

Improving the safety of general aviation

Project final report

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Photo: Erkki Kokko

1 Foreword

The project 'Improving the safety of general aviation', which has lasted for just over a year, has now come to an end. The present document is the final report of the project, which we hope will prompt questions, ideas and above all insights for further safety efforts in general aviation. The final report includes a summary of the external framework of the project: goals, procedures, actions and outcomes. For myself, I consider it more important that the impressions and observations gathered in the course of the year and all the challenges, obstacles and cornerstones of co-operation that we have identified are now entered in a single document that can be submitted to general debate and criticism.

The [General aviation risk survey](#) was published at the Ministry of Transport and Communications on 29 October 2014. This risk survey was an overview of the current state of safety and risks in general aviation, bringing information and change parameters together in a single document that also contained proposals for further action. The risk survey was based on a clearly defined literature review, and the project had an unambiguous goal and endpoint. The purpose of the general aviation safety project was to continue on from there, putting the proposed actions into practice and in particular fostering a change in the operating culture. One of the things to take away from this project is that concrete actions and "gruntwork", i.e. actual physical meetings between individuals and communities, are of vital importance. Cultural changes begin with actions, not words. Of course, there must be a vision, shared goals and strategies. But before any of those can be outlined, a fruitful context for co-operation must be established. Once the groundwork has been thoroughly done, the communities themselves will generate the ideas and energy required for the new ideas to take off and become established practice. Much of the work done in this project is such that it will not bear fruit until later down the line. We must continue to work towards improved safety with a long-term perspective. Statistics and everyday flight operations demonstrate that safety must be re-established every day and on every flight.

As I noted in the foreword to the risk survey, aviation is a demanding and time-consuming hobby – it requires investment. It is also rewarding and at its best has unique experiences and a true community spirit to offer. This project was conducted in close co-operation with the Finnish Aeronautical Association (*Suomen ilmailuliitto*, SIL), AOPA Finland, Finavia and the Finnish Meteorological Institute. A large number of aviation enthusiasts and leaders volunteered their contributions. This project was not executed by Trafi but in the aviation community under Trafi leadership. Active members of the SIL and AOPA Finland, volunteer analysts, the working group for a safe operating model for aviation clubs, persons donating materials to the training material databank, general aviators involved in drafting instructions, persons contributing to and attending the Lentoon! [Take off!] seminar, volunteer translators of the questions in the LAPL/PPL question databank and other aviation enthusiasts providing a variety of help and encouragement are people without whose substantial contributions none of the goals of the project would have been attained. The community has been vigorous in helping to improve its own safety both within the project and outside it, working towards the common goal of ensuring the safety and vitality of general aviation.

I would like to take this opportunity to extend my warm thanks to everyone in the project. This is an excellent foundation for future co-operation.

With best wishes for an enjoyable and safe future in flying,

Helsinki 31 December 2015
Project leader, on behalf of the Trafi project team

Heli Koivu

2 Remarks from the aviation community

On the following pages there are remarks from the representatives of the Finnish Aeronautical Association and AOPA Finland. Both organisations played a crucial role in the successful completion of this project and in attaining its outcomes. Chairmen Petteri Tarma and Erkki Pulkkinen have set a strong example, leading from the front in shaping a new operating culture and laying down a solid foundation for future co-operation within the aviation community.

The safety of general aviation is a shared goal

Because of the regrettable accident that happened at Jämi in 2014, the Ministry of Transport and Communications launched a national risk survey in which the Finnish Aeronautical Association was closely involved.

The project has now progressed to its second stage, where the aim is to prevent accidents and to develop and strengthen the pillars of safety. The work is being undertaken in close co-operation with the Finnish Aeronautical Association (SIL), AOPA Finland, Finavia and the Finnish Meteorological Institute. It is an ongoing process of great significance for the safety of general aviation.

The Finnish Aeronautical Association has revised its strategy, with safety as one of the focus areas. Safety efforts pursued by various parties in general aviation in close co-operation therefore support the strategy of the Finnish Aeronautical Association. Actually, safety work is such a key factor in general aviation that it can be considered to extend to all areas of the operations of the Finnish Aeronautical Association.

Finnish general aviation has a good safety record, on the whole. Naturally there have been annual variations in the number of accidents, but the operating culture is basically sound. This, however, does not mean that we do not need updates and a critical examination of our own activities. Indeed, critically appraising our own actions is an important way of strengthening and, when necessary, revising our operating culture –this being defined as commonly accepted practices in our shared pastime.

The Finnish Aeronautical Association, a national general aviation organisation, considers co-operation on safety with various interest groups to be highly important. We cannot afford to compete against each other in this crucial area. Collaboration towards improved safety must be held as our common interest, and we must shoulder responsibility for this together.

Petteri Tarma

chairman
Finnish Aeronautical Association



A message from AOPA Finland

You are holding the final report of the general aviation safety project, the result of close co-operation between AOPA Finland, the Finnish Aeronautical Association, Trafi, Finavia and the Finnish Meteorological Institute for more than a year and of the risk survey that preceded it.

The report presents a clear picture of the factors that influence safety in general aviation and describes the approaches and means that we are employing to put safety measures into practice.

Securing the future of general aviation and general aviation requires focusing on the basics, including but not limited to the following:

- seeking a high level of safety by upholding correct operating models,
- revising regulation so as to make it feasible, clear, lean and focusing on the essential,
- securing the financial potential required for keeping this hobby available to the public at large,
- taking the environment into account to add flexibility in relations between all parties, and
- ensuring that every general aviator and every interest group maintains a good atmosphere and leads by example.

Safety in fact consists of everything related to aviation; pursuing one or two goals will not gain the results we want. Developing a safety culture takes time, because people have differing practices and procedures that cannot be forcefully changed overnight. Change must be motivated by the environment and by circumstances, leading general aviators to sustainable practices.

There has been some cause for concern particularly in motor-powered general and general aviation in recent years. We should note, though, that the number of unfortunate incidents is quite low, and as such does not allow for trend analysis. A single incident may push annual averages up considerably. The membership of our organisation consists almost exclusively of aviators in this branch, and as a national organisation we are excellently placed to exert influence. We have also established our role as the national chapter of AOPA, which gives us special status in the European context, including great potential for lobbying and a channel for obtaining information.

We acknowledge our responsibility in developing aviation and promise to do everything we can towards this end.

Erkki Pulkkinen

chairman
AOPA Finland



ABSTRACT

Project background

The safety of general aviation is a cause for concern because of a downward trend in safety in recent years. After the disastrous crash at Jämijärvi that claimed eight lives, the Minister of Transport and Local Government, Ms Henna Virkkunen, commissioned Trafic on 24 April 2014 to conduct an extensive survey of the risks of general aviation by 30 September 2014. The risk survey was published at the Ministry of Transport and Communications on 29 October 2014. On that occasion, the then Minister of Transport and Local Government, Ms Paula Risikko, called upon Trafic to launch a project to support the general aviation community in designing safety tools for aviation clubs to adopt. Kari Wihlman, Director General of Trafic, launched the general aviation safety project and appointed a full-time project manager as of 10 November 2014. The project was scheduled to run until the end of 2015.

A shift in operating culture – improving the safety culture

The project goals were specified in the project assignment. The actions were divided up among five working groups, their title themes being: strengthening community; the training system; increasing effective safety promotion; developing national CAA safety work; and learning from best practices in reference countries. The working group division was based on key development needs identified in the survey. The preliminary goals for each working group were reviewed in small groups at the kick off seminar for the project on 15 December 2014, and the final working group goals were confirmed along with the prioritised actions to be taken in the project.

In accordance with the project assignment, Trafic assumed responsibility for the project. However, it was clear from the start that the project would involve close co-operation with the aviation community, Finavia, the Finnish Meteorological Institute and particularly the Finnish Aeronautical Association (SIL) and AOPA Finland. A large number of aviation enthusiasts and leaders volunteered their contributions. This project was not executed by Trafic but was undertaken by the aviation community for the aviation community under Trafic leadership. Without the substantial contribution of the community, none of the goals of the project would have been attained. The community has been vigorous in helping to improve its own safety both within the project and outside it, working towards the common goal of ensuring the safety and vitality of general aviation.

The goals of the general aviation safety project were:

- to create for Finnish general aviation a safety work operating model and methods (including assigned responsibilities) that
 - promote a scheme where the general aviation community in Finland takes responsibility for improving its own safety, and
 - are established jointly with the general aviation community;
- to create for Trafic a model through which Trafic may support safety work in general aviation, this model taking into account:
 - Finland's commitment to the development of the safety of general aviation in the context of the EASA, and
 - prioritisation of national CAA safety work;
- to ensure that the proposed actions presented in the final report of the general aviation risk survey are appropriately discussed and put into practice as applicable, to which end the following four key areas identified in the project are to be addressed:
 - strengthening community spirit in the aviation community,

- developing training into a coherent whole,
- increasing and harmonising co-operation within the aviation community and sharing best practices, and
- increasing efficient safety promotion.

Further objectives were also adopted: bold experimentation with new practices; jointly planned, practical and effective actions; and creating effective long-term models for safety work in general aviation.

Key outcomes of the project

A comparison of the outcomes of the general aviation safety project to its overall goals shows that the goals were attained. It is important to build on this and to change the operating culture. Implementing such a change with broad and permanent impact will take several years. Measuring a culture is a challenging task, but indicators have now been established that can be used for gauging the impact and continuity of the change being sought.

In the context of general aviation in Finland, 'operating culture' refers to not only the various operating models in use but also a culture of co-operation; how advanced and mature that culture may be is up to the contribution and commitment of each individual. Therefore the conclusion of this project is not an ending; rather than a full stop, it is a comma in a long string of collaborative efforts.

