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Marketing and Communication of the ATCO Job - Phase 2 Study: The ATCO Job as Perceived by its Applicants

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Abstract			
<p>This report summarises the findings across countries of Phase 2 of the Air Traffic Controller (ATCO) Job Marketing and Communication Study conducted in 2001 within the European Air Traffic Management Programme (EATMP) by the Human Factors Management Business Division (DAS/HUM) of EUROCONTROL, formerly known as the Human Factors and Manpower Unit (DIS/HUM).</p> <p>It contains an analysis of 1,912 replies to a questionnaire from applicants for the ATCO job. The data originate from six Air Navigation Service Providers (ANSPs). The report provides information (<i>inter alia</i>) on how applicants learn about the ATCO job, what influences their choice, what job perceptions they have, what working conditions are important to them, what are their perceived images of the job and what alternative jobs they consider. This report also segments the applicant population into different target groups and analyses their possible corresponding communication messages.</p>			
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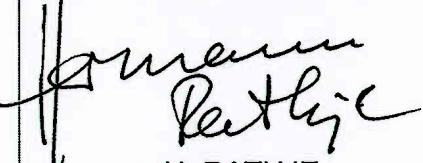
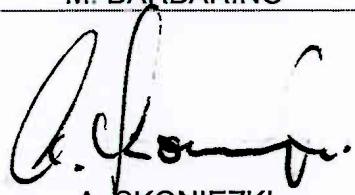
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EXECUTIVE SUMMARY

This report summarises the findings across countries of Phase 2 of the Air Traffic Controller (ATCO) Job Marketing and Communication Study conducted in 2001 within the EUROCONTROL European Air Traffic Management Programme (EATMP).

The study was contracted out to Company 'Civil Aerospace Consulting' (France) by the EUROCONTROL Human Factors and Manpower Unit (DIS/HUM), now known as the Human Factors Management Business Division (DAS/HUM). The work was carried out as part of the Manpower Sub-Programme (MSP) of the EATMP Human Resources Programme (HRS) under Work Package 002, 'First European ATCO Selection Test Package (FEAST)', and was supervised by the Manpower Sub-Group (MSG), now known as the Manpower Focus Group (MFG), under the auspices of the EATMP Human Resources Team (HRT).

Phase 1 of the study, launched in 2000, is covered by a previous report (see EATMP, 2000). Within that first phase results of a survey carried out among ATM recruitment managers in various EUROCONTROL Member States were analysed; perceived positive and negative images related to the job as well as its tangible elements were identified. The Phase 1 report develops a common generic job marketing and communication strategy and concept, and provides guidelines as to how best to market the job. The means and ways whereby this can be achieved are given, together with practical examples.

The Phase 2 study contains an analysis of 1,912 replies to a questionnaire administered to applicants for the ATCO job. The data originate from six Air Navigation Service Providers (ANSPs): EUROCONTROL Maastricht Upper Area Control Center (MAS UAC)¹ and five others based in Denmark, Germany, The Netherlands, Switzerland and UK.

The Selection Core Drafting Group (CDG) - the advisory body for FEAST which was set up by the MSG – recommended that specific findings at the national level be provided only to the relevant national authorities that supplied their own data, as was agreed with the participating ANSPs before starting the work; this recommendation was endorsed by MSG at its seventh meeting.

The findings presented in this document give an overall picture of applicants' perception of the ATCO job.

Limitation in generalising the findings to all applicants in the ECAC area

Some caution is recommended in interpreting and applying the findings of this study. This is especially so where the context of being an applicant may have included some more 'socially desirable' responses for the recruiter's eyes (e.g. the confidence in successfully completing training and the job marketing / communication media used by the recruiters that had a strong impact on the applicants' choice).

¹ The ANSP for the upper airspace in Belgium, Germany, Luxembourg and The Netherlands

In addition, some differences between ANSPs in important aspects, like age and experience of applicants were found to be significant. Therefore, it is recommended that careful consideration be given to generalisation of conclusions for other countries, which have not participated in this study.

Do applicants have identical perceptions of the ATCO job across Europe?

Whilst the findings indicate similar types of applicants' expectations for the controller job and their 'mental model' of the job (the 'perceived images' of the job), the study also shows that substantial differences between the recruitment and marketing schemes of the participating organisations do exist.

How do applicants learn about the ATCO job?

With one exception, advertising is still the most often used and strongest tool to attract candidates to the job. More than 36% of all applicants (and 48% of those seventeen years old and older) first learnt about the job through an advertisement. However, other means become increasingly important: one out of every eight applicants nowadays learns about the Air Traffic Control (ATC) job through the Internet.

Regardless of the organisation for which they applied, applicants who learnt about the job from an ATCO friend or member of the family did not perceive that they knew more about ATC than applicants who were informed by other media. However, those that knew about the job before the age of seventeen reported higher information levels than those that found out after they were seventeen.

What triggered applicants to apply for the ATCO job?

Tangible, material factors such as job security, salary and remunerated training generally played an important role in making the choice.

Naturally, applicants who were more 'connected' to the controller job (i.e. they obtained information through an ATCO, friend or member of the family), had more appreciation of the free-time element of the job and to some extent had a more realistic expectation regarding salary and remuneration (compared to applicants who were exclusively attracted through an advertisement). With regard to the perceived professional context and working conditions of controllers, 'connected' applicants also emphasised more the aeronautical and international environment and the importance of the social interaction in the job environment.

What job perceptions are (overall) important to applicants?

It is important to applicants that this job offers the possibility to contribute to safety. They do not wish to work in an office environment, but rather in a 'practical, hands-on' job within the (continuously) evolving high-tech environment with some aeronautical and international flavours.

What working conditions are important to applicants?

Applicants perceived high responsibility, teamwork and decision-making as important to them. However, many applicants are rather not in favour of shift work.

Would it make a difference to applicants if the job were academically accredited?

To more than half of the applicants it does not make any difference. Yet, for the remaining applicants, for every one candidate who would find an academic acknowledgement less attractive, three would find it a little or much more attractive.

However, there are significant differences on this issue between countries and close consideration should be given to these findings at a national level in relation to the population that is targeted.

What are the perceived images of the job?

As mentioned earlier, some caution should be exercised when taking account of the perceived images as they are highly influenced by recent advertisement campaigns. For example, the job was seen as 'fun' - with varying degrees between ANSPs – and this could be linked to differences in the style and content of advertising. Nevertheless, it is important to note that applicants across different countries are fully aware of the image of the ATCO job as being 'stressful' although, again, the assessed level varies between countries.

What are alternative (competitor) jobs to an ATCO?

In general, aviation-related jobs (e.g. pilots, flight crew, flight operations), service to the general public (e.g. army, police, fire fighting, custom, health care, teaching) and manufacturing jobs are competitors for applicants' choices. However, an analysis of the alternative jobs at the organisational level revealed some differences between ANSPs organisations.

Do they perceive ATC as a career?

It became clear that the applicants are at a stage where they do not have a clear idea of an ATC career evolution within ANSPs or Air Traffic Management (ATM) organisations beyond of being an ATCO in the operational environment.

Does the ATCO job image perception of recruiters correspond to those of the applicants?

The simple answer is: yes, it does. A comparative analysis of the replies between the findings of Phase 1 of the study (conducted among ATM recruitment managers) and Phase 2 (conducted among applicants) shows that the tangible elements, the perceived images of the profession and perceived working conditions are generally shared between ATM recruitment managers and their applicants.

These findings deserve more in-depth consideration, for instance with a view towards future marketing objectives. One question could be whether ANSPs are content with the way in which the controller job is marketed and with the outcome (i.e. in terms of the candidate profile, number/quality of applications, selection ratio). The detailed results of this study will help participating ANSPs in drawing their conclusions.

What are effective communication messages?

There is already at this stage a preliminary indication that in some countries the message 'it is not as stressful as you think' was effective and was associated with perceptions of the job as being less stressful. However, such a message could be counter-productive in other countries, where applicants are not particularly pre-occupied with the stress image. Further work together with marketing experts is needed in order to sharpen the understanding of what could be effective messages.

Is it possible to split the applicant population into different target groups?

Yes, a statistical analysis showed that the applicant population consist of different sub-groups, which are attracted by different aspects of the job and/or at different levels. For example, some applicants are positively attracted by the safety challenge, others are attracted more by tangible benefits and some are not very attracted by the ATCO job at all but seem rather to 'shop around' between alternative occupations or 'play the field'. The results of this statistical analysis are provided in Annex D.

The differences between groups of applicants and other findings of the study were discussed at a workshop, which was held with representatives of ANSPs that participated in this study. For a summary of this workshop and its recommendations, see Annex B.

1. INTRODUCTION

This report summarises the findings across countries of Phase 2 of the Air Traffic Controller (ATCO) Job Marketing and Communication Study. The study was contracted out to Civil Aerospace Consulting (France) by the Human Factors and Manpower Unit (DIS/HUM) of EUROCONTROL, now known as the Human Factors Management Business Division (DAS/HUM), within the EUROCONTROL European Air Traffic Management Programme (EATMP).

As a result of an increasing shortfall of suitable applicants for Air Traffic Controller (ATCO) training observed by several recruitment authorities of Air Navigation Service Providers (ANSPs) in the European core area, EUROCONTROL has launched a study to develop a strategy and concept for ATCO job marketing. A workshop in the frame of the 'EUROCONTROL Initiative on ATCO Shortage in ECAC' in 2000 also addressed the need for further work in this area by EUROCONTROL.

The first study (refer to EATMP, 2000) identified from a coherent analysis of future controllers profiles, common ATCO job and career marketing concepts, and offered guidelines and means in marketing and communication of the ATCO job in order to support more detailed actions at national ANSPs level.

EATMP (2000) also detailed the advantages and the drawbacks of the positive and negative perceived images of the ATCO job. Whilst taking into account the expectations of potential job candidates in terms of the general features of the ATCO career, this document proposed concrete promotion and communication actions together with the associated related media, the messages' content, the target population and the schedule for the actions.

However, the ATCO job characteristics - and consequently the marketing messages - were derived from what ANSPs recruitment personnel perceived as being relevant job aspects and benefits. These perceptions could be different from the applicants' perceptions and thus called for the need to identify more clearly the applicants' perceptions and their characteristics as a next step.

