2. Simulator pilots – are needed to support the training exercises. They will communicate with the student controller during a running exercise, and make inputs to the simulator equipment accordingly. Before that, they will be briefed by the exercise instructor about the upcoming exercise – e.g. when to put fire in a plane engine, or request towing of a plane.
3. Production of training exercises according to customer's request. This will require a combination of ATC knowledge and basic computer skills.

Note that all of the above can be covered by the same group of persons. A good candidate to fill a job like this would be a certified airplane pilot with a decent amount of computer skills. As your simulator supplier, we will provide training courses and all documentation needed. The training takes up to two weeks at most if real pilots are used as simulator pilots.

If you plan to educate new air traffic controllers, you will need teachers for this, i.e. certified professionals. If you plan to provide continuation training for already certified controllers, your customer might send his own instructor together with the personnel subject to training. In this case, your simulator pilots will be briefed by the instructor before the exercise is started, and they will run the exercise according to a plan agreed with the instructor.

Prepare Center Startup

Before the first run with students, the following should take place.

Administrative preparations

You will need detailed routines to keep track of booking, customer's personnel, maps for the local area, keys for access to the premises, administration of such keys, coffee and water, forms for training approval (for attachment to invoice), bank account numbers, and so on. Remember backup!

Training related preparations

Before the first training session, some preparations are needed:

1. Content of training exercises are decided.
2. Training exercises are technically prepared and loaded in the simulator.
3. Simulator pilots have a plan for each exercise, and practice running it together with the exercise instructor. This must be repeated until it flows smoothly – a sim pilot mistake can have bad effects on the training value.

When exercises are finished, they can be stored together with briefings etc. throughout the lifetime of the simulator, and retrieved for use at any time upon short notice provided that the routines and documentation are good.

New exercises can be added at any time, following the above description.

Enter Operations Phase

When the above is all in place, you are ready to welcome the first group of students. The better prepared you are, the smoother it will flow, and the more satisfied your customers will be. These matters will spread and be of vital importance for your business reputation! For this reason, let some of your staff play students and go through every step of the routines before the first visit of real customers. Let them fill out comments regarding their experience, including practical information given, efficient use of time, and so on.

Expansion Options

If your training center turns out to be a blooming business and you have lists of waiting customers, it might be worth thinking about expansion. Luckily, this is an easy and inexpensive thing to do relative to all the efforts you have made so far. Provided the internet connection is good, you can even locate your expansion at another part of the world and integrate it with your current center.

Summary

This e-book is a generic document applicable for large and small ATC training simulator installations. What is “large” and what is considered “small” can vary a great deal, but the main point is that with today’s technology, training facilities can be established where it earlier would not be worthwhile. A few square meters might be all it takes in order to get started. This might allow ATC controller education and certification maintenance without the need to travel to a large center. There are also ways to interconnect eCoach sites so that a flexibility for load sharing and alternate use is now available like it has never been before.

We would very much like to hear about your project, and we might be able to help you. If you feel like it, please do send us a few words about your thoughts. We will give you our comments without any charges.

About Edda Systems

Edda Systems was established in Norway in 2005 by technical and ATC experts from many years in operational air traffic control. Our eCoach ATC Training Simulator and associated products are in daily use in small to large installations in several parts of the world.



Industriveien 1
N-3430 Spikkestad
NORWAY

Tel: +47 31 28 70 00

Fax: +47 31 28 70 01

Email: contact@eddasystems.no

Web: www.eddasystems.no