Outcomes in relation to the principal goals

Operating model for safety work in Finnish general aviation

Working group 1 (see section 6.2) established an operating model for safety work in Finnish general aviation (Appendix 1), which was adopted on 17 December 2014 and published on 28 December 2015. The model describes the shared goals of safety work in general aviation and the actions and co-operation forums to which Trafi, AOPA Finland, the SIL, Finavia and the Finnish Meteorological Institute have committed for the coming years. The actions were selected so as to impact jointly identified problems. The operating model describes a culture of co-operation. It was adopted after a year of development, being shaped through concrete descriptions of the present state and the target state.

Concrete collaboration in the actions of all working groups was an important factor in creating the model. This gave all parties concerned the opportunity to demonstrate genuine commitment to improving aviation safety. Mutual trust between the parties was established through concrete actions, and this will make it easy for the parties to continue collaborating in the future.

Trafi operating model

At the European level, the trend is towards lighter regulation and the transfer of authority tasks and responsibility to general aviation organisations. It is widely understood that added or tighter regulation is rarely the most efficient way to improve safety. The emphasis is on operators themselves taking responsibility. The role of the authorities will then also evolve from oversight and control to sparring partner and facilitator. An aviator is also a customer, and one of the important functions of the authorities is good customer service.

The Trafi operating model portion of the project involved surveying problems and development requests in the current situation through feedback from interest groups, in-house interviews at Trafi and a workshop. A proposal for a general aviation co-ordination model for Trafi was presented to the Trafi management group. The management group appointed a general aviation co-ordinator, who will be the Trafi liaison for the operating model

for safety work in Finnish general aviation. The co-ordinator draws up an annual action plan that includes prioritisation. The trafi.fi website is also being revised to better serve general aviators, based on the feedback received in the course of the project. The new website will go online in January.

Putting the proposed actions in the general aviation risk survey into practice as applicable

The concrete actions of the five working groups formed the core of the project. A suitable working group for implementing each of these was appointed, with representatives of the project co-operation group and volunteers from the aviation community. The outcomes of the actions are described in detail in chapter 6. The key actions by working group, in addition to those already mentioned, included:

1. A safe operations model for aviation clubs.
2. A training material databank for sharing and developing knowledge and best practices in the aviation community, including an extensive meteorological training package, an LAPL/PPL question databank currently in preparation by volunteers from training organisations and to be made publicly available online, and a guide for parachuting flight operations to be completed in February.
3. Analysis co-operation between Trafi, the SIL and AOPA Finland and the resulting safety bulletins, an online aviation map application for use by general aviators, the Lentoon! [Take off!] safety seminar jointly organised by Trafi, the SIL, AOPA Finland, Finavia and the Finnish Meteorological Institute in Vantaa, Rovaniemi, Kuopio and Oulu on 14–15 November 2015.
4. Expediting the revision of national aviation regulations, producing an OPS aviation regulation for the aircraft specified in Annex II of the EASA Regulation 216/2008 with regard to the outcomes of the risk survey.
5. Charting best practices in reference countries and collecting knowledge to support the work of other groups.

Bold experimentation with new practices, practical orientation and long-term impacts

The outcomes produced by the working groups (chapter 6) contain detailed descriptions of how the goals in the heading were attained in practice. Some of the actions were one-off, while others are continuous or permanent. Some actions have not yet been completed, and their completion timetable is given in the working group outcomes.

The project itself represented a bold departure into a new co-operative model for all parties concerned. Experimentation included: an electronic communication board; the broad-based Lentoon! [Take off!] seminar that featured a live online video link to three satellite events; analysis collaboration; participation in online chatrooms; executing concrete actions partly in working groups (which involved both official work and volunteer work); new distribution channels; an idea for a community training material databank; and the safe operations model that was sent to all aviation clubs in Finland as a Christmas present. There are plans to host an ‘aviation phone-in’ in spring 2016, where anyone can post questions from their home computer to an expert group on a predetermined theme.

The practical aspect was looked after by a large number of volunteers: the dialogue and sparring between officials and aviation professionals on the one hand and general aviators on the other resulted in fresh insights at least for the officials but also broadened the general aviators’ horizons.

The project outcomes were also compiled in a *follow up plan* that lists each action, its stage of completion and outcome and an assessment of whether the action will continue after the project. The follow-up plan is intended as a tool for internal co-ordination at Trafli.

Challenges and successes

Tackling issues, some of them very difficult, in tandem with the aviation community was both the greatest challenge and the most rewarding thing in the entire project. Addressing issues such as cost pressures, the extent and fragmented nature of the field of operators, the nature of amateur activities and the complexity of factors affecting safety demand a shared will to attain common goals, and also a great deal of deliberation and work. As is the case with voluntary amateur activities in any walk of life, things cannot be forced to happen; the individuals involved must be genuinely motivated, and there must be mutual trust among the parties. One must also be prepared to hear criticism that can be quite tough, because under criticism there is often a solvable problem.

The Oulu workshop described in section 6.2, held on 11 April 2015, was a successful example of the new forms of co-operation introduced in the project. The workshop was led by Anna-Maria Teperi PhD, a senior researcher at the Finnish Institute of Occupational Health. She was involved in the project as an expert member to explore the current state of the general aviation community. Teperi notes that the success of the workshop showed that the various operators can have an extremely practical and polite conversation about a shared goal: improving general aviation operations and co-operation. Teperi also considered that the major changes under way in professional organisations (Trafli, Finavia) have a direct impact on how general aviators see their operating environment. The system must be structurally sound for official functions to be assigned to the general aviators themselves. The new role of the authorities as a facilitator of co-operation requires a new competence, encountering the customer and exposing oneself to criticism in the interests of talking about solutions and implementing reforms.

The number of participants at the Lento! [Take off!] seminar, the mood in the room and the positive feedback received were the greatest thanks for the year's efforts. On the other hand, there is a strong feeling that the work is not nearly completed yet; reaching the entire aviation community in a meaningful way cannot be achieved in one year, leaving a challenge for the coming years.

Recipes for safe general aviation – a summary of things learned in the project

- The shared goal of the community is a strong and safe general aviation sector;
- Commitment to goals and co-operation – an operating model for the aviation community;
- Effective channels and forums
 - for volunteer activities,
 - for activating the community,
 - for co-operation between operators;
- Clubs are in an essential role in safety work
 - Safe operations model for aviation clubs in active use;
- Multi-channel safety promotion in active use;
- Sharing information, competence, materials and practices;

	<ul style="list-style-type: none">• Solution-oriented approach: joint developing new ways of doing things;• Continuity and the long game – in a cultural change, ‘quickly’ means that it will take 5 years!	

3 Project background

The safety of general aviation has become a cause for concern and debate since the declining trend in safety, manifesting itself in more fatalities and serious incidents than in earlier years. The present situation has been analysed by the Safety Investigation Authority, Trafı and aviation interest groups. Actions to improve safety had already been taken when, as an immediate consequence of the disastrous crash at Jämijärvi that claimed eight lives, the Minister of Transport and Local Government, Ms Henna Virkkunen, commissioned Trafı on 24 April 2014 to conduct an extensive survey (LVM/869/00/2014) of the risks of general aviation by 30 September 2014.

For the purposes of the survey and the safety project, general aviation was considered to include all forms of flying engaged in privately and for leisure, including parachuting and foot-launched gliders. This broad definition was established because **many risks, causes of accidents and means for improving safety apply equally to general and general aviation**. Aerial work classified as general aviation, commercial pilot training, hot-air balloons and helicopters were excluded from the risk survey and the safety project, as these are principally commercial operations in Finland.

The risk survey was published at the Ministry of Transport and Communications on 29 October 2014 (see the [bulletin published by the Ministry of Transport and Communications and Trafı on 29 October 2014](#)). On that occasion, the then Minister of Transport and Local Government, Ms Paula Risikko, called upon Trafı to launch a project to support the general aviation community in designing safety tools for aviation clubs to adopt. The Minister also called for a full-time project manager to be appointed.

[The bulletin issued by the Ministry of Transport and Communications on 29 October 2014](#) notes: “Minister of Transport and Local Government Paula Risikko describes the improvement of safety in general aviation as a collaborative effort in which the Finnish Transport Safety Agency Trafı is taking an active role...”

“The survey shows that the likelihood of safety risks in general aviation being realised depends a lot on the amateur’s own actions. These are risks that can be addressed with the right attitude and safety culture. Training programmes must also be re-evaluated to ensure that amateurs have sufficient theoretical knowledge to prepare them for incidents,” says Risikko.

“The aviation community participated very actively in the questionnaire study and workshops organised in the preparation of the survey. For this, much thanks. This demonstrates that there is a shared concern for safety and a shared need to improve it.”

Risikko notes that the European trend is towards deregulation and shifting the responsibility for safety in general aviation to the general aviation community itself. This will be reflected in the regulatory and control activities of Trafı.”

Kari Wihlman, Director General of Trafı, launched the general aviation safety project ([Trafı bulletin 7 November 2014](#)) and appointed a full-time project manager as of 10 November 2014. The project was scheduled to run until the end of 2015.

3.1 General aviation risk survey

The purpose of the [general aviation risk survey](#) was to broadly explore the risks in Finnish general and general aviation and to find out whether the needed safety-improving actions have been implemented, whether additional actions are needed and what those actions might be. Preparation for the survey involved a broad-based consultation with aviation

operators, general aviators and authorities. The survey was also required to include comparable information from key reference countries. The risk survey indicated that it **was necessary to conduct an open debate on the acceptable level of risk, to determine the roles and responsibilities of the authorities and general aviation actors and to decide on short-term and medium-term actions** for improving safety in general aviation.