The objectives of the present study, held in close consultation with specialists in recruitment, training and other related areas in ANSPs were twofold:

- to endorse or to invalidate the ATCO job perceptions and characteristics pinpointed in EATMP (2000) and in particular, the ATCO job main features;
- to define the ATCO job positioning by applicants.

These objectives were achieved through the analysis of responses from a questionnaire (see Annex A), which was administered to applicants for the ATCO job in five countries (Denmark, United Kingdom, Germany, Switzerland and The Netherlands) and in EUROCONTROL Maastricht Upper Area Control Center (MAS UAC).

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2. SAMPLE DESCRIPTION

As shown in Table 1 the study's sample included applicants for the ATCO job in the following six organisations (listed in alphabetical order per country):

- Flyvesikringstjenesten (NAVIAIR), Denmark,
- EUROCONTROL,
- Deutsche Flugsicherung GmbH (DFS), Germany,
- Luchtverkeersleiding Nederland (LVNL), The Netherlands,
- skyguide, Switzerland,
- National Air Traffic Services Ltd. (NATS), UK.

Table 1: Participating ANSPs and samples in this study

Country	Organisation	Sample size
Denmark	NAVIAIR	152
-	EUROCONTROL	145
Germany	DFS	375
The Netherlands	LVNL	204
Switzerland	skyguide	145
United Kingdom	NATS	891
TOTAL		1,912

It should be emphasised that the total of 1,912 responses represents samples of applicants for the six organisations mentioned above. There were no cases reported where applicants refused to complete the questionnaire.

These questionnaires were analysed in order to ensure that they accurately represent the overall ATCO job applicant population. However, it is not known whether or not those parameters are good predictors for future applicants' populations, since communication schemes and actions undertaken recently are likely to modify the profile and the sensitivity of future applicants. Only little information is available on the actual marketing and communication actions of ANSPs linked to the samples in the table above.

Thus, caution should be exercised before generalising conclusions for other countries and/or organisations that have not participated in this study.

2.1

Age and Gender Distribution of the Sample

The applicants' weighted average² age was 22.3 years with a range between 20.7 and 23.2 years old for the six organisations. The majority of the applicants was between 18 and 25 years old. Up to 25% of the applicants were older than 25 years.

Females represented 29.3% of the sample with a range from 23% to 43% for the six ANSPs.

² Weighted average age is compiled by weighting the samples in a way that reflects the sample size. Thus, a higher weight is given to big samples.

3.

HOW DID THE APPLICANTS LEARN ABOUT THE ATCO JOB?

The analysis of the process by which applicants have first learned about the ATCO job shows important differences between the organisations.

With one exception, **advertising** is still the strongest sole tool to attract candidates. More than 36% of all applicants (and 48% of those who were seventeen years old and older) first learnt about the job through an advertisement.

Whatever the sample, 'other media' - teacher, career advisor, career fair, Web sites - together account for 40 to 60% of first contacts. **Personal contacts** - either through an ATCO, a friend or member of family, teacher or career advisor - are the most often mentioned source of information about this job. This factor will be considered later in more detail.

There is, however, a growing importance of the **Internet**: one out of every eight applicants nowadays learns about the ATCO job through a Web site. It is thus to be noted that the Internet seems to be as efficient as other, more 'classical' media (see Table 2).

Table 2: How did the applicants learn about the job?

How did they learn about the job? Through...	Range	Weighted average for the six ANSPs
Advertising	10%-43%	36.2%
A friend or personal contact	14%-37%	21.9%
An ATCO, friend or member of family	11%-22%	14.2%
A teacher or career advisor	10%-17%	13.7%
A Web site (Internet)	8%-19%	12.9%
A career fair	6%-8%	6.6%

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4. WHEN DID THE APPLICANTS LEARN ABOUT THE ATCO JOB?

The **age** at which the applicants first learned about the ATCO job varies within a large range: from as early as six-ten years to 25 years in two countries and as late as thirty years in another.

It has been demonstrated in the previous study (EATMP, 2000) that for an individual candidate, the time span between the first awareness communication and the actual application (the **latency period**) can be estimated to be at around four to five years. This time corresponds to the maturation time during which a potential candidate - aware of the ATCO job - will think about this option, evaluate its advantages and consider the consequences of applying for it.

As the ATCO applicants' average age is around 22, the overall applicants' population could be divided into two sub-populations depending on the age at which applicants had first learned about the job (awareness). The threshold for this split has been set at seventeen years to form two groups: the 'young' and the 'elder' group.

4.1 The 'Young' Group

The results in the current study showed that the 'young' group became aware of the ATCO job at a very young age, between ten and fifteen years old. However, the data of the age of application showed that these applicants were not necessarily also among the youngest applicants since the 'latency period' is long on average and quite diverse.

Personal contacts played a prominent role for this group in three organisations where they account for 50 to 60% of all applicants. It is noticeable that, in two organisations, ATCOs - members of the family or relatives - played the major role. It is assumed that this score could have been even higher if other 'family' channels like pilots, being professionally in close relationship with ATC, had been taken into account.

On the other hand, the **educational system** is the most frequently mentioned source in the three other samples, where they account for roughly 30% of applicants.

Phase 1 of the study (refer to EATMP, 2000) recommended enhancing the awareness of the ATCO job among 'young' people in order to create earlier a positive view of the job. The data above is not very relevant to validate this recommendation since the 'young' applicants in this study learnt about the ATCO job long before any special communication scheme for the young group could have been designed. The findings rather point towards the traditional ways in which half of the ANSPs attract and obtain their applicants: through 'word of mouth' and personal contact and they do so at an early age.

On the other hand, results for the other half of the six organisations at least show that alternatives to the 'family or friend' link to the ATCO job do exist and do in fact work for them. As an example: many 'young' applicants who wished to mention an intimate detail about their first contact with this job, ticked in the 'other' category. This category had a high rate of answers among the 'young' group (compared to the 'elder' group, see [4.2](#) below). This confirms the impact that a positive job image has on 'young' people.

4.2

The 'Elder' Group

The second sub-group consisted of applicants who had first information about the ATCO job at or after the age of seventeen. Those applicants were not notably older than the first sub-group while **applying** for the ATCO job. This means that the latency period is far shorter for this sub-group from 1,6 to 3,4 years compared to 5,2 to 9,3 years for the younger sub-group.

Internet sites and **advertising** (both 'impersonal' sources of job information) altogether account for 70% of first contacts with the ATCO job for the 'elder' group and thus are the major source of job information in this group.

In two countries, where new communication schemes involving advertising were applied, this has not diminished the 'natural' channels, i.e. family and friends as the source of job information. Relational networks **between young people** (friends/peers) in this group, however, become the prevailing channels of information about this job, over ATCOs in family or friends as a source of information.

It could be inferred from the results above that (except in one country) current advertising and marketing actions are effective as they could trigger applications for the job in this group with a latency period of 1,6 to 2,3 years.

4.3

Depth of Knowledge about the ATCO Job

The longer the latency period extends, the higher is the applicants' feeling that they know more about the job in terms of level of information. However, it is noticeable that, in all six samples, applicants who have heard about the ATCO job from relatives do not consider they know much more about the job than applicants who were informed about the job through other media.

However, those who knew about the job before the age of seventeen reported higher information levels than those who found out about the job after they were seventeen.

5.

VALIDATION OF THE ATCO JOB FEATURES

This section segments the main features of the ATCO job into two basic groups: the **tangible** elements and the **perceived** images.

The **tangible** elements are the material characteristics of the job: salary, working conditions, prerequisite education, pension fund, training, perspectives of career, etc.

The **perceived** images are the general or public ATCO job images (e.g. solving conflicts, instant job satisfaction, static position, etc.) or job environment attributes (international, aeronautical, etc.) which come directly to mind when evoking the job.

Perceived images will be used to raise and draw attention to the job as in the case of the pilot or engineer careers. Tangible advantages will be brought to the candidates' attention to persuade them to consider and apply for ATCO training when or before making decisions for other applications.

5.1

Tangible Elements of the ATCO Job

Applicants were asked about the following tangible job elements:

- job security,
- salary,
- remunerated training,
- public service,
- air fares,
- free time,
- non-academic job.

Applicants were asked which of these elements had played a significant role in their decision to apply for the job. Table 3 summarises the findings in order of importance.

Table 3: Average scores of decision-relevant tangible elements

What played a significant role in the decision?	Scores (1-5) range	Weighted average for the six ANSPs
Job security	3.0 - 3.9	3.5
Salary	2.4 - 3.3	3.1
Remunerated training	2.5 - 3.1	2.7
Non academic	2.2 - 2.9	2.5
Public service	1.6 - 2.7	2.3

As shown in Table 3, applicants in most samples point towards **job security** as the most important factor in their decision to apply.

Remunerated training and **salary** – played a lesser role than job security, but it can be said (except for one organisation) that these elements certainly influenced their choice.

The fact that the ATCO job is a **non-academic job** is generally considered as an asset for all the population samples, except in two organisations. However, applicants' opinions are very diverse on this item as shown by the high standard deviation value, which is, for each organisation, the highest for all tangible elements. (See also the findings in 5.4 on 'Attractiveness of Academic Acknowledgement').

Being part of the **public service** is diversely rated, but - except in two organisations - applicants feel on average certainly influenced in their decision to apply for the ATCO job by the fact that they are contributing to public service.

Other criteria are of a lesser importance. It is however clear that whatever the population sample, **free time** has on average a small influence on their choices. Does it mean that applicants do not feel attracted by free time in general, i.e. whatever the job, or do they underestimate - if not ignore - the extent of free time in this particular job?

Fringe benefits in terms of airfares give the lowest mean score in all samples.

5.2

Perceived Professional Context

Table 4 shows the elements describing the professional context of the ATCO job, which have been assessed in their importance by applicants.

Table 4: Average scores of professional perceptions

How do they perceive the ATCO profession?	Scores (1-5) range	Weighted average for the six ANSPs
Contributing to air traffic safety	3.9 - 4.2	4.1
Working practical hands-on - not in office	3.8 - 4.5	3.9
Working in aeronautical environment	3.5 - 4.3	3.8
Working in international environment	3.5 - 4.1	3.8
Working in a high-tech field	3.5 - 3.9	3.8
Working in a continuously evolving field	3.2 - 4.0	3.8

'Being in contact with flight crew' and 'enjoying a certain social standing' (i.e. the remaining other two job aspects not listed in Table 4) are considered as less important features of the ATCO job. The comparison of average scores shows that applicants give even less importance to **social standing** rather than to **direct contact with flight crew**³.