The survey was conducted by analysing existing data, through an extensive interest group questionnaire and on the basis of findings from the risk workshops. The working group was led by Trafi and included representatives from the Finnish Aeronautical Association and AOPA Finland. In addition to Trafi experts, general aviators contacted through their organisations participated in the risk workshops as invited experts.

One of the purposes of the survey was that the risk survey material would give the general aviation community plenty of background information for their own safety efforts.

3.1.1 The state of general aviation safety

In the survey, the level of safety was found to be considerably poorer than in commercial aviation for both general and general aviation. Comparing the accidents that occurred in Finland between 2004 and 2013 to the number of hours flown, we find a disproportionate number of accidents, fatal accidents and fatalities in ultralight aviation. No statistically significant trends could be noted because the annual fluctuations are so great and the absolute number of occurrences is so small. Even a single accident with multiple fatalities causes a huge spike in the statistics, as the Jämi accident in 2014 showed for general aviation statistics. The risk level in general and general aviation per hours flow was also relatively high compared to other types of leisure-time movement activities. Finland performed clearly worse than the reference countries, particularly in ultralight aviation.

In the current year, 2015, there have fortunately been no accidents with fatalities in general and general aviation according to Trafi statistics. There has been one fatal parachuting accident. However, the number of events classified as accidents or serious incidents remains high, particularly in general aviation. Sometimes the seriousness of the outcome depends on a very narrow margin, and in some cases a worse outcome is avoided by sheer luck.

The work done within the project and more widely in the community combined with the widespread publicity of safety themes in aviation circles has resulted in more information and improvements to operating practices. On the other hand, much of the work done in this project is such that it will not bear fruit until later down the line. We must continue to work towards improved safety with a long-term perspective. Statistics and everyday flight operations demonstrate that safety must be re-established every day and on every flight.

3.1.2 Key safety risks identified in the survey and how to minimise them

Cost pressures and flying hours: It was observed in the survey that when any individual aviator flies fewer hours per year, there is less opportunity for maintaining routines and improving skills. This is one of the identified risk-increasing factors.

Over the past ten years, the number of hours flown in general and general aviation has decreased by an average of just over 3% per year. This trend has been the most notable in general aviation, where the decrease over ten years has been 40%. In ultralight aviation, the number of hours flown has increased slightly year on year, from 11,000 hours in 2004 to just over 13,000 hours in 2013.

Trafi does not compile statistics on flying hours per person, but in the background questionnaire circulated among general aviators as background for the risk survey in

summer 2014, among the respondents who reported their flying hours (828 respondents) the average of flying hours in the past 12 months was about 32 hours and the median 20 hours. The feeling is that general aviators are divided into those who fly a lot and those who fly very little. Comparing trends in flying hours and the number of licences indicates that a pilot's imputed average number of flying hours per year has decreased by slightly less than 20% for private general aviators, remained stable for sailplane pilots and decreased by slightly less than 20% for ultralight pilots.

Awareness of the key risks in general aviation: International studies highlight the same major risks that were identified in the risk survey. Apart from a handful of special features, the situation in Finland is much like other countries. Most actions available to mitigate risks are the same and have been identified as such. Adding more regulation or making it stricter is rarely the answer. Rather, the trend was towards dismantling unnecessary and excessive regulation, and enhancing regulations by focusing on identified major risks. Apart from a number of items concerning regulation, the proposed actions address topics other than regulation. Many of the proposed actions involved improving the quality and content of functions in general organisations.

The role of the authorities: The role of the Safety Investigation Authority is clear. Trafi and all other parties whom the recommendations given in safety investigations concern must invest in actively putting these findings into practical use.

The role of Trafi as an aviation authority comprises regulatory duties, the issuing of permits and approvals, and control. The state of public finances, general aviation developments at the European level and prioritisation in the operations of the authorities call for a specification and clarification of roles in general aviation. Trafi does not engage in safety management at the operator level; its operations are pursued at the level of the Finnish Aviation Safety Programme. Trafi supports safety efforts undertaken by the aviation community itself.

Role of the general aviation community: It was noted in the survey that the aviation community must adopt a more prominent role and responsibility for the safety of general aviation. For this purpose, the community needs a clear mandate and sufficient operating potential (financial, human and expertise resources). The responses to the interest group survey in summer 2014 revealed a genuine interest and desire to contribute to improving the safety of general aviation. Effective channels and procedures had to be found to leverage that expertise and motivation.

Role of an individual general aviator: It was noted that actively improving and maintaining one's own competence and recognising one's own limitations was the responsibility of every individual aviator. It was also noted that every aviator is an ambassador for the right attitude. Therefore it is everyone's personal responsibility to promote good *airmanship*.

Key safety risks: In general aviation as in any other hobby, the realising of risks in 'dangerous sports' depends to a great extent on the actions of the individual. All dangerous sports entail risks, which can be mitigated to a great extent by practitioners adopting responsible and safety-conscious procedures. **Conscious or unconscious risk-taking and unawareness of one's own limitations** are unfortunate but common contributing factors to accidents.

A **lack of decision-making ability** was also identified as a key risk in general and general aviation: a pilot not making the decision not to fly or to turn back in a situation where the risk level has become unacceptably elevated because of poor weather or some other cause. In addition to poor decision-making, deficiencies in flight planning often contribute to the situation.

The key risk factors identified in the studies on which European development of general aviation is based can be seen in Finland too. More than 80% of fatal accidents in general aviation in the USA and the UK are caused by loss of control in flight (LOC-I), whether VFR or IFR; controlled flight into terrain (CFIT); low-altitude aerobatics, or more specifically conscious or ill-considered risk-taking in flying a manoeuvre without sufficient ground clearance; or an emergency landing due to pilot error such as fuel exhaustion.

The key risk in flying an ultralight aircraft is loss of control in flight (LOC-I) during take-off, approach, or landing. Contributing factors identified include problems in recognising an imminent stall. Aircraft loading and centre of gravity are also high-risk factors in ultralight aviation.

A collision of two sailplanes is seen as a key risk in gliding, along with the planning and execution of approach and particularly landing in terrain. The clearest threat identified for foot-launched gliders was taking off into or flying in excessively challenging weather conditions.

In parachuting, the major risks were risk-taking beyond one's own limitations for experienced skydivers, and the unexpected stress of the real thing for students in a jumping situation, which may cause even the best training to be forgotten. The survey shows that the key risks in aviation related to parachuting have to do with aircraft loading and the shifting of the centre of gravity at takeoff and particularly during exit.

The clearest risk factor category in unsupervised aerodrome operations was the runway and shortcomings in its condition, or in information provided about its condition.

3.2 Proposed actions in the risk survey

Actions proposed by the working group: The working group proposed a large number of actions (41) to improve the safety of general aviation. They were listed in chapter 14 of the report. Some were generic and broad, others were genre-specific and limited. Some were simply lists of things for which further information or further study is required. Only a small portion of the proposed actions involved stricter or added regulation. The most important of the latter concerned the establishment of a national operating licence and the setting of clear minimum requirements for large (as defined) general aircraft.

Key action groups and themes were the following:

- **Strengthening communality:** Communality was considered an essential means for distributing tacit knowledge and safety-favouring attitudes and for ensuring the upkeep of the competence of individual general aviators. Communality also prevents risk-taking, both conscious and unconscious. Individualist pursuit of these hobbies instead of traditional club activities requires new ways of promoting communality.
- **The training system:** Training is the most important background factor in building skills and attitudes. Actions proposed regarding training had to do with the development and harmonisation of qualitative elements in theory instruction, flight training and teaching materials, the quality of learning results and teaching, lifelong learning and the maintaining of competence, utilising information and materials gained from comparable countries, and addressing identified risk factors in training.
- **Increasing and harmonising co-operation:** There were numerous examples found in the general aviation community of excellent safety work being done and best practices being observed by clubs, associations and individual aviators. These

examples must be made more widely known and employed. This requires increased cooperation and the development of models for information dissemination.

- **Increasing efficient safety promotion:** When the structures of the aviation community are reinforced, closer cooperation is pursued and operating practices are harmonised, high-quality safety promotion will have a greater impact. Increasing awareness of identified risks and of factors that exacerbate or mitigate them is an efficient way of mitigating risks, along with encouraging safety-conscious attitudes. Both the authorities and the aviation community must find new ways for enhancing communications.

4 Project goals

4.1 Overall project goals

The project goals were determined from the assignment given by Minister of Transport and Local Government Paula Risikko. In the project plan outlined in November–December 2014, the actions to be undertaken were distributed to five working groups. The preliminary goals for each working group were reviewed in small groups at the project kick-off seminar, to which representatives had been invited from Finavia, the Finnish Meteorological Institute, the Finnish Aeronautical Association and AOPA Finland. The Safety Investigation Authority was represented at the kick-off seminar and at the Lentoon! [Take off!] seminar in autumn 2015 but did not participate in the project work proper so as not to jeopardise the impartiality of its safety investigations.

The goals for each working group were confirmed on the basis of the small group discussions, and the actions to be undertaken in the project were prioritised. Some additional actions were assigned to the working groups in the course of the project.

The goals of the general aviation safety project were:

- to create for Finnish general aviation a safety work operating model and methods (including assigned responsibilities) that
 - promote a scheme where the general aviation community in Finland takes responsibility for improving its own safety, and
 - are established jointly with the general aviation community;
- to create for Trafi a model through which Trafi may support safety work in general aviation, this model taking into account:
 - Finland's commitment to the development of the safety of general aviation in the context of the EASA, and
 - prioritisation of national CAA safety work;
- to ensure that the proposed actions presented in the final report of the general aviation risk survey are appropriately discussed and put into practice as applicable, to which end the following four key areas identified in the project are to be addressed:
 - strengthening community spirit in the aviation community
 - developing training into a coherent whole

- increasing and harmonising co-operation within the aviation community and sharing best practices, and
- increasing efficient safety promotion.

It was also noted at the project launch that the end result must be a credible response to the assignment given to Trafi. From the very inception of the project plan, bold experimentation with new practices was set as an additional goal for implementation, for instance concerning the means of safety promotion and co-operation models. The basic principle agreed upon was to aim for jointly planned, practically oriented and effective actions. All work in the project was to be geared towards creating functional and sustainable models applicable to long-term safety work.

4.2 Working group 1: Communalit

The following were set as specific goals for the communalit working group:

- finding new ways for **increasing communalit** in the aviation community and for reaching out to individual general aviators in safety work and club activities;
- finding new ways for **increasing co-operation** in the aviation community (organisations, clubs, genres, authorities, other key actors);
- widespread adoption of best practices;
- identifying any obstacles to co-operation and finding ways of changing established practices so as to eliminate those obstacles.

The specified actions for attaining these goals were:

- creating a safety work operating model for the Finnish general aviation community and related methods, including assigned responsibilities;
- creating a model for Trafi for supporting safety work in general aviation;
- a situation survey of the costs of general aviation and finding ways of decreasing costs.

4.3 Working group 2: Training

The following were set as specific goals for the training working group:

- prioritising the actions proposed in the risk survey, and implementing the prioritised actions;
- raising awareness of identified risks in general aviation training and reducing/eliminating those risks;
- enabling the distribution of best practices;
- supporting instructors;
- practically oriented training.

The specified actions for attaining these goals were:

- providing support material for training:
 - meteorology and anticipation of weather conditions for aviators,
 - manual for ultralight flight instructors / check pilots (UPL),
 - shared use of training materials,
 - manual for seaplane flight operations,
 - manual for parachuting flight operations;
- review of new training methods and the policies of the authorities regarding them;
- improving guidance for UPL instructors and check pilots;
- revising ultralight pilot training programmes based on observations in the risk survey;
- establishing channels for distributing best information in the field.

4.4 Working group 3: Safety promotion

The following were set as specific goals for the safety promotion working group:

- prioritising the actions proposed in the risk survey, and implementing the prioritised actions;
- finding new ways of strengthening communality through communications; and
- finding new ways of involving the aviation community in leveraging safety information.

Development of the working group goals and the actions required began with an assessment of general aviators' motivation to participate in and take an interest in the aviation community. It was found that there is great variety in motivation. There are general aviators who are involved because they are genuinely interested and others who are not involved because they are not interested in what the community is doing. The first group does not really need incentives to participate in communal activities, and for the second group it is difficult to come up with incentives that would attract their interest. The conclusion from this was that communications and inclusive actions should be pursued at various levels, from targeting individuals to the club level, entire genres and the aviation

The specified actions for attaining these goals were:

- creating new communications channels and improving existing ones;
- leveraging geographical information and involving the community in producing and using safety information;
- transferring responsibility for analysing anomalies in general aviation to the general aviation community itself, initially as a test project for preparing safety bulletins and other publicity and training materials in each genre;
- safety events and seminars organised by Trafi and the aviation community.

community as a whole.

4.5 Working group 4: Authority tasks

The specific goals set for the working group addressing national regulation and authority tasks were:

- prioritising the actions proposed in the risk survey, and implementing the prioritised actions (e.g. the proposed national 'operating licence' for large general aircraft as defined in the risk survey);
- clarifying and simplifying national regulation towards a lighter, risk-based regulation structure;
- supporting the authority tasks of Trafi by drafting a position on the key problems with the current regulation situation in general and general aviation.

The specified actions for attaining these goals were:

- a survey of development needs in national regulation for general aviation;
- drafting an OPS aviation regulation for the aircraft listed in Annex II of the EASA Regulation 216/2008, taking into account the outcomes of the risk survey;
- a training package for aerodrome operators;
- internal work instructions and more detailed instructions for service partners concerning modifications to ultralight aircraft, approval of manuals for new types, standard checklists for ultralight flight operations.

4.6 Working group 5: International comparability

The following were set as specific goals for the international comparability working group:

- monitoring progress made with the EASA GA Road Map (plan for development of the regulation of general aviation);
- investigating practices in reference countries in the areas addressed by the other working groups;
- obtaining information from EASA and directly from the reference countries: roles and responsibilities of the authorities and the aviation community (transfer of authority tasks, safety promotion, training, statistics, deviation reporting);
- informing the other working groups of the findings.

The specified actions for attaining these goals were:

- exploring the theory training and instruction materials in use in selected reference countries; harmonising of flight instructor operating methods; safety promotion; and co-operation among clubs and between clubs and the authorities;
- transfer of official duties to the general aviation community: exploring how well and how effectively these arrangements work in reference countries;
 - how has the delegating of general aviation functions to clubs been carried out in the reference countries (responsibilities, cost structure)?
 - with which actions have the reference countries attained a better level of general aviation safety than Finland (particularly in ultralight aviation)?
- exploring how information needed for flight planning is distributed in the reference countries;
- sharing the information obtained with the other working groups and agreeing on the division of duties for further analysis;
- editing and translating versions of training and instruction materials suitable for Finnish flying instruction and distributing these to the Finnish aviation community;
- sharing discovered flight planning practices with Finavia;
- publishing links on the project website to the training and

5 Project implementation

5.1 Organising the implementation

The preliminary project plan was further specified by the working group leaders and interest group representatives at the working group launch on 15 December 2015. The project was divided into five sub-areas. A working group was appointed for each sub-area and assigned goals (see chapter 5).

In accordance with the project assignment, Trafi assumed responsibility for the project. However, it was clear from the start that the project would involve close co-operation with the aviation community, Finavia, the Finnish Meteorological Institute and particularly the Finnish Aeronautical Association (SIL) and AOPA Finland.

The Trafi employees involved in the project were Chief Adviser Heli Koivu, project manager and working group 1 leader; Special Adviser Jani Hottola, working group 2 leader; Special Adviser Tapani Maukonen, working group 3 leader; Special Adviser Veli-Matti Petramo, working group 4 leader; and Chief Adviser Helena Pietilä, working group 5 leader. The project actions were managed by the working group leaders and by Special Advisers Jukka Hovi and Ari Vahtera. Kaisa Nissi was the project secretary. Also, many Trafi employees participated in the action-specific working groups, summer events and seminar. At Trafi, progress on the project was monitored and facilitated by the steering group, which included Pekka Henttu, Director General for the Aviation Sector; Hanna Hakanen, Director General for the Transport Operators Sector; Susanna Metsälampi, Director; and Heidi Niemimuukko, Director.

A project team was formed with contact persons from key actors in the aviation sector to co-ordinate the actions undertaken by the working groups, particularly working group 1. Through these contact persons, a large number of volunteers were sourced to assist in the work of the working groups. The contact persons at the Finnish Aeronautical Association were chairman Petteri Tarma and executive director Timo Latikka. The contact persons at AOPA Finland were chairman Erkki Pulkkinen and secretary Esa Harju. Finavia appointed as its contact persons Tom Häтинен, Manager ANS Safety and Quality, and Paavo Puranen, Safety Analyst. The contact persons at the Finnish Meteorological Institute were meteorologist Terhi Nikkanen and Civil Aviation Account Manager Anu Lång.

A large number of aviators volunteered to assist in the project actions; the achievements described in the present report would not have been possible without them. The names of the authors are listed on the project website and in the published documentation. The interest group events, most recently the Lento! [Take off!] safety seminar in November, were attended by a considerable number of volunteers contributing to the project and professionals involved in safety work in the participating organisations as speakers, panel members and organisers. At this point, we would like to take the opportunity to thank all these people for their valuable contributions to aviation safety. We invite you to continue collaborating with us for instance on the operating model for the aviation community.

5.2 Operating principles

The basic principles of the project were doing things together and designing practical and effective actions. The project outcomes were not intended to be used only for the duration of the project; they were intended as *effective practices* that could be established as standard in safety work. Another operating principle in the project was to *experiment boldly with new forms of co-operation* and new means of safety promotion.

The model initially considered had representatives of the aviation community appointed as working group leaders, but it was decided in the interests of the smooth running of proceedings that the working group leaders should be Trafi experts. The working group members were appointed from among representatives of the key actors, volunteers sourced through organisations and people who signed up for the project at their own initiative.

The preliminary goals for each working group were reviewed in small groups at the project kick-off seminar, to which representatives had been invited from Finavia, the Finnish Meteorological Institute, the Finnish Aeronautical Association and AOPA Finland. The goals for each working group were confirmed on the basis of the small group discussions, and the actions to be undertaken in the project were prioritised. Some additional actions were assigned to the working groups in the course of the project.

In the first part of the year, the focus was on initiating the actions decided on by bringing together the appropriate people to implement each action and by timetabling and planning the implementation. A communications plan for the project was also drawn up. The [project website](#), published at the beginning of December 2014 and updated whenever there was something new to report on the progress of the actions, was an important publicity tool. When the project is completed, its outcomes will be integrated into the Trafı website and a summary will be left on the project website; it can be found under the heading *General aviation safety project*.