Direct contact with flight crew has to be considered and analysed together with the '**working in aeronautical environment**' feature, which is viewed as an important aspect of the job. One could infer, for instance, that flying for fun or dealing with planes is, in the applicants' opinion, more important than being in contact with flight crew.

The relatively low score of social standing is an important outcome of this study and raises the question: does it mean that applicants do not attach a high social status to the ATCO job, or does the social status in general have low importance in their opinion? This point will be discussed further in Section 6.

5.3 Perceived Working Conditions

As Table 5 indicates, average scores of perceived working conditions are relatively high to very high for all the aspects⁴. However, some differences are noticeable: the scores for 'responsibility', 'teamwork', 'decision-making' and 'active profession' are very high in all samples, while this is not the case with the other features such as 'shift work', 'working in real time', 'social interaction' and 'job autonomy', where greater differences in the average assessments between samples exist.

Table 5: Average scores of perceived working conditions

What working conditions are the most important?	Scores (1-5) range	Weighted average for the six ANSPs
Responsibility	4.4 - 4.7	4.5
Teamwork	4.2 - 4.5	4.4
Decision-making	3.9 - 4.5	4.3
Active profession	3.6 - 4.1	3.9
Working in real time	3.4 - 4.0	3.7
Social interaction	3.2 - 3.6	3.4

³ However, differences were not significant.

⁴ Differences between aspects were not significant.

5.4

Attractiveness of Academic Acknowledgement

The questionnaire also examined whether or not the attractiveness of the ATCO job in the applicant group would enhance if it benefited from an academic acknowledgement (i.e. academic degree) or if it had an academic profile.

Table 6 shows that only 35 % of applicants think that the ATCO job would be (at least) a little more attractive if an academic acknowledgement were attached to it. However, those applicants who replied that the job would be more attractive were more numerous than those who thought it would be less attractive.

Table 6: Would the ATCO job and career be even more attractive to you if it were acknowledged by an academic degree or if it had an academic profile?

Response	Percentage
No, the job would be even less attractive	12%
Being academically acknowledged does not make a difference to me	53%
Only a little more attractive	25%
Yes, the job would gain much more attractiveness	10%

Interest for an academic acknowledgement varies significantly from one country to another; the range of applicants for whom this would make the ATCO job at least a 'little more attractive' is from 16% to 48% in the six samples.

5.5

Qualities of the ATCO Job

The questionnaire suggested the following attributes to the ATCO job:

- rather **positive** attributes: **fun**, **run-of-the-mill**, **sociable**, **varied**, **dynamic**, **continuously evolving**, **intense**, **interactive** and **prestigious**;
- rather **negative** attributes: **monotonous**, **humdrum**, **serious**, **lonely** and **stressful**.

Adverse qualities – **lonely**, **humdrum**, **run-of-the-mill** and **monotonous** – are generally discarded (less than 10% of positive answers in each sample). This is not surprising since the questionnaire was administered to ATCO applicants. However, it should be noted that the score of the adjective '**stressful**' (more than 80% of answers, with the exception of only one

organisation where it was 65%) shows that applicants are quite aware of this well-known feature of the ATCO job that is stressed so very often⁵.

On the other hand, positive features like '**intense**', '**evolving**', '**dynamic**', '**interactive**' and '**varied**' (all features with roughly more than 80% of positive answers) are associated with the '**serious**' aspect of the job.

'**Sociable**', '**prestigious**' and '**fun**' score between 50 and 75% on average and are variously ranked between samples. The job is found rather '**fun**' by all applicants except in one organisation⁶.

5.6

Other Job Alternatives

The questionnaire intended to capture the ATCO job applicants' interest in possible other job alternatives.

First, applicants were asked if they had considered any other job alternative in case of a failure in becoming an ATCO. Table 7 shows that on average almost 60% of all applicants surveyed have considered another job alternative.

Table 7: Have you already considered what you would do if you cannot become an ATCO?

Response	Percentage
No, because I will not fail	8%
No, I will only think about it if it arises	32%
Yes	60%

An analysis across the six ANSPs shows that the proportion of applicants who had thought about an alternative job ranges between 50 and 76%, depending on the ANSP. The highest scores could be accounted by:

- applicants who have already a job when they apply;
- younger applicants who are perhaps not yet certain about their occupational choice, and those who intend to continue further studies as an alternative.

⁵ In addition, it should be noticed that advertising probably does not highlight this feature. The relatively low rate for 'stressful' amongst applicants of one organisation could be the result of an artefact due to translation.

⁶ On the contrary and surprisingly, close to 100% of applicants in another organisation think that the job is 'fun'. This could be due to the fact that applicants there were the youngest on average and had been intensively exposed to specific advertising.

- The absence of ATCO job information long before entering university, which makes students not very receptive to the job as a potential alternative which can be remembered long before the decision of applying for it.

Most applicants take account of a low success rate in selection and have thought about other alternatives before applying for this job.

Table 8 presents alternative jobs which have been spontaneously quoted by applicants when asked to list one or more careers which they would follow instead.

Table 8: Alternative jobs (multiple answers allowed)

Alternative jobs	Percentage
Pilot (airline, army, training)	15%
Creative sector, media, law, healthcare, social, teaching and training (except flight)	13%
Industry, building, administration, services connected to production except high-tech, commercial and services sectors	12%
Other jobs linked to the aeronautical environment (airliners: flight crew, flight operations, manufacturers, engineering, etc.)	10%
Army, police, fire-fighting and custom officers	9%
Computer industry, electronics, other high tech (explicit)	9%
Bank, insurance, tourism, transport (except air transport)	7%
Marketing, business, sales	4%
Other (mainly further studies)	5%
None	16%

These results confirm the essential link with the **aeronautical environment**, especially with the more glamorous pilot job: about a quarter (26%) of answers point out pilot or other jobs linked to the aeronautical environment. To some extent, the ATCO job is perceived as a less attractive alternative to a pilot career and, in many cases, as a better alternative to airlines flight dispatcher career.

A noticeable outcome is the proportion of answers related to **army and police** (close to 10%, i.e. equivalent to flight crew, aircraft manufacturing and other jobs linked to the aeronautical environment). This suggests that some of the applicants are sensitive to features which are common to the ATCO job and those jobs, such as:

- service to the general public,
- non-academic job,
- working practical hands on – not in office,
- active profession,
- working in real time,
- taking pride in contributing to the public safety.

Another clear result is that **computer, electronics** and other **high-tech industry** (explicitly mentioned) do not exceed the proportion of answers related to army and police. This and other considerations (such as the low need of applicants for academic acknowledgement) strongly suggest that the average applicant - at least in view of their alternatives - does not aim to reach a very high professional (or social) status.

Last but not least, more than one out of three applicants positively envisage a career in a completely different sector: **industry, building, services, sales, media, law** and **health**. It is also of interest to mention that a large majority of applicants who quoted those careers prefer the ones with low standard and qualification. For instance, sales is much more frequent than marketing or business management and in the health sector, nurse, instead of doctor is a standard answer by female applicants. These findings also point towards rather modest professional aspirations in the applicant group.

5.7

Applicants Views about their Future Career in ATM

The survey also examined which type of ATCO job - en-route control centre, approach control centre or a tower at busy or small to medium aerodrome - applicants would prefer to join in the beginning of their career.

The result is that there are no particular preferences expressed by applicants as responses are almost equally distributed amongst the possible types of job. This could be explained by the fact that applicants do not yet have a sufficient knowledge of the job to make up their mind.

Between 69 and 91% of applicants do not anticipate or express a deep interest in the evolution of their **future career in ATM** at this moment of time. Most of the applicants simply anticipate continuing to work as an ATCO and others have no anticipation or expectation about their future career or progress in the ATC system at all.

Does this relate to the widespread idea that the ATCO job is a job without any career plan, or could it be explained by the fact that the job applicants are too young or too distant from this future to have a clear idea of what represents a career evolution or perspective in the future? Or does it reflect the fact that career prospects or possibilities are not marketed and communicated to potential applicants and thus do not play a significant role in their job decisions or assessments? Whatever the reason for this orientation might be, the applicant group (that is those who bother to apply for the job) do not consider it being an important issue at this moment.

5.8

About Advertising and Marketing Material

The questionnaire was designed to collect open answers from applicants about advertising and marketing material, which are remembered the most. A synthesis of the overall answers is given in Table 9.

Table 9: Synthesis of the answers about advertising and marketing material which are remembered the most by applicants (multiple answers allowed)

Advertising and marketing material which are remembered related to ...	Percentage
Information which had a strong impact on the applicant	47%
Media or advertisement which had a strong impact on the applicant	25%
A global appraisal about materials	1%
Other answer	5%
No answer	22%

5.8.1

Information which had a strong impact on applicants

Amongst the ATCO job features given in advertising and marketing materials, high **salary** (15%), **responsibility** (14%) and the job being **stressful** (12%) are by far the most frequently quoted characteristics. Each of the other items obtains less than 3% of the total responses.

In addition, those three characteristics are often associated or closely linked. By taking into account the scores of these three features, it could be inferred that, for a significant number of applicants, '(high) salary - (high) responsibility - (high) stress' constitutes a shortened and condensed definition of the ATCO job.

The free answers permit a very accurate analysis about the stressful aspect of the ATCO job. It is possible to identify different attitudes towards stress, even if it is impossible to quantify each of them.

When explicitly mentioned, the triangle 'salary - responsibility - stress' generally does not refer to stress as a positive value as salary and responsibility, which are viewed as a consequence or a compensation for stress. This observation suggests that communication messages should be very cautious about this point and in fact should avoid creating this link.

Some applicants say that in their opinion stress in the ATCO job is a positive value. This opinion does not seem to have been suggested or modified by

communication materials. It looks like stress is an intrinsic feature of the aeronautical activities, which convey a normal and tangible part of risk.

Last but not least, some applicants mention a media quotation 'It's not as stressful as you think' and wrote that they appreciated it because it reassured them!

A few answers suggest that other adverse messages are linked to some aspects of the ATCO job professional requirements such as the harshness of training, the low success rate, etc. This apprehension may be related to the current average ATCO applicants who seek jobs with low professional standards and thus wish to avoid difficulties in becoming an ATCO.

5.8.2 Media or advertising which had a strong impact on applicants

Among the 25% of applicants who had specified **media**, or **advertising** or **marketing material**, having a strong impact on them, just a few mentioned a specific message ('The skies need us', 'It's not as stressful', etc.). They are not numerous enough to give any significant statistics.

Table 10: Media spontaneously mentioned by applicants

Media	Percentage
Web site	32%
Classical material provided by ATM organisations (leaflet, booklet, poster, etc.)	23%
News, magazine and book	10%
CD-ROM and other multimedia	10%
Advertising	8%
Movie and TV	7%
Him(her)self, family or personal contact	5%
Visit and training	5%
School, career advisor, career fair	2%

Some caution is recommended in interpreting the findings of Table 10, as the context of being an applicant may have influenced (at least to some extent) the responses towards 'socially desirable' for the recruiter's eyes.

Table 10 has been further analysed by comparing its data with the findings in each participating ANSP on the question 'How did they first learn about the ATCO job?' It is notable that even if first contact with the ATCO job via the Internet does not exceed 20%, **Web sites** and other **multimedia** supports had an important impact on applicants, as those two means of communication represent 40% of spontaneous answers. However, it can be concluded from

this study that those media in fact represent effective ways of raising **interest** and even **desire** amongst ATCO job potential candidates.

What is the role and contribution of **personal contacts**, of **advertising** and **career fairs**, which have been frequently mentioned by applicants as a mean of learning about the ATCO job in triggering awareness, and creating interest and a desire for this job that eventually drives them towards the decision to apply (see 5.9)?

5.9

The Hypothesis of 'Connected' and 'Unconnected' Applicants

In order to understand some results about tangible elements (i.e. the low score for free time) and perceptions (social standing), candidates have been split into two groups designated as 'connected' and 'unconnected' applicants.

'**Connected**' applicants are viewed as being those who exclusively specified an ATCO, friend or family member as their initial source of information about the job (awareness). '**Unconnected**' applicants are those who exclusively mentioned advertising. Other cases (especially multiple answers) were discarded to avoid any ambiguous result in comparing these two groups.

All tangible elements, perceived context and working conditions were thus submitted to a statistical analysis.

Although 'connected' applicants do not consider themselves much more acquainted with the ATCO job, they could be regarded as the reference population in terms of knowledge about the job, since the information about the ATCO job received from these sources should be fair and unbiased.

With this assumption, it seems that '**unconnected**' applicants:

- are enticed mainly by **salary** and **remunerated training**, which could be accounted for by the fact that these features must have been highlighted by advertising campaigns;
- underestimate the advantage of **free time** and ATCO job **social interaction** aspect – an aspect which may have not been emphasised through advertising actions;
- are less receptive to the **aeronautical** and **international** contexts of the controller job – these job environment aspects play a less prominent role in their considerations.

The comparison of the ATCO job features that were acknowledged as important by 'connected' and 'unconnected' applicants demonstrates the advertising capability which could mould the perception of the ATCO job by potential applicants.

Figure 1 gives a general overview of the factors ('tangible elements') that played a significant **role in the decision to apply for the ATCO job** for 'connected' and 'unconnected' applicants.

Please note that the results at the national level may be different. Multiple answers were discarded in order to avoid ambiguous results. Scores are between 1 and 5, whereas, score 1 indicates: 'this criterion did not influence my choice' and score 5 indicates: 'this criterion determined my choice'.

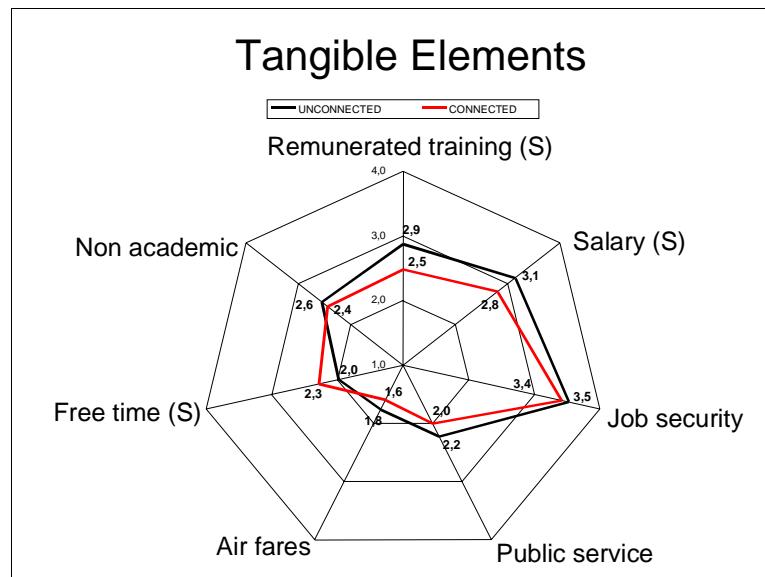


Figure 1: Factors that played a significant role in the decision to apply for the ATCO job for 'connected' and 'unconnected' applicants

'Unconnected' applicants were significantly more attracted by 'remunerated training' and 'salary' whereas 'connected' ones saw higher benefits in 'having free time'. **Figure 2** illustrates the differences in the **perceived professional context**.

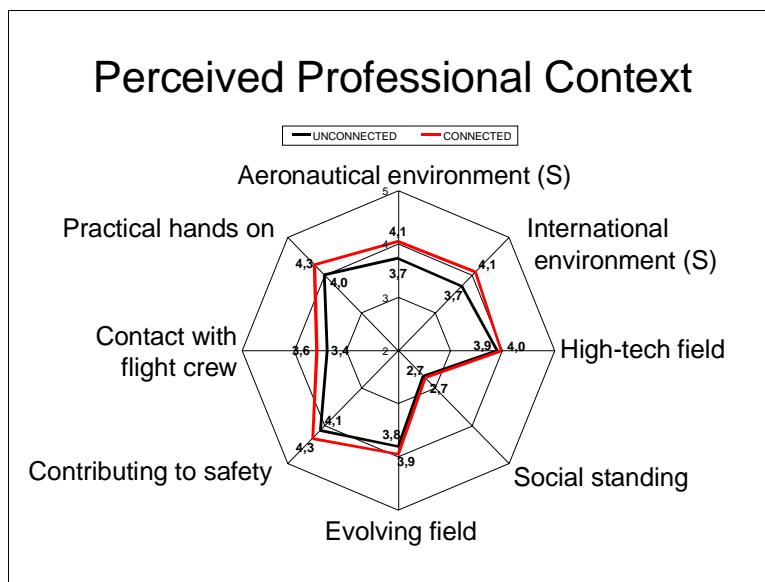


Figure 2: Differences in perceived professional context between 'connected' and 'unconnected' applicants

The average score for 'connected' applicants was significantly higher than for 'unconnected' in the following aspects: 'working in an aeronautical environment' and 'working in an international environment'.

The last comparison between 'connected' and 'unconnected' applicants was regarding the **perceived working conditions**.

'Connected' applicants perceived the possibility for 'social interaction' in the ATCO job significantly higher than the 'connected' group. Figure 3 illustrates the differences in the perceived working conditions.

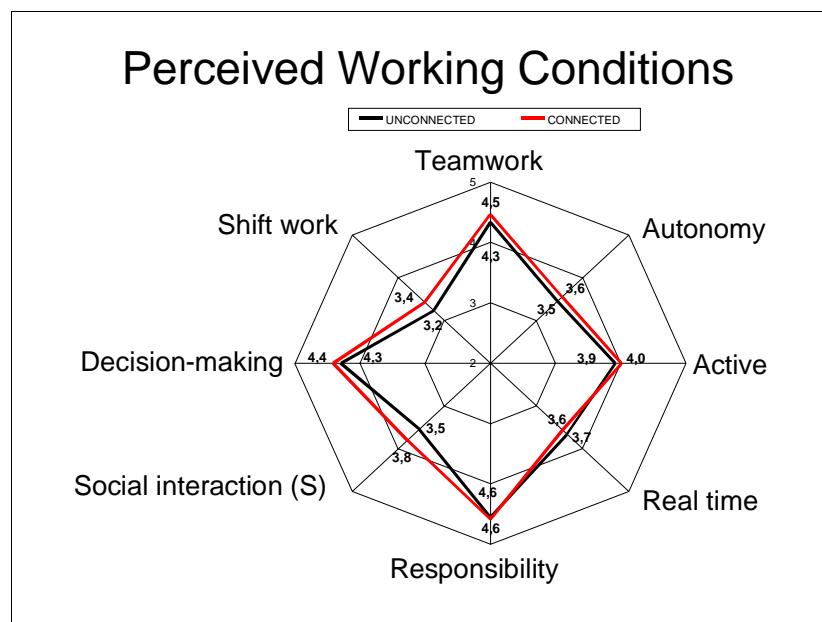


Figure 3: Differences in perceived working conditions between 'connected' and 'unconnected' applicants

Summary

These results indicate that applicants who have been personally informed about the job through an ATCO, a friend or a family member have a different picture, perception or expectation than those who obtain information from advertisements only. They see greater benefits in free time and perceive more the wider job context in aviation and emphasise the job as one that reaches out 'beyond national boundaries' and being in fact international. 'Connected' applicants also see the social - interactive or person-related aspects in the work environment as being more important.

It seems as if 'connected' applicants have a slightly more profound and complete picture of these unique job aspects. The tangible benefits of being paid during training and the later (high) salary prospects do play a less prominent role in their decision to apply for the job. 'Unconnected' applicants emphasise the latter aspects much more and in total have a lower

appreciation of the unique professional context and the special working conditions of ATCOs.

These differences do give important hints in regard to the potential for a more specific marketing of the ATCO job.

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6.

CONCLUSION ABOUT THE ATCO JOB FEATURES

The present study was designed *inter alia* to validate the ATCO job characteristics and the marketing communication material in the target population, i.e. the 16-22 years old.

It should again be emphasised that the Phase 1 study (EATMP, 2000) is based on a survey among ANSPs recruiters. The Phase 1 study pointed on one hand towards the **tangible** elements (salary, work conditions, training, perspectives of career, etc.), which constitute the **rational** job side. On the other hand, the study also identified several **perceived job images** that are based on **emotional** factors and it was stressed in the study that a successful communication should deliver **both**, rational and emotional aspects, to be effective.