Co-operation with the SIL and AOPA Finland was initiated through the organisation management in both cases in order to ensure a shared vision of the goals and implementation of the project. This was essential in order to make a quick start on the actions of working group 1 and an operating model for the Finnish aviation community. However, it soon became clear that even though the membership of these organisations included the majority of Finland's general aviators, raising awareness of the project and of safety themes effectively would require active communications over multiple channels and a presence on the ground at events in the aviation community. The plan on participating in events in the context of the project, drawn up in early winter, was updated on an as-needed basis in the course of the year.

5.3 Implementation timetable

The project progressed through the planning, involvement and publicity phase in early winter, action implementation from early spring, and grass-roots contacts with the aviation community and publishing the project outcomes over the summer and autumn. The main event of the project, the [Lentoon! \[Take off!\] seminar on safety in general aviation](#), organised together with Finavia, the Finnish Meteorological Institute, the Finnish Aeronautical Association and AOPA Finland at the Aviation Museum, with satellite events in Kuopio, Rovaniemi and Oulu, on 14–15 November 2015, represented both a summary of the year's co-operation and the most important publicity event in the project.

Some of the working group actions were completed in early summer, while others will not be completed until 2016. Some of the actions are intended to remain in place as permanent practices. The outcomes of the project are described in the present document. In addition to this final report, a *follow up plan* was drawn up, listing by working group for each action its outcomes, completion timetable, effectiveness indicator, monitoring timetable and responsible parties, and whether the action was a one-off action or intended as a permanent practice. The operating models developed for Trafı and the aviation community were also documented and introduced. Co-operation in 2016 will proceed on the basis of the aforementioned plans (see sections 6.1 and 6.2).

5.4 Challenges:

Challenges in the operating environment

General aviation has faced many challenges in recent years. Many genres in general aviation have seen a regrettable decline in the number of aviators. Low numbers of young aviators in particular means that volunteer work, the traditional backbone of aviation clubs, has become a burden shouldered by too few. There are multiple probable causes for the shortage of young aviators. These include the high cost of the hobby, sometimes long distances to venues, and the fact that aviation competes with many other leisure pastimes for the interest of young people. Accordingly, at clubs and at the SIL, for instance, young people have been defined as a target group, and new ways of raising the profile and attractiveness of aviation have been sought. There is nothing wrong with the product: the

thrill of flying is the best selling point that aviation could possibly have. Safety is an essential part of the 'aviation brand': safety must be high for newcomers to even consider joining and to retain existing aviators.

The general decline in communality in society at large is also reflected in aviation. Communality has traditionally been an inseparable part of aviation, and it is all but impossible to pursue certain activities without a supporting community, such as parachuting or gliding. Being accepted into a community is also often considered 'that special something' in this field. The increasing popularity of ultralight aviation in recent years has increased the incidence of 'solo enthusiasts'.

Another challenge identified at the very beginning of the project is wasted energy: there is an enormous potential of competence and energy in the more than 10,000 general aviators forming the more than 200 clubs in Finland. This potential has not been sufficiently co-ordinated or leveraged for the common good. Clubs duplicate each others' efforts, wasting their limited volunteer work resources doing things only for themselves.

But notwithstanding the above, one of the greatest challenges identified at the start of the project lay in the cultural problems in the community. Although all parties involved probably envisioned a similar goal – vibrant and safe general aviation – problems and contradictory goals were found in the activities of various operators. Establishing a constructive and solution-oriented dialogue was at times complicated by certain past disputes or a lack of awareness on the part of the parties of the other parties' operating practices and approaches. The political wrangling over the fate of Malmi Airport and the heated debate on the costs of aviation in December 2014 did not help the establishing of broad-based and close co-operation in safety matters in the initial stages of the project.

Questions derived from the challenges

- How do we reverse the declining trend in aviator numbers?
- How do we get young people involved in general aviation?
- How do we instil a volunteer spirit in the community to augment the numbers of active members in clubs?
- Wasted energy: how do we share the good information, competence and best practices that are to be found in the community, and how do we channel volunteer work so that it benefits the community as a whole?
- How do we reduce and control the costs of general aviation?

Despite the challenges encountered, all of the national operators that entered the project committed themselves to a shared goal: improving the safety of general aviation. There was a clear will to co-operate and a desire to hear and understand what the other person was saying. The challenges were addressed particularly at the community workshop in Oulu (see section 6.2).

5.5 Communications

As soon as the project was launched, a *website* was set up for tracking the progress of the working groups. The material posted on the website in the course of the project includes jointly produced training material, safety bulletins, other products of the work done, links

to safety information in other countries and reports from aviation events where the project was presented. Material from the Lento! [Take off!] safety seminar – presentation and video material, a summary of feedback received and answers to questions sent via the message wall collated after the seminar – was also added to the website. The aim was to update the website often and to allow visitors to follow how the actions were progressing throughout the year.

Every working group was also given *e-mail mailboxes*, information on which was published on the project website. The working groups received messages and questions via these e-mail addresses, and aviators were able to volunteer to join the project or to offer material they had made, for instance for the training material databank. The mailboxes were also used for collecting responses to the *Wanted questionnaire* (see working group 4), for the questionnaire circulated to aviation clubs and for sending safety bulletins written within the project and bulletins concerning the Lento! [Take off!] seminar.

The project was covered in the *traditional and social media*. An article on the project was published in issue 4/2015 of Ilmailu magazine (7 May 2015). An ID was created for the project at *FlightForum*, a chatroom popular with aviation enthusiasts. The introduction of the project in this popular forum was well received, which encouraged the project team to continue using the forum as a communication channel. The forum is an example of new communication channels that the community should use for publicity and for soliciting feedback; they allow a large portion of the target group to be reached very quickly.

The project leader was interviewed on the morning show of YLE TV1 (Aamu-TV) on 2 November 2015 about the progress of the project and about the safety of general aviation in general. General aviation was the main theme on Aamu-TV that morning, and a number of aviators and opinion leaders in general aviation were interviewed.

Because the whole point of the project is for operators in general aviation to do things together, interest group meetings and events are an essential part of the project. These are described in more detail in section 5.6. *Seminars and events*.

Main things learned in safety promotion and publicity

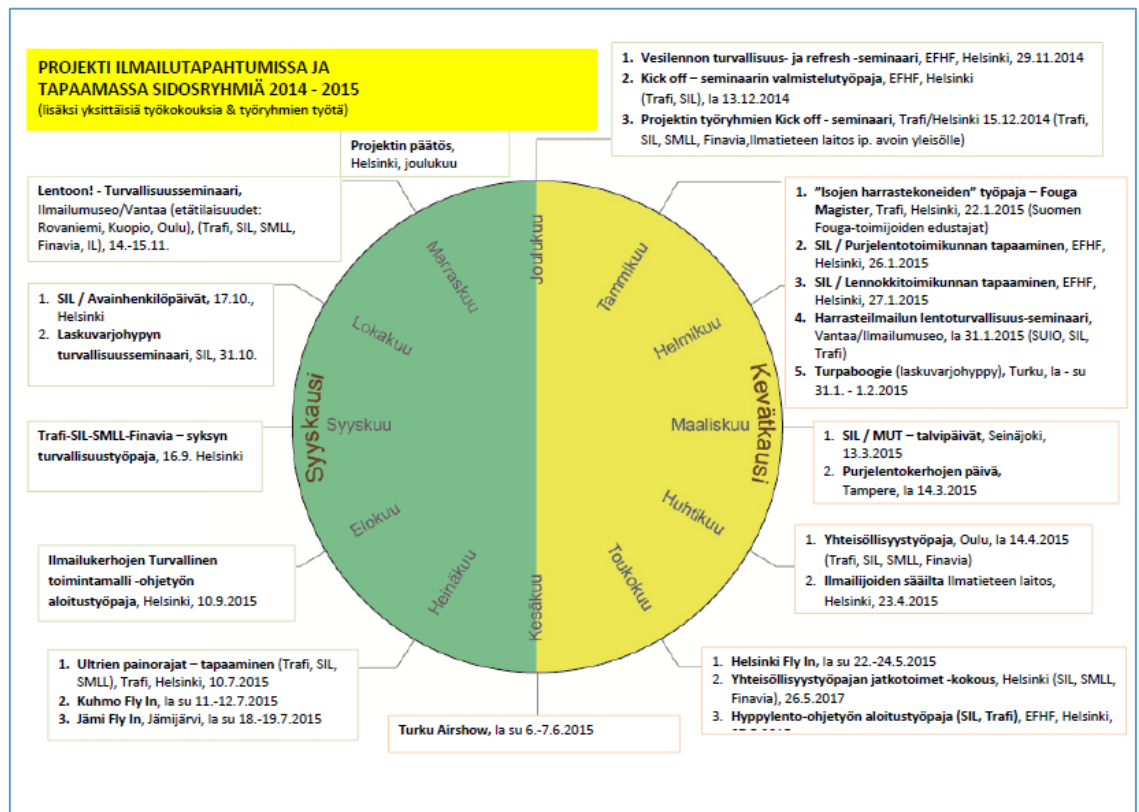
- The community operating models created through the collaboration of major national actors (Trafi, the SIL, APOA Finland, Finavia, the Finnish Meteorological Institute) should be maintained and further developed.
- It is important to enhance and add to interaction channels for minor operators (clubs, genre committees, associations).
- Information dissemination should be further improved, and multiple means and channels of communication should be used – multi-channel communication is the only way to reach the entire community!
- The national actors can, as the situation requires and according to jointly agreed ground rules, use each others' networks and publicity channels for safety promotion or for reaching individual aviators or communities.

5.6 Seminars and events

The project leader and working group representatives participated in a number of seminars and other events during the project (Fig. 1). The Finnish aviation community is spread out across the country, and distances are great. This presents a challenge for both co-operation and communication. As noted for communication (section 5.5), good operating models and networks and multi-channel communication are essential for keeping in touch and for distributing information. New technology was used as applicable, for instance for the remote video feeds from the Lentoon! [Take off!] seminar, Internet-based message wall and electronic workspaces.

However, it was discovered empirically in the project that traditional meetings, large and small, where aviators can meet each other face to face and exchange ideas informally continue to be important. Opportunities to give positive feedback or constructive criticism and to ask about any unclear issues serve to make the representatives of actors familiar to the grass-roots level of the community, help dispel incorrect impressions of what these organisations do and provide opportunities for them to improve their operations based on the feedback received.

Figure 1: Events displayed on an annual clock.



The events in the project may be divided into four groups according to the organising body and the nature of the event. The events are listed below according to these groups, with their times. In addition to the events listed here, the working groups held smaller-scale working meetings as necessary for implementing their actions and also kept in touch by e-mail, phone and in some cases via an electronic workspace.

- Seminars organised within the project (participants/organisers)
 - **Preparatory workshop for the project working group kick-off seminar**, EFHF, SIL premises, Helsinki, (Trafi, SIL), Sat 13 Dec 2014

- **Project working group kick-off seminar**, Trafi auditorium, (Trafi, SIL, AOPA Finland, Finavia, FMI, afternoon open to the public), 15 Dec 2014
- **Lentoon! [Take off!] general aviation safety seminar, Aviation Museum**, Helsinki and remote events in Kuopio, Rovaniemi and Oulu (organisers: Trafi, SIL, AOPA Finland, Finavia, FMI, open to the public), 14–15 Nov 2015
- Workshops and meetings organised within the project
 - **“Large general aircraft” workshop – Fouga Magister**, Trafi, Helsinki, (Trafi, representatives of Fouga operators in Finland), 22 Jan 2015
 - **Communality workshop**, AOPA Finland premises, Oulu (Trafi, SIL, AOPA Finland, Finavia), 14 Apr 2015
 - **Follow-up meeting to the communality workshop in Oulu**, Trafi, Helsinki (Trafi, SIL, AOPA Finland, Finavia), 26 May 2015
 - **Launch workshop for preparation of parachuting flight instructions**, EFHF, Helsinki, (SIL, Trafi), 27 May 2015
 - **Meeting on ultralight weight limits** (Trafi, SIL, AOPA Finland), Trafi, Helsinki, 10 Jul 2015
 - **Launch workshop for the safe operating model for aviation clubs**, Trafi, Helsinki, (working group: Trafi, SIL, AOPA Finland, community), 10 Sep 2015
 - **Autumn safety workshop Trafi – SIL – AOPA Finland – Finavia – FMI** (see the aviation community operating model / meeting of responsible parties), EFHF, SIL premises, Helsinki (Trafi, SIL, AOPA Finland, Finavia, FMI), 16 Sep 2015
 - **Concluding meeting of the Trafi – SIL – AOPA Finland – Finavia – FMI project co-operation group**, EFHF, Helsinki, 17 Dec 2015
- Aviation events (‘summer events’) attended by project representatives
 - **Helsinki Fly In**, 22–24 May 2015
 - **Turku Airshow**, 6–7 Jun 2015
 - **Kuhmo Fly In**, 11–12 Jul 2015
 - **Jämi Fly In**, 18–19 Jul 2015
- Seminars and events organised by interest groups attended by project representatives (talk, panel discussion or meeting)
 - **Safety and refresh seminar on seaplane flying**, (Sea and Skiplane Association of Finland), EFHF, Helsinki, 29 Nov 2014
 - **SIL / Meeting of the sailplane committee**, EFHF, Helsinki, 26 Jan 2015
 - **SIL / Meeting of the model aircraft committee**, EFHF, Helsinki, 27 Jan 2015
 - **Seminar on the safety of general aviation**, Vantaa / Aviation Museum (organisers: SUIO/SIL, main theme: General aviation safety project), 31 Jan 2015
 - **Turpaboogie**, parachuting seminar, (SIL), Turku, 31 Jan – 1 Feb 2015
 - **SIL/MUT winter seminar**, Seinäjoki, 13 Mar 2015
 - **Sailplane club day**, (SIL), Tampere, 14 Mar 2015

- **Aviators' weather evening**, (FMI), Finnish Meteorological Institute, Helsinki, 23 Apr 2015
<http://ilmatieteenlaitos.fi/ilmailijoiden-saailta>
- **Parachuting safety seminar**, (SIL), Ilmailumuseo, Vantaa, 31 Oct 2015

Summer events

Helsinki Fly In (<http://helsinkiflyin.fi>) was held at Malmi Airport on 22–24 May 2015. Trafi project team members attended the event on Sat 23 May, manning an exhibition stand for the project and giving talks on how the working groups are progressing.

Turku Airshow (<http://www.turkuairshow.fi/>) was held at Turku Airport on 6–7 Jun 2015. Trafi had an exhibition stand at the event, with an extensive presentation of interim outcomes of the project. The map application for general aviators attracted particular interest.

Kuhmo Fly In (<http://www.kuik.fi/2013/fly-in-ohjelma/>) was held in Kuhmo on 10–12 Jul. Trafi had an exhibition stand in the aircraft hangar, with information about the general aviation safety project. Safety bulletins authored in the project were distributed, and the new map application for easier flight planning was demonstrated. Trafi representatives also gave a talk on the background and outcomes of the safety project to an audience of about two dozen. Good development ideas for the map application were received after the talk. Supervisory inspectors set up an inspection point outside where aviators were invited on a voluntary basis to show their licences and their aircraft documentation. This was a new action and was well received: the majority of aircraft owners at the event visited the inspection point.

Jämi Fly In (<http://www.jamiflyin.com/>) was held at Jämijärvi on 18–19 Jul 2015. Trafi had an exhibition stand with information about the general aviation safety project and handouts of training and safety materials. Visitors were polled for aviation experiences that might be useful and instructive for other aviators. The best learning stories were published anonymously on the project website, and the best story was given a prize. Trafi representatives also asked visitors for development ideas to improve regulation.

The most important thing about the summer events was meeting aviators in person and having interesting conversations with people visiting the exhibition stands. Of course, employees also had the opportunity to watch the airshows and admire the aircraft.

6 Project outcomes

6.1 Attaining the overall goals

A comparison of the outcomes of the general aviation safety project to its overall goals

It is essential for the attainment of the goals that we manage to achieve a change in the operating culture and introduce continuous development. Implementing such a change with broad and permanent impact will take several years. Measuring a culture is a challenging task, but indicators have now been established that can be used for gauging the impact and continuity of the change being sought.

In the context of general aviation in Finland, 'operating culture' refers to not only the various operating models in use but also a culture of co-operation; how advanced and mature that culture may be is up to the contribution and commitment of each individual. Therefore the conclusion of this project is not an ending; rather than a full stop, it is a comma in a long string of collaborative efforts.

shows that the goals were attained. What follows here is first a description of the big picture and then a discussion of the work done by each working group.

The principal goal was to create for Finnish general aviation a safety work operating model and methods (including assigned responsibilities). This model must support the Finnish general aviation community in assuming responsibility for safety work, and it must be developed in co-operation with the general aviation community.

Working group 1 (see section 6.2) established an [operating model for safety work in Finnish general aviation](#) (Appendix 1), which was adopted on 17 December 2014 and published on 28 December 2015. The model describes the shared goals of safety work in general aviation and the actions and co-operation forums to which Trafi, AOPA Finland, the SIL, Finavia and the Finnish Meteorological Institute have committed for the coming years. The actions were selected so as to impact jointly identified problems. The operating model describes a culture of co-operation. It was adopted after a year of development, being shaped through concrete descriptions of the present state and the target state.

Concrete collaboration in the actions of all working groups was an important factor in creating the model. This gave all parties concerned the opportunity to demonstrate genuine commitment to improving aviation safety. Mutual trust between the parties was established through concrete actions, and this will make it easy for the parties to continue collaborating in the future. Without the contributions received through the SIL and AOPA Finland and from general aviators who volunteered for the project, these concrete outcomes could not have been achieved. We should remember, though, that there is a large number of general aviators and small groups out there. The project outcomes have reached only some of them, but a continuation of the long-term work now begun will gradually reach out also to those who are not yet familiar with the safety work done in the project.

Another important goal was to create for Trafi a model through which Trafi may support safety work in general aviation, This model had to take into account Finland's commitment to the general aviation development work being done at the European Aviation Safety Agency (EASA) and the prioritisation of official actions.

As noted in the General aviation risk survey, the role of Trafi as an aviation authority comprises regulatory duties, the issuing of permits and approvals, and control. Trafi operations are prioritised. Trafi does not engage in safety management at the operator level; its operations are pursued at the level of the Finnish Aviation Safety Programme. Trafi supports safety efforts undertaken by the aviation community itself. It is important for general aviation to clarify roles and duties and to transfer statutory duties, by mutual understanding. In a separate preliminary study running in parallel with the safety project, Trafi, the SIL and AOPA Finland have explored whether there is potential and willingness for the general aviation community itself to accept responsibility for official regulatory duties, insofar as legislation allows. This exploration has not yet been completed. The project supported this study by pursuing closer co-operation in the community and by surveying practices in reference countries (see the outcomes for working group 5, section 6.6).

The general aviation work at the EASA progressed in the course of the project, and this progress was reported for instance in the lectures given at the Lentoon! [Take off!] seminar. At the European level, the trend is towards lighter regulation and the transfer of authority tasks and responsibility to general aviation organisations. It is widely understood that added or tighter regulation is rarely the most efficient way to improve safety.