The various results previously analysed allow now the 'validation' (or invalidation), of both ATCO job characteristics that were surveyed and described in the Phase 1 study (i.e. the picture as given by ANSPs). This will be done by comparing this description of the ATCO job with the views of applicants of the job.

6.1

The ATCO Job Image

The ATCO job image, provided by ANSP¹ recruiters (EATMP, 2000), corresponds in many ways to the ATCO job image perceived by ATCO applicants. As demonstrated by the applicants' response analysis, recruitment managers and ATCO applicants, globally share all the ATCO job elements listed in Table 11.

Table 11: Classification of the ATCO job images

Tangible elements	Professional context	Working conditions	Perceived Images
<ul style="list-style-type: none">▪ Job security▪ Remunerated training*▪ Salary*	<ul style="list-style-type: none">▪ Contributing to safety, which is trendy▪ Practical hands on▪ High-tech field▪ Evolving field▪ Aeronautical environment*▪ International environment*	<ul style="list-style-type: none">▪ Responsibility▪ Teamwork▪ Decision-making▪ Active profession▪ Working in real time▪ Social interaction*▪ Job autonomy▪ Shift work	<ul style="list-style-type: none">▪ Serious▪ Intense▪ Evolving▪ Dynamic▪ Interactive▪ Varied▪ Stressful▪ Not monotonous

¹See in 5.9 – Significant difference between 'connected' and 'unconnected' applicants in these elements.

The results show that on average the ATCO job is considered to be linked to an aeronautical, international and high-tech sector. It is regarded as an intense, evolving, dynamic, interactive, varied and serious job.

Applicants are also quite aware of their future responsibility and contribution to air traffic safety. They consider decision-making, working in real time and job autonomy to be important. Those aspects of the job are clearly related to the experience of responsibility in ATM. Applicants also share the view that being an ATCO could be stressful.

Teamwork is clearly associated with the ATCO job, but does not imply in the average applicants' opinion, a strong sociability. It could probably be related to the fact that social interaction is relatively low compared to jobs related to communication, education or business, which constitute alternative jobs for a fair number of applicants. However, it should be noted that applicants, who have a close connection with the job, being for instance son or daughter of an ATCO, assign a higher score to social interaction.

Job security and, to a lesser extent, remuneration aspects – such as paid training and salary - are the major tangible elements attached to the ATCO job and play a decisive role in the decision to apply.

The findings above confirm some if not most of the job elements highlighted by ANSP recruitment/marketing personnel. However, some other ATCO jobs features emphasised in Phase 1 of the study are **not** and have not met the expected consideration of applicants:

- a) **Free time:** (The possibility of easily switching to leisure time and social life after work) is generally (on average) not considered to be a very attractive feature of the ATCO job. One could assume that applicants just don't know enough about this job feature or do not rate this advantage highly because of their lack of working experience. This is confirmed as those who have been informed mainly by ATCOs (family or friends) - described as 'connected' applicants - appreciate this feature significantly more.
- b) **Social status:** Applicants do not consider this job to be related to an enviable social status, or social status is not an important aspect in their perception. This is consistent with the fact that most applicants do not anticipate that a career plan exists, which is quite different from other professional fields. Above all, the low social status perception is consistent with the present positioning of the job in comparison to other job fields and with the low attraction applicants feel for academic degrees. This is also in line with applicants' alternative jobs. Typical alternatives are rather not in high-tech branches and engineering or management functions and applicants were more attracted to army, police or jobs in various sectors related to a low or medium social status acknowledgement in the public sector. Also 'connected' applicants do not perceive the social status of ATCOs higher compared to 'unconnected' applicants. One can conclude that social status thus is not an important positive feature in the perception of the job.

- c) **Public service** is considered as of having only little advantage; a finding that is consistent with today's image of public service or administration in Europe perceived as stale and outdated by young people. On the other hand, job security is assessed as a positive tangible element to apply for the job. These findings could be seen as corresponding with the current evolution of some ANSPs towards privatisation and corporatisation.
- d) **Air fare** looks at first to be an opportunity with unknown advantages and thus is not rated very high. However, the distinction between 'connected' and 'unconnected' applicants demonstrate that air fare is not seen by connected applicants as a particular advantage of the ATCO job or, seen another way, as a benefit which could persuade potential candidates to apply for the job.

6.2

Communication Scheme - Conclusions

Several aspects of the ATCO job do score highly in the assessments of applicants:

- features related to the professional context (aeronautical, international, high tech, evolving);
- features related to the practical and dynamic aspects of the job;
- features related to the responsibility of ATCO;
- sociability (focused on teamwork);
- remuneration and job security.

These results validate the conclusions of the Phase 1 study, which stated that there were many ways in which the characteristics of the ATCO job could satisfy and correspond to the interests, the preferences and the needs of young potential applicants:

- First, young people would perceive the ATCO images related to: aeronautical, dynamic, fast moving and high-tech environment as cool.
- Second, the ATC environment could be described as active, diverse, leading edge and important.

It could be argued that the ATCO job fulfils the contradictory values of young people. On one hand, the direct responsibility held by ATCOs in their work allows the opportunity of affirming one's character and identity. On the other hand, the work organisation allows them to be part of a group within which the ATCO lives and even socialises. The ATCO position also allows individuals to experience a dynamic environment in which they can be assertive individuals assuming a high level of responsibility towards the public service of providing air traffic safety.

In the same way, the ATCO job provides youngsters with the potential to act responsibly, to make decisions and have an impact on the workplace. Being mature **and** cool at the same time, the ATCO job gives youngsters an early opportunity to be accepted in the adult world at a high level of consideration, similar to the Armed Forces, police or pilot jobs. These elements could explain why a fair percentage of ATCO job applicants perceive those jobs as an alternative for the ATCO job.

Participants in the workshop summarised and concluded on the findings of this study (see Annex B). They recommended to conduct a European awareness campaign. Thus, it could be assumed that a Pan-European ATCO communication and marketing scheme could be based on the features listed above, as they are shared widely at least within the participating organisations.

Free time, social status and **stress** are three elements, which were highlighted in the Phase 1 study but should be handled with care in communications messages as they are not seen by all applicants as positive elements or features.

Communicating the **social status** of the job heavily depends on:

- how ANSP recruiters / marketing personnel position the ATCO job and
- the target group they want to attract. In other words, do they want applicants seeking (high) social status or do current applicant profiles fit their expectations?

ATCO job applicants consider **free time** as a supplementary attraction. There are several possible explanations for this, but detailed results show that a lack of information is the most likely explanation. It is therefore valuable to mention this element, which could be presented as a secondary advantage or as a compensation for shift work.

As has been demonstrated earlier, the ATCO job is widely considered to be **stressful** and this forms part of the picture of applicants also. Therefore, the stress particularity in the job should not be overlooked and must be tackled with great care in communicating messages.

Only a few applicants, probably those acquainted with the aeronautical world, do not consider stress in the ATCO job to be a negative feature. On the other hand, when mentioned together with responsibility and salary, stress seems to be considered a negative feature and could lead into a vicious circle in linking salary to stress.

When drafting a communication message, it is not recommended to associate responsibility and stress as a consequence of salary or as a compensation for it. The triangle '(high) salary – (high) responsibility – (high) stress', spontaneously mentioned by a number of applicants, is not communicating high moral standards. It would be better to link stress with the natural

animation and dynamism of the job, for which controllers are prepared through specialised training and induction into the job.

Stress could also be separately mentioned in order to reassure applicants, especially those not acquainted with the ATC world. Although there is little information about it, the current study found that several applicants spontaneously mentioned the message: 'It's not as stressful as you think'.

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7. THE APPLICANTS

As mentioned in [Section 6](#), the perceived ATCO images are commonly shared by ANSP recruiters and by the ATCO applicants. Since the ATCO job positioning is also determined by the characteristics of its applicants, it is necessary to provide a brief account of the ATCO job applicants' profiles in order to verify that their characteristics correspond to (and are in line with) the ANSP recruitment expectations.

7.1 Age and Gender

The average applicant is 22.3 years old. The share of females ranged between 23 and 43%.

7.2 How were they Informed about the ATCO Job?

It could be said that there are two major models of being acquainted with the ATCO job:

The **first model** relies on applicants, which have been informed about the job through **advertising and multimedia** (extended to Web sites). Their 'lead-in period' before applying (latency period) is relatively short (about two years). Since ATC has to be perceived and remembered as a potential job long before taking the decision to apply, the short latency period could account for the fact that these applicants are not very receptive to the job and do consider other alternatives to it. They do not have any high anticipation or special expectations towards the ATCO career.

The **second model** is based on **personal information**. In this model applicants have either recently heard about the job through a friend, or they have been told about it much earlier through an ATCO member or friend of the family. Applicants holding information about the ATCO job already for a long time (long latency period) more often anticipate continuing to work as an ATCO in their future career, whilst applicants with a short latency period have no opinion about their future career as an ATCO.

The current study found that two large-scale organisations (ANSPs) relied more on the first model (50 to 70% of first contacts with the ATCO job had been established through advertising and Web sites), whereas two smaller organisations fitted more the second model (55 to 58% of their applicants had been informed by friends or relatives).

7.3 Expectations regarding Academic Acknowledgement

Analysis of the attractiveness of academic acknowledgement and of alternatives to the ATCO job allows a better appraisal of the academic

positioning and expectations of applicants. It appears that just a minority of applicants is actually seeking an academic acknowledgement. The disposition of ATCO applicants to look for alternative jobs, which have a low or medium social status image (such as police or army) endorses this conclusion. The latter reflects that those who are aiming for academic acknowledgement would normally not apply for this job.

The description of the typical ATCO job applicant above could be refined by identifying homogeneous job applicant groups (in terms of age, gender, etc.), who share similar expectations or perceptions of the ATCO job. Factor analysis can achieve this (see Section 8).

8. FACTOR ANALYSIS

8.1 Aim and Method

The aim of the factor analysis approach is to obtain a global appraisal of the correlations between tangible and perceived job elements in order to identify functional profiles that correspond as closely as possible with the way people think and behave in relation to ATCO recruitment. For instance, factor analysis could identify if the **aeronautical environment** uniformly attracts the 15% of the ATCO applicants who actually look forward to becoming a **pilot**, or if applicants have a positive **view** of the ATCO job, or if they feel attracted solely by the **salary**.

In order to identify these profiles, data has been processed separately into two batches:

- scores related to **perceived qualities** (i.e. descriptions of the job as being fun, run-of-the-mill, varied, etc.);
- scores related to **decision criteria** (factors influencing the choice, i.e. tangible elements, context and working conditions).

The statistical process consisted of a factor analysis and a clustering based on factorial co-ordinates. Each batch included records from the six organisations: 520 applicants have been randomly sampled – approximately 85 from each ANSP - in order to equally represent the six organisations in the sample analysed.

Analysing the scores related to the criteria resulted in a typology detailed below. Each class or group is featured throughout a number of parameters including an appraisal of the subjective image of the job (from 'very positive view of the job' to 'rather negative view of the job').

8.2 Results

8.2.1 View of the Job

The gradient referred in Figure 4 as 'view of the job' was provided by the analysis of the first batch (qualities or perceived images). It can be characterised according to a few perceived images, that is 'dynamic', 'evolving' (i.e. working in a continuously evolving field) and 'monotonous'. Not surprisingly, if one refers to the quantitative approach, most of the applicants have a very positive view of the job as shown in Figure 4 and Table 12.

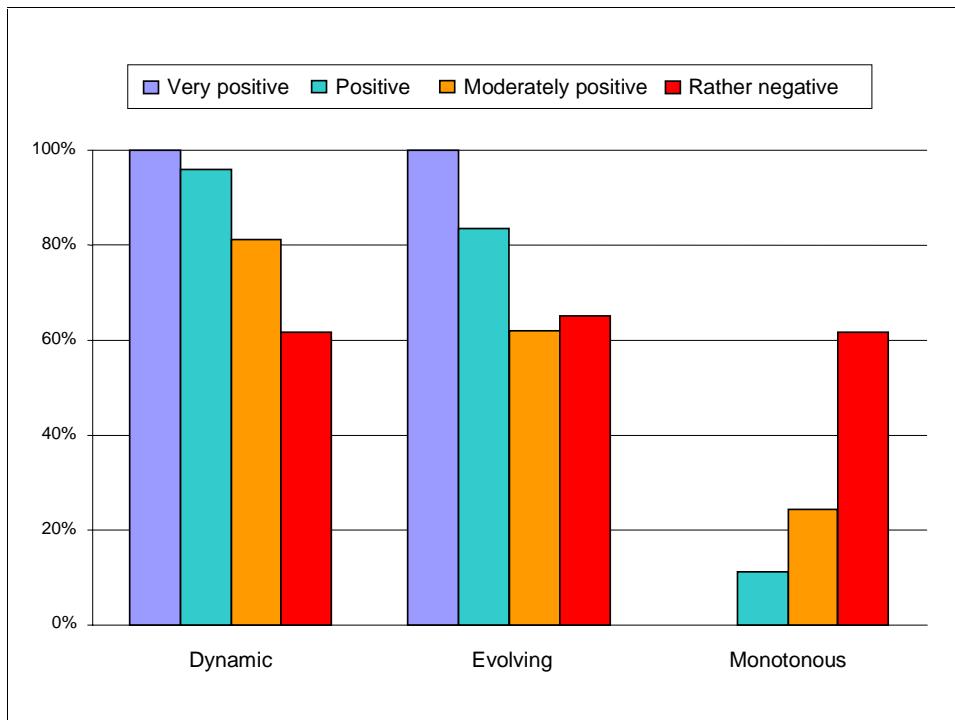


Figure 4: Applicants' view of the job (perceived images)

Table 12: Applicants' overall view of the job

View	Number of applicants	Percentage of applicants
Very positive	325	63%
Positive	127	24%
Moderately positive	37	7%
Rather negative	31	6%

8.2.2 Profiles

According to tangible elements, context and working conditions, the population could be clustered into ten types or groups, which are described as follows:

- Type 1: **The enthusiasts**: challenging for safety and looking for benefits;
- Type 2: **The major profile** of positively attracted applicants;
- Type 3: **Challenging for safety**: essentially attracted by the context and the task;

- Type 4: **Long time attracted by the aeronautical context** but no close connection with it;
- Type 5: **Attracted by the whole context** of the ATCO job;
- Type 6: **Applying for ATCO** but not very attracted by the aeronautical context;
- Type 7: **Not very attracted except for practical aspects** of the job.
- Type 8: **Not very attracted except for tangible elements**.
- Type 9: **Not very attracted**.
- Type10: **The mercenaries**: only for the money?

The types' characteristics are presented in Annex D. For each identified type, the following elements have been specified:

- Mean age, percentage of females, percentage of 'young', i.e. percentage of applicants who first learned about the job before they were seventeen;
- Alternative jobs, impact of the Internet and advertising;
- The proportion of applicants who seek academic acknowledgement;
- An appraisal of how far they anticipate an alternative to the ATCO training on one hand (are they ready and able to do anything else?), and their future career as an ATCO on the other hand. Results are given referring to the average of the applicants' population: (>) for more, (<) for less, and (=) for no difference.

In order to be able to compare these types with the overall population, the population reference values are summarised in Table 13:

Table 13: Reference values for the overall population

Mean age:	22.3 years old	Percentage of females:	29.3%	Percentage of 'young':	37%
Anticipating an alternative job to ATCO training (if he/she fails):					59%
Not anticipating a future career as an ATCO:					73%
Seeking academic acknowledgement (would be a little or more attractive):					39%
Having a very positive view of the job:					63%
First information about the job: Relative impact of ...	Family				15%
	Friend or other personal contact				25%
	Web				14%
	Advertising				31%

8.2.3 Analysis

For a better appraisal, the ten types have been aggregated into seven groups, some of them being thus more heterogeneous than the initial groups. Table 14 provides a comprehensive definition of each group according to the average score for features condensed on the three major factors.

Table 14: Clustering into profiles

Test population	Factor # 1	Factor # 2	Factor # 3	Group	
	High-tech field Evolving field Working in real time Contributing to safety	Benefits Practical hands on Non academic	Aeronautical & international	#	Profile types
520 applicants	>= 4.4 N = 138	3.7 N = 29	4.7	A	'The enthusiasts' (Form 1)
		3.4 N = 118	4.2	B	'The major profile' (Form 2)
	3.4 – 4.2 N = 368	2.5 N = 65	4.3	C	'Challenging for safety' (Form 3)
		3.1 N = 92	4.2	D	'Long Time Attracted by the Aeronautical Context' and 'attracted by the whole context' (Forms 4 + 5)
		3.2 N = 49	3.6	E	'Applying for ATCO' (Form 6)
		2.9 N = 152	3.5	F	'Not very attracted' (Forms 7 + 8 + 9)
	2.8 N = 14	3.3	2.1	G	'The mercenaries' (Form 10)

Groups A and B: Applicants positively attracted by the ATCO job

Groups A and B are composed of applicants who are positively attracted by the ATCO job. They represent almost 30% of the whole population. They are under-represented in three ANSPs.

Group B is the most numerous and the major group in terms of practical use. This group is on the average regarding the following characteristics: **age**, **gender ratio** and **percentage of 'young'**. More than 30% of this group seek job alternatives in the aeronautical field and the share seeking academic acknowledgement or anticipating future career as an ATCO suggests there is a fair proportion of valuable elements. The incidence of advertising and of the Internet in first information is around the average.

Group A can be considered an upper extension of group B. The scores and several indicators (younger, more females, more 'young') are higher than those of group B. More than 50% had a **personal contact** for information

about the job, including close to 30% from relatives. Consistently, the impact of advertising is below the average (but Web slightly over). On the other hand, alternative jobs in the aeronautical field are under-rated for the benefit of high-tech jobs.

Groups C, D, E and F: Applicants attracted by the ATCO job in different ways

Groups C to F represent close to 70% of the applicant population. Given the heterogeneous profiles, they are most sensitive to future marketing and communications schemes (without consideration for any profile not depicted here but which could be targeted by future recruitment policy).

Group C (12.5%) is very characteristic and an interesting target for recruitment. Its share is rather homogenous between ANSPs (between 10 and 20%), except one organisation with a share of over 30%, where the applicants showed a lower interest for benefits. Applicants of group C are young, with close to 50% of females, which is very high when compared to the average. They have no particular connection with the aeronautical field, through family or friends. Consistently, the impact of advertising is above the average (42%). Nevertheless, they have a very good opinion about the whole context and all the working conditions, with the highest average scores for 'contributing to safety' and the 'responsibility' of the ATCO. However, they are almost not attracted by tangible elements (including salary, remunerated training, free time) and 'social standing' is considered to be absolutely not important. The need for academic acknowledgement is low and the use of Web is under the average.

Groups D and E display a moderate attraction to tangible elements. Regarding the context and working conditions, opinions are heterogeneous, justifying the need of three detailed groups. The variability concerns the attractiveness of the aeronautical and international context on one hand, and evolving and practical aspects, contributing to safety and working conditions on the other hand. Amongst these 141 (27%) applicants, a number of valuable elements is expected: form 6 gathers a share of applicants with an academic profile; forms 4 and 5 are characterised by a significant attraction to the aeronautical field. The impact of advertising is above the average (except for form 4).

Group F gathers applicants who are not very attracted by the ATCO job. It can be said that few tangible elements certainly influenced their choice; scores for context and working conditions are just in the average of the scale (from not important to very important). Nevertheless, this group is the most numerous (close to 30%). With the exception of group 7, there seems to be a low attraction to academic acknowledgement and jobs in the aeronautical field. A high proportion of these applicants usually learned about ATCO job through a personal contact and in particular through relatives (except group 9). It looks like these candidates apply for the job without any real motivation other than to please their family environment or to investigate the job assets. Consistently, the impact of advertising is in the average or below.

Group G: A special case

Group G is a special case without much practical interest given the low number of applicants (only 14, i.e. 3%). It constitutes the opposite of groups A and B. Given the very low score for context and working conditions, the relatively high attraction to tangible elements, especially benefits, seems to be the main motive of their application. Close to 50% of this group had a personal contact for information on the job whilst their alternative jobs are all but in the aeronautical or high-tech fields (did they apply because they just were told about the job and attracted by benefits?). Due to the small sample size of group G (n=14), no conclusions can be drawn.

8.3

Conclusion on the Factor Analysis - How to Use the Findings

The factor analysis established applicants' homogeneous profiles. Those profiles have been set up by the study's researchers in order to discriminate the population applicants by the items listed in Table 15.