Regulation must be appropriate, risk-based and targeted so as to achieve a positive safety impact. The emphasis is on operators themselves taking responsibility. The role of the authorities will then also evolve from oversight and control to sparring partner and facilitator. An aviator is also a customer, and one of the important functions of the authorities is good customer service.

The Trafi operating model portion of the project involved surveying problems and development requests in the current situation through feedback from interest groups, in-house interviews at Trafi and a workshop. A proposal for a general aviation co-ordination model for Trafi was presented to the Trafi management group. The management group appointed a general aviation co-ordinator, who will be the Trafi liaison for the operating model for safety work in Finnish general aviation. On the basis of the proposal made to the management group and of the follow-up plan for the present project, the general aviation co-ordinator will draw up an internal (*roadmap*) for Trafi for 2016. The roadmap will be presented to the Trafi sectors during January 2016; it will include the prioritisation of actions according to available resources.

A third important goal was to ensure that the proposed actions presented in the final report of the general aviation risk survey are appropriately discussed and put into practice as applicable. This goal was addressed by dividing the project task up between working groups according to the key sub-areas identified in the project survey. At the working group kick-off meeting on 15 December 2014, the groups reviewed all the proposed actions in the risk survey and prioritised and adapted these proposals into implementable actions. The concrete actions of the five working groups formed the core of the project. A suitable working group for implementing each of these was appointed, with representatives of the project co-operation group and volunteers from the aviation community.

Bold experimentation with new practices, practical orientation and long-term impacts were the points that constituted the overall guideline adopted for the work. How this worked in practice is discussed in more detail in the working group outcomes. Some of the actions were one-off, while others are continuous or permanent. Some actions have not yet been completed, and their completion timetable is given in the working group outcomes.

The project itself represented a bold departure into a new co-operative model for all parties concerned. Experimentation included: an electronic communication board; the broad-based Lento! [Take off!] seminar that featured a live online video link to three satellite events; analysis collaboration; participation in online chatrooms; executing concrete actions partly in working groups (which involved both official work and volunteer work); new distribution channels; an idea for a community training material databank; and the safe operations model that was sent to all aviation clubs in Finland as a Christmas present. There are plans to host an 'aviation phone-in' in spring 2016, where anyone can post questions from their home computer to an expert group on a predetermined theme.

The practical aspect was looked after by a large number of volunteers: the dialogue and sparring between officials and aviation professionals on the one hand and general aviators on the other resulted in fresh insights at least for the officials but also broadened the general aviators' horizons.

The project outcomes were also compiled in a *follow up plan* that lists each action, its stage of completion and outcome and an assessment of whether the action will continue after the project. The follow-up plan is intended as a tool for internal co-ordination at Trafi.

6.2 Working group 1: Commuality

The following is a detailed discussion of the concrete outcomes achieved by the working group for each goal and action.

Operating model for safety work in Finnish general aviation

The building of the operating model for safety work in Finnish general aviation, described in section 6.1, was launched at the commuality workshop in Oulu on 11 April 2015, where a policy consensus was discussed and concrete options for solutions were collected. The workshop also addressed the escalating costs of general aviation and explored concrete ways of reducing them. The workshop participants included the project working group leaders and representatives of Finavia and the boards of the SIL and AOPA Finland, including their chairmen. The working groups formed for the workshop were coached by Anna-Maria Teperi, a Senior Specialist at the Finnish Institute of Occupational health.

Participants were invited to give the organisations represented both criticism and praise. It was also considered at the workshop how co-operation could be improved. Points noted included a need for meeting regularly for discussions, a need for creating training materials and instructions usable by everyone, and a desire that co-operation be exercised in the processing of “big things” that have an impact on the entire community, such as matters concerning the vitality, operating potential and regulation of general aviation. Ways of increasing co-operation and reducing duplicated work were also discussed. It was suggested that payment decrees needed transparency and amendments and that air traffic controllers need to have practical flying experience. By consensus of all parties, [a summary of the outcomes of the workshop](#) was published towards the end of May.

In May, after the workshop, the first version of the shared operating model was compiled (Finnish general aviation action plan); its final version was adopted on 17 December 2015 (see section 6.1). The [Lentoon! \[Take off!\] seminar on general aviation safety, which will continue to be jointly organised on an annual basis, is an important action that is mentioned in the operating model](#) (for more details, see section 6.7).

Creating a model for Trafic for supporting safety work in general aviation

The Trafic operating model was described under the overall project outcomes, in section 6.1. Operational development within Trafic was addressed on the basis of interviews conducted with members of the aviation community and directors and experts at Trafic, and on the basis of feedback received at the expert workshop.

The general aviation co-ordination activities described in section 6.1 include general aviation and private general aviation. The purpose of this work is to strengthen overall management of general aviation in Trafic duties, improve the big picture concerning general and general aviation issues at Trafic and to support supervisors and management in policy-making and operational development.

The co-ordination is also intended to enhance operations, improve information exchange and co-ordination within the organisation and to eliminate overlaps by supporting responsible divisions and other parties in the handling of horizontal matters in particular.

The aim vis-à-vis customers is to improve Trafic’s customer services and external communications on the basis of feedback received and expedite the finding of the appropriate experts and information for customers in horizontal matters. The general aviation co-ordinator is also the liaison officer for interest groups and the contact person for the operating model for safety work in Finnish general aviation.

The aim is to publicise the co-ordinator's activities on the *General aviator pages* of the Trafi website, aimed at general and general aviators, during January. All the necessary contact information will also be posted. The website development is in response to feedback received. The aviation area on the Trafi website contains a comprehensive range of information covering all genres of aviation. A separate sub-site will be set up for individual aviation enthusiasts, operating on the 'one-stop shop' principle, making it easy for users to find safety information and to navigate the website to the page of the appropriate responsible unit.

A safe operations model for aviation clubs

It has been recognised during the general aviation safety project that general aviation clubs have a crucial function in safety work. Clubs operate largely on a voluntary basis. What is needed is an operating model for safety work in the general aviation community and a co-operation network for operators to support the work of the clubs, to increase interaction, to eliminate overlaps and to share best practices, training materials and instructions for everyone. This will also help find cost savings.

With regard to this, the responsible persons at clubs training general aviators were sent a questionnaire in February-March 2015. A link to the questionnaire was also posted on the project website so that all clubs could respond. The questionnaire could be returned online or by e-mail. The responses were input into the working groups. The clubs were asked:

1. Have you engaged in co-operation with other clubs, and if so, what kind?
2. Do you feel a need for co-operation with other clubs – any kind of co-operation?
3. Do you feel a need for co-operation with other bodies such as Finavia or Trafi – what kind?
4. One of the purposes of the project is to develop theory training materials. What are the themes for which you consider there is a particular need for developing training material of high quality that is available to everyone?
5. How prepared are you to contribute volunteer efforts to this project, for instance in preparing training material?
6. What obstacles to co-operation, if any, do you see at the moment?
7. What do you consider are the requirements for successful co-operation?
8. What kind of safety-related information (safety bulletins, instructions, etc.) would you like to receive, and to whom at your club should it be sent?

Aviation clubs play an essential role in ensuring the safety of their own operations. For this purpose, a [safe operating model for aviation clubs](#) was created and made available to all Finnish aviation clubs. It was published on 23 December 2015. The model was jointly developed in the project by Trafi, the SIL and AOPA Finland. The work was co-ordinated by Ari Vahtera from Trafi, and the working group members were Petteri Tarma (SIL), Erkki Pulkkinen (AOPA Finland), Jyrki Laukkanen and Tapio Kimanen.



Figure 2: A safe operations model for aviation clubs

The model offers tools and instructions for safety work undertaken by aviation clubs themselves. The posters in the model, brochures on good airmanship and the information that the package may be found on the Trafi, SIL and AOPA Finland websites was sent as a Christmas present to all Finnish aviation clubs in week 52. At the end of December, the aviation licensing unit at Trafi decided to have more brochures printed and will henceforth send the brochure on good airmanship to all new licenceholders with a covering letter.

In addition to the basic model, the operating model includes risk management, a just operating culture and good airmanship. Each club is welcome to use the model as applicable and to the extent desired. Good airmanship is an excellent place to start for an individual aviator to operate safely. The principles of good airmanship are outlined in a brochure that is intended for the use of all club members.

The safe operations model also includes other materials such as slide shows for training at clubs and various practical templates for instance for risk management. There are several risk management models, from the simple to the complex. In addition to the text on the slides themselves, there are notes in the notes panels to the slides.

A just operating culture is an essential part of a modern safety culture: it is important to uphold a transparent and confidential safety culture and to learn from mistakes rather

than issue sanctions for them. Nevertheless, there is in the aviation community a sharp divide between understandable mistakes and unacceptable actions. The safe operations model also includes the aim of finding and sharing best practices that aviation clubs are known to possess.

All the documents in the safe operations model (see the document list in section 6.8, Publications) may be downloaded from the Trafi, SIL or AOPA Finland website and may be freely used.

The challenges of reaching solo amateurs

It is also relevant for the promotion of safety to consider how to reach solo amateurs, i.e. aviators who do not participate in club activities or attend safety seminars. New ways of reaching these people have been sought in the project. Key actions include the following:

- the operating model for safety work in Finnish general aviation created in the project, which enhances and increases co-operation and also improves outreach to solo amateurs,
- multi-channel safety promotion: both the extensive interest group questionnaire in the risk survey and experiences in the present project indicated that there is no single communication channel suitable for everyone; instead, the wishes and accessibility of the target group were equally divided among multiple channels, and
- increasing the attraction of club activities: aviation clubs maintaining a good operating culture are the best vehicle for maintaining and improving the competence of individual aviators and good *airmanship*.

Situation survey of the costs of general aviation and finding ways of decreasing costs

The increasing costs of general aviation were discussed in section 13.3.2 of the risk survey. The high costs of this pastime were identified as a problem also in the interest group questionnaire circulated before the survey in summer 2014 and in many encounters with interest groups in the course of the present project. At the communality workshop in Oulu, interest groups were polled for their views on the costs of the various sub-areas in aviation and for their suggestions as to how costs might be reduced. Costs were also addressed as a theme in the panel discussion at the Lentoon! [Take off!] seminar.

The issue of costs is a challenging one, and no satisfying solutions were found during the project. Some approaches and means have been identified, however.

- Increasing co-operation and eliminating duplicated work (e.g. in organising seminars or safety promotion, or producing and distributing training support materials) has been a key theme in the project. This will translate into operational efficiency, and operators will learn how to best leverage and also conserve their resources. Also, the quality of the end result will often improve.
- Transfer of authority tasks in general aviation to the aviation community itself: as noted above in section 6.1, the investigation in this matter has not yet been completed. The requirement in this investigation is that any transfer of such duties is feasible only if it results in a real advantage in quality and/or cost for the aviation community.

- Transparency of costs: feedback received during the project clearly indicates that transparency and justification of costs will defuse criticism against them in the community and help in constructively exploring ways of cutting costs. Major operators such as Trafi and Finavia were requested to actively seek practical and facilitating solutions in interaction with other operators. Cost-efficiency of official actions is an important aspect.
- Insurance premiums constitute a considerable percentage of the costs of aviation. The Oulu workshop included a discussion of ways to reduce insurance costs too (pooling, linking voluntary additional training to insurance premiums, etc.). It was noted several times in the course of the year that **a good safety situation and a strong 'safety brand' in each genre** are non-negotiable requirements in any discussion of lowering insurance premiums. It is to be hoped that the *safe operations model for aviation clubs* will be efficiently adopted by clubs and that solo amateurs will find club activities increasingly attractive. These facilities will be useful for reducing costs in addition to the realisation that any accident causes not only human suffering but also considerable costs.

Challenges and successes

Tackling issues, some of them very difficult, in tandem with the aviation community was both the greatest challenge and the most rewarding thing in the entire project. Addressing issues such as cost pressures, the extent and fragmented nature of the field of operators, the nature of amateur activities and the complexity of factors affecting safety demand a shared will to attain common goals, and also a great deal of deliberation and work. As is the case with voluntary amateur activities in any walk of life, things cannot be forced to happen; the individuals involved must be genuinely motivated, and there must be mutual trust among the parties. One must also be prepared to hear criticism that can be quite tough, because under criticism there is often a solvable problem.

The Oulu workshop described in section 6.2, held on 11 April 2015, was a successful example of the new forms of co-operation introduced in the project. The workshop was divided into small groups with representatives from various organisations. In these groups, various methods were used to work out talking points about a) things that already work well and support communality, b) things that are currently hindering co-operation, and c) practical ways to address these things to improve the current situation.

The workshop was led by Anna-Maria Teperi PhD, a senior researcher at the Finnish Institute of Occupational Health. She was involved in the project as an expert member to explore the current state of the general aviation community. Teperi notes that the success of the workshop showed that the various operators can have an extremely practical and polite conversation about a shared goal: improving general aviation operations and co-operation. Teperi also considered that the major changes under way in professional organisations (Trafi, Finavia) have a direct impact on how general aviators see their operating environment. The system must be structurally sound for official functions to be assigned to the general aviators themselves. The new role of the authorities as a facilitator of co-operation requires a new competence, encountering the customer and exposing oneself to criticism in the interests of talking about solutions and implementing reforms.

The number of participants at the Lentoon! [Take off!] seminar, the mood in the room and the positive feedback received were the greatest thanks for the year's efforts. On the other hand, there is a strong feeling that the work is not nearly completed yet; reaching the entire aviation community in a meaningful way cannot be achieved in one year, leaving a challenge for the coming years.

6.3 Working group 2: Training

The following is a detailed discussion of the concrete outcomes achieved by the working group for each goal and action.

Support material for training

The compilation of a training material databank accessible to everyone on the Trafi website was begun in early 2015. The purpose of this databank is to serve as a platform for distributing useful information to the general aviation community and to encourage community members to contribute to its development. Aviators are free to use the material and to submit suggestions for further improvement to its authors.

Figure 3: Training support material authored within the project

The documents entered in the material databank under ‘Training support material’ are not official regulations or instructions and have not been submitted to the authorities for approval. Another purpose of the training support material databank is to enhance the use of existing resources in the aviation community and to reduce the amount of ‘wasted energy’ among competent, experienced general aviators.

The training support materials published to date are listed in section 6.8, Publications. Some specimen materials were authored in the project to be entered in the databank as a



“seed” material. These materials focused on major identified risks. The materials include: two safety brochures published by the European General Aviation Safety Team (EGAST), a voluntary safety partnership between general aviation associations, industry, EASA and

authorities, translated into Finnish at Trafi and published in July 2015; Finnish translations of the presentation material from the Swedish programme Fly Safe – Flyg Säkert, published in September; a comprehensive practical course in meteorology for aviators commissioned from the Finnish Meteorological Institute, published in November; and a support material package for ultralight instructors and check pilots, titled UPL-opettajan opas 1.0, also published in November. The UPL guide was based on the Microlight Instructor & Examiner Guide published by the BMAA. A Finnish translation of the FAA guide on seaplane flight operations is being prepared at Trafi for publication in winter 2016. There are also plans to translate parts of the Swedish guides on seaplane flight operations into Finnish.

Volunteers in the aviation community offered materials authored by themselves for the databank. The databank is an ongoing concern, meaning that training support materials can be added or old ones updated at any time. The authors are credited on the website and in the introductions to each package, thanking them for their valuable contribution to safety in general aviation.

Guideline for parachuting flight operations

One aspect of the training support material effort is to provide additional guidelines for skydiving clubs, particularly for parachuting flight operations. The drafting of these materials is led by Mari Lehtonen, the safety officer on the parachuting committee at the SIL. The working group includes skydivers and parachuting pilots from clubs all over Finland. Trafi supports the work of this group. The launch workshop for the parachuting guidelines was held at Malmi Airport on 27 May 2015. The guidelines were also discussed at the parachuting safety seminar organised by the SIL at the Aviation Museum in Vantaa on 31 October 2015 and described in a talk at the Lentoon! [Take off!] seminar in November 2015.

Providing guidelines is one of the actions proposed in the general aviation risk survey. This also fulfils safety recommendation no. 2 of the accident investigation report (L2014-02) published by the Safety Investigation Authority concerning the Jämi crash. A safety bulletin entitled [Flight safety in parachuting operations](#) was published in April as an aid for the work. The purpose of the bulletin was to remind skydiving clubs to go over their safety procedures before the beginning of the season in 2015. The guidelines will include in-depth information for instance on the themes highlighted in the safety bulletin. The plan is to complete the guidelines before the start of 2016 parachuting season.

Review of new training methods and the policies of the authorities regarding them

Updating distance learning course arrangement interpretations was carried out as part of the official functions of Trafi; the interpretation adopted was the same as for FCLs.

Public LAPL/PPL theory test question databank on the Trafi website

An LAPL/PPL question databank is being prepared and will be published and made available to anyone, including training organisations, during spring 2016. The aim is that the questions on the Trafi PPL/LAPL tests would be drawn from a databank of about 1,500 to 2,000 questions. This will be the first time that the questions actually used in official testing by the Finnish aviation authorities are made available to everyone. This public availability will make it easy to verify the level of competence required, and it will be simpler to eliminate any unsatisfactory questions. Studying for the tests will also be made easier with the questions available. The questions will be of such difficulty and scope that they will ensure a sufficient level of knowledge and skills for those who pass the tests.

A fine team of volunteers was assembled for translating the test questions. Translators were provided by the following organisations:

Salpauslento Oy
BF-Lento Oy
Lentokoulu Pirkanmaa Oy
Blue skies Aviation Oy
Patria Pilot Training Oy
Finnish Aviation Academy
Suomen Urheiluilmailuopisto Oy [Finnish general aviation academy]

Revising ultralight pilot training programmes based on observations in the risk survey

The ultralight training programme has been updated as part of the official functions of Trafi in view of the outcomes of the risk survey. The new programme has been available since spring 2015.

Challenges and successes

The working group concurred with the observations of problem points in the general aviation risk survey. The working group noted that the quality of instruction, and thereby instructors, occupy an essential role in ensuring safe operations. In assessing the baseline, it was also found that plenty of competence and good operating models may be found in the field of general aviation.

The goals identified involved targeted support actions, specifically a practical meteorology training package and a UPL instructor's manual. These support materials, if properly updated, will remain usable for decades. However, what is perhaps even more important is the new practice where general aviators have begun sharing good training materials, instructions and procedures with others. This communal platform will enable a far more effective and efficient approach to safety improvement.

The greatest challenges in the project came from resourcing, both within Trafi and in general aviation and aviation training organisations. The greatest major challenge was for the aviation training organisations to complete the translation of the LAPL/PPL theory examination question databank. Notwithstanding the initial surge of volunteer effort, because of the practicality of resourcing it became clear by the end of 2015 that the question databank would not be completed and published until 2016. Then again, limited resources are a fact of life today.

The main thing in safety work in the future will continue to be the appropriate allocation of resourcing, the completing of actions already begun. It is also necessary to realise that a certain margin for flexibility must be allowed when work is undertaken on a volunteer basis.

Working with interest groups was fruitful and immediate and, once past the initial introductory stage, fuelled by a strong collaborative spirit. The various