Table 15: Items discriminating the applicants' population

Tangible elements	Professional context	Working conditions
<ul style="list-style-type: none"> ▪ Salary ▪ Remunerated training ▪ Non academic 	<ul style="list-style-type: none"> ▪ Aeronautical ▪ International ▪ High tech ▪ Evolving ▪ Practical hands on ▪ Contributing to safety 	<ul style="list-style-type: none"> ▪ Working in real time

The factor analysis also shows that some features, like '**job security**' do not discriminate profiles because they are highly scored by almost all applicants: thus, they are likely to attract any of the current potential applicants.

Some other features like '**responsibility**' are tightly associated to the applicant's profile of Type 3, 'Challenging for safety', which is weakly attracted by tangible elements but accounts for only 12.5% of the population.

It has been confirmed in Section 6, that the ATCO recruiters and their actual applicants commonly share most of the perceived job images and their related positive tangible elements. It is thus possible to elaborate an ATCO marketing communication plan based on the presentation of these positive features.

However, ATCO recruiters or marketing people could have further objectives like changing the present ATCO applicants positioning (e.g. recruiting candidates with a high interest in academic acknowledgement compared to the (current) applicants). In that case the communication plan should be

adapted in accordance with this target (e.g. should demonstrate through advertising how the ATCO job could fit the applicants' expectation in terms of academic acknowledgements).

In the same way, the factor analysis could allow the ANSP recruiters to accommodate and refine their communication and marketing actions.

For instance, if the targets were to recruit applicants with A, B, and C profiles, the communication and marketing actions could be built in order to allow the passage of the C, D, E, F candidates into the A, B, C groups. The items on which the communications plan should be devised are thus composed by the factors which discriminate the A, B, C groups from the C, D, E, F ones.

Thus, the factor analysis is not only a useful tool to define applicants' profiles but it also provides ATCO recruiters with some useful and refined information about the ATCO job features which they can use to better target communications and marketing plans.

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ANNEX A: ATCO APPLICANT QUESTIONNAIRE

This questionnaire has been designed to gather information on and validate applicants' perceptions and expectations of the job of Air Traffic Controller. In addition, marketing and communication messages / tools that have been used by the organisation will be assessed by the applicants to rate the attractiveness or appeal of the presented images / statements.

Sample Population

It is the recommendation that the questionnaire be administered to applicants who attend the selection process. The questionnaire can be given at the end of the selection period, prior to the candidates' departure.

If this recommendation does not meet the needs of the organisation, it would be extremely beneficial if the organisation could advise us when the questionnaire was administered (e.g. Mailed out with application materials; prior to formal selection/assessment; at some point during the selection procedure, etc).

The Questionnaire was administered:_____

Method

The following methodology is a recommended format. It can be adapted to fit the needs of each organisation.

The questionnaire consists of two parts:

- a) The first part relates to the applicants' perceptions and expectations.

The applicants will be welcomed at a given place and time. A questionnaire will be distributed and collected after a reasonable period of time (approx. 15 min.),

- b) The second part consists of an advance test of the advertising campaigns.

Marketing and communication materials compiled within the framework of the organisations' advertising campaign may be used. This can include posters, leaflets, Web sites, videos, etc.

When completed, please return the instruction sheet and the questionnaire to:

Address: DIS/HUM
 EUROCONTROL Rue de la Fusée 96
 B-1130 Brussels, Belgium

Thank you for your participation in this survey.

Air Traffic Controller Applicant Questionnaire

This questionnaire is part of a marketing study for air traffic controller applicants. It will provide valuable information that can be used to address the ongoing shortage of air traffic controllers. Your time and co-operation in completing this questionnaire is appreciated. Thank you.

Age

Gender M F (please tick)

How and when did you learn about the profession of air traffic controller?

At about what age did you learn about the profession of air traffic controller?

I learned about the job at about the age of

How did you first learn about the profession?

Through a member or friend of the family who was an air traffic controller himself/herself?

Through a friend or personal contact?

Through a teacher or careers advisor?

At a careers fair?

Through advertising?

On an Internet site?

Other (please specify)

When you applied...

I had vaguely heard of it

I knew a bit about it

I knew a fair deal about it

I knew a great deal about it

What factors played a significant role in your decision?

When you chose the profession of air traffic controller, what criteria were important in your decision? Give a score from 1 to 5 for each of the following criteria:

- 1 = this criterion did not influence my choice
- 2 = this criterion influenced my choice to some extent
- 3 = this criterion certainly influenced my choice
- 4 = this criterion greatly influenced my choice
- 5 = this criterion determined my choice

Criteria	Score (1 to 5)
Remunerated training	
Salary	
Job security	

Public service	
Fringe benefits in terms of air fares	
Free time	
Non-academic training and job	

If you took into consideration other criteria, which do not feature, in the previous list, please complete the following table:

Other criteria (of your choice - please specify)	Score (1 to 5)

How do you perceive the profession of air traffic controller?

Regarding the context in which an air traffic controller works, which aspects are the most important in your opinion (1 = not important / 5 = very important)?

Criteria	Score (1 to 5)
Working in an aeronautical environment	
Working in an international environment	
Working in a high-tech field	
Enjoying a certain social standing	
Working in a continuously evolving field	
Contributing to air traffic safety	
Being in direct contact with flight crew	
Working practical hands-on - not in office	

As regards the working conditions of the air traffic controllers, which aspects are the most important in your opinion (1 = not important / 5 = very important)?

Criteria	Score (1 to 5)
Teamwork	
Job autonomy	
Active profession	
Working in real time	
Responsibility	
Social interaction	
Decision-making	
Shift-work	

Complete the following table by circling a response for each statement:

Would you say that the profession of air traffic controller is:		
Fun	Yes	No
Run-of-the-mill	Yes	No
Sociable	Yes	No
Varied	Yes	No
Dynamic	Yes	No

Continuously evolving	Yes	No
Intense	Yes	No
Interactive	Yes	No
Monotonous	Yes	No
Prestigious	Yes	No
Humdrum	Yes	No
Serious	Yes	No
Lonely	Yes	No
Stressful	Yes	No

What other professions are / were under consideration at the time of making your choice?

List one or more career paths, which you might have followed (or may still follow) besides that of air traffic controller:

Would the job and career as an air traffic controller be even more attractive to you if it were acknowledged by an (academic) degree or if it had an academic profile?

No, the job would be even less attractive to me
 Being academically acknowledged does not make a difference to me
 Only a little more attractive
 Yes, the job would gain much more attractiveness

What is your position regarding the specific characteristics of the air traffic controller job you are about to enter in terms of career development?

Have you already considered what you would do if you cannot become an air traffic controller?

No, because I will not fail
 No, I will only think about it if it arises
 Yes (What would you do?).....

As an air traffic controller at the beginning of your career, would you prefer:

An en-route control centre
 A major Approach Control Centre
 A Tower at a busy aerodrome
 A Tower at a small - to medium aerodrome
 Other (please state).....

In your future career as an air traffic controller, do you anticipate:

Continuing to work as an air traffic controller

Progressing within ATM as operational staff
What type of post?

Progressing within training of operational staff
 Progressing within ATM as managerial staff
What type of post?

Other
What type of organisation or company?

This does not concern me at the moment

From all of the advertising and marketing material that you have seen / heard about the job of air traffic controllers, what do you remember the most? (i.e., what had the strongest impact on you?) Please answer in as much detail possible.

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ANNEX B: MARKETING THE ATC JOB WORKSHOP - SUMMARY

A special workshop session was held on 20 February 2002 with representatives of the six ANSPs that participated in the ATCO Job Marketing and Communication Study - Phase 2.

The workshop first tackled current marketing and recruitment **challenges** such as:

- applicants who report that they are 'not attracted' to the ATC job,
- incomplete job knowledge, or wrong and/or negative job images,
- lack of (future) career perspectives.

A round-table session followed, during which participants updated each other on:

- current and planned approaches in job marketing (on-line and off-line) campaigns;
- current status of applications and external influences on recruitment campaigns.

The workshop identified some **key learning elements**, such as:

- bring applicants in touch with job and job holders;
- let (marketing) professionals do the job / advise you;
- have a concerted campaign;
- bridge the gap and use young ATCOs in your campaign;
- don't only look for quantity (i.e. numbers of applicants) but also for quality applicants;
- try to combine more/different media;
- renew your ads / info material regularly;
- use an integrated system: marketing–selection–training;
- show applicants the core values of the job;
- create a valid and complete picture of the job;
- define your strategy (including timing and budget) and stick to it for six–seven years.

Workshop recommendation: European awareness campaign

Participants at the workshop recommended that EUROCONTROL would conduct a European awareness campaign in order to increase general awareness of the ATC job and to improve its image. Such a campaign needs to have a balanced approach towards national interests, without identifying with the Agency's own recruitment as another service provider.

It was felt that sharing efforts (e.g. in explaining what is the job, informing what ATCOs do for the travelling public and creating a 'brand') could be of benefit to all.

ANNEX C: FINDINGS OF THE NORWEGIAN ATS COLLEGE SURVEY

The ATS College in Norway has recently conducted their own survey on marketing of the ATCO job. The results are based on a questionnaire where 194 (formally qualified) applicants responded.

1. What was important to you when you decided to apply for ATCO training?

(Answers weighted by Likerts scale (1 - 5)):

What was important to you when you decided to apply for ATCO training?	Scale 1 - 5
Easy to have a job after training	4,6
Challenging/demanding profession/job	4,3
Paid training	3,8
Independent job	3,8
ATCO salary	3,6
<i>Ab initio</i> training done at a university (awarding credits)	2,9
<i>Ab initio</i> training done in the USA	2,6

The fact that the possibility for a job came on top was considered a bit surprising.

2. Where did you obtain the information about the ATCO job?

Source of information	Number of answers
Internet	117
Newspaper	109
Friend	92
Brochure/pamphlet	39
Job fair	33
Armed Force	31
ATC unit	18
School	12
Poster	10

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ANNEX D: TEN IDENTIFIED TYPES OF APPLICANTS

The ten identified applicants' types, their characteristics and features (as outlined in Section 8) are detailed below.

Group 1: 'The enthusiasts' challenging for safety and looking for benefits

Mean age:	21.9 years old	Percentage of females:	24%	Percentage of 'young':	54%
Anticipating alternative to ATCO training (if fails):					<
Anticipating future career as an ATCO:					=
Seeking academic acknowledgement:					30%
Perceived images	A positive view				
Tangible elements	Strongly attracted by tangible elements.				
Context and conditions	Generally finding very important all the features linked to the job's context and working conditions.				

Alternative jobs

Few are in the aeronautical environment; none in the police or the army; high-tech jobs, and, further, industry, building sector and services are rather cited.

MEDIA	
Web	17%
Advertising	21%

More than 50% of the members of this group had a personal contact for information about the job (including close to 30% relatives).

Group 2: 'The major profile' of positively attracted applicants

Mean age:	22.5 years old	Percentage of females:	20%	Percentage of 'young':	36%
Anticipating alternative to ATCO training (if fails):					=
Anticipating future career as an ATCO:					>=
Seeking academic acknowledgement:					40%
Perceived images	A positive view ⁷				
Tangible elements	Strongly attracted by contributing to public service and by benefits (salary, remunerated training and free time) associated to the job.				
Context and conditions	Having a good opinion about the context, especially the practical aspects of the job.				

Alternative jobs

- Pilot
- Police, army, etc.
- Other jobs linked to the aeronautical environment
- Industry, building, administration

MEDIA	
Web	12%
Advertising	33%

⁷ There is a little exception with a few applicants having a very negative view of the job.

Group 3: 'Challenging for safety': essentially attracted by the context and the task

Mean age:	21.7 years old	Percentage of females:	47%	Percentage of 'young':	41%
				Anticipating alternative to ATCO training (if fails):	>
				Anticipating future career as an ATCO:	<
				Seeking academic acknowledgement:	20%
Perceived images	A very positive view				
Tangible elements	Very weakly attracted by tangible elements (including salary, remunerated training and free time). There is a relationship between the high proportion of females and the weak attraction of applicants to benefits.				
Context and conditions	Having a very good opinion about the whole context and all the working conditions, with the exception of 'social standing', which is considered to be absolutely not important. On the other hand, this group has the highest average scores for 'contributing to safety' and the 'responsibility' of the ATCO.				

Alternative jobs

- Pilot
- Other jobs linked to the aeronautical environment
- Police, army, etc.
- Medicine and social careers

MEDIA	
Web	8%
Advertising	42%

Group 4: 'Long time attracted by the aeronautical context' but no close connection with it

Mean age:	21.6 years old	Percentage of females:	38%	Percentage of 'young':	46%
Anticipating alternative to ATCO training (if fails):					<=
Anticipating future career as an ATCO:					<=
Seeking academic acknowledgement:					25%
Perceived images	A moderately positive view				
Tangible elements	A weak attraction to benefits (salary, remunerated training, etc.). This is consistent with a relatively high proportion of females.				
Context and conditions	Attracted by aeronautical and international context.				

Alternative jobs

- Pilot
- Police, army, etc.
- Commercial careers
- Medicine, teaching, training ...

MEDIA	
Web	20%
Advertising	23%

Group 5: 'Attracted by the whole context' of the ATCO job

Mean age:	21.4 years old	Percentage of females:	37%	Percentage of 'young':	43%
Anticipating alternative to ATCO training (if fails):					>=
Anticipating future career as an ATCO:					>=
Seeking academic acknowledgement:					25%
Perceived images	A very positive view				
Tangible elements	Not strongly attracted by tangible elements (including salary, remunerated training and free time). See groups 3 and 4 about the relationship between the proportion of females and attraction of applicants to benefits.				
Context and conditions	Having a good opinion about the whole context, in particular, a very high opinion about evolving and practical aspects of the job, about the fact that they can contribute to safety and about all the working conditions (teamwork, shift work, responsibility, etc.)				

Alternative jobs

- Pilot
- Other jobs linked to the aeronautical environment
- Police, army, etc.

MEDIA	
Web	8%
Advertising	42%

Group 6: 'Applying for ATCO' but not very attracted by the aeronautical context

Mean age:	23.9 years old	Percentage of females:	36%	Percentage of 'young':	33%
Anticipating alternative to ATCO training (if fails):					=
Anticipating future career as an ATCO:					>=
Seeking academic acknowledgement:					40%
Perceived images	A moderately positive view				
Context and conditions	A weak attraction to the aeronautical and international context.				

Alternative jobs

- Pilot
- Police, army, etc.
- Jobs in various sectors, especially in services

MEDIA	
Web	16%
Advertising	37%

Group 7: 'Not very attracted (1)' except for practical aspects of the job

Mean age:	21.2 years old	Percentage of females:	33%	Percentage of 'young':	39%
Anticipating alternative to ATCO training (if fails):					>=
Anticipating future career as an ATCO:					=
Seeking academic acknowledgement:					30%
Perceived images	A moderately positive view				
Tangible elements	Very weakly attracted by tangible elements (including salary, remunerated training and free time).				
Context and conditions	Generally finding not important features linked to the context of the job and the working conditions, with the exception of practical aspects of the job.				

Alternative jobs

- Pilot
- Other jobs linked to the aeronautical environment
- Police, army, etc.
- Computer industry, electronics, high tech

MEDIA	
Web	18%
Advertising	32%

Group with 41% members having a personal contact for information about the job, including 17% relatives.

Group 8: 'Not very attracted (2)' except for tangible elements

Mean age:	24.3 years old	Percentage of females:	33%	Percentage of 'young':	46%
Anticipating alternative to ATCO training (if fails):					>=
Anticipating future career as an ATCO:					>
Seeking academic acknowledgement:					37%
Perceived images	A moderately positive view				
Context and conditions	Generally finding not important features linked to the context of the job and the working conditions, especially aeronautical and international environment.				

Alternative jobs

Alternative jobs were in all categories⁸, with the exception of pilot, other jobs linked to the aeronautical environment, police, army and high-tech jobs.

MEDIA	
Web	12%
Advertising	24%

Group with close to 50% members having a personal contact for information about the job, including 17% relatives.

⁸ Including further studies.

Group 9: 'Not very attracted (3)'

Mean age:	21.8 years old	Percentage of females:	24%	Percentage of 'young':	26%
Anticipating alternative to ATCO training (if fails):					>
Anticipating future career as an ATCO:					<=
Seeking academic acknowledgement:					15%
Perceived images	A moderately positive view				
Tangible elements	Not attracted by public service.				
Context and conditions	Generally finding absolutely not important all the features linked to the context of the job and the working conditions.				

Alternative jobs

Alternative jobs were in all categories, but there was a high proportion of 'none' (25%).

MEDIA	
Web	14%
Advertising	13%

Group with more than 50 % members having a personal contact for information about the job (but very few relatives).

Group 10: 'The mercenaries': only for the money?

Mean age:	21.5 years old	Percentage of females:	20%	Percentage of 'young':	40%
Anticipating alternative to ATCO training (if fails):					<
Anticipating future career as an ATCO:					<
Seeking academic acknowledgement:					20%
Perceived images	A rather negative view				
Tangible elements	Really attracted by tangible elements.				
Context and conditions	Generally finding not important all the features linked to the context of the job and the working conditions.				

Alternative jobs

Alternative jobs were in all categories⁹, with the exception of pilot, other jobs linked to the aeronautical environment, police, army and high-tech jobs.

MEDIA	
Web	7%
Advertising	33%

Group with close to 50% members having a personal contact for information about the job (but only 7% relatives).

⁹ Including further studies.

REFERENCES

EATMP Human Resources Team (2000). Marketing and Communication of the ATCO Job – Phase 1 – Study. HRS/MSP-002-REP-02. Edition 1.0. Released Issue. Brussels: EUROCONTROL.

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ABBREVIATIONS AND ACRONYMS

For the purposes of this document, the following abbreviations and acronyms shall apply:

ANSP	Air Navigation Service Provider
ATC	Air Traffic Control
ATCO	Air Traffic Controller / Air Traffic Control Officer (US/UK)
ATM	Air Traffic Management
ATS	Air Traffic Services
AVINOR	<i>Norwegian air navigation service provider</i>
CAA	Civil Aviation Administration
CDG	(Selection) Core Drafting Group (EATMP, HRT, MSG)
DAS	Directorate ATM Strategies (EUROCONTROL Headquarters, SD)
DAS/HUM or just HUM	Human Factors Management Business Division (EUROCONTROL Headquarters, SD; formerly known as 'DIS/HUM' or just 'HUM')
DFS	Deutsche Flugsicherung GmbH (<i>German air navigation service provider</i>)
DIS	Directorate Infrastructure, ATC Systems and Support (EUROCONTROL Headquarters, SDE)
DIS/HUM or just HUM	Human Factors and Manpower Unit (EUROCONTROL Headquarters, SDE; now known as 'DAS/HUM' or just 'HUM')
DLR	Deutsches Zentrum für Luft- und Raumfahrt e.V. (<i>German Aerospace Center</i>)
EATM	European Air Traffic Management
EATMP	European Air Traffic Management Programme
ECAC	European Civil Aviation Conference

EUROCONTROL	European Organisation for the Safety of Air Navigation
FEAST	First European ATCO Selection Test package (<i>EATMP, HRS, MSP</i>)
HRS	Human Resources Programme (<i>EATMP</i>)
HRT	Human Resources Team (<i>EATMP</i>)
HUM	Human Resources Domain (<i>EATMP</i>)
LVNL	Luchtverkeersleiding Nederland (<i>Air Traffic Control the Netherlands</i>)
MAS UAC	Maastricht Upper Area Control Centre (<i>EUROCONTROL, The Netherlands</i>)
MFG	Manpower Focus Group (<i>EATMP, HRT; formerly known as 'MSG'</i>)
MSG	Manpower Sub-Group (<i>EATMP, HRT; now known as 'MFG'</i>)
MSP	HRS Manpower Sub-Programme (<i>EATMP, HRS</i>)
NATS	National Air Traffic Services Ltd. (UK)
NAVIAIR	<i>Flyvesikringstjenesten</i> (<i>Danish air navigation service provider</i>)
REP	Report (<i>EATMP</i>)
SD	Senior Director, EATM Service Business Unit, or, in short, Senior Director EATM (<i>EUROCONTROL Headquarters; formerly known as 'SDE'</i>)
SDE	Senior Director, Principal EATMP Directorate or, in short, Senior Director EATMP (<i>EUROCONTROL Headquarters; now known as 'SD'</i>)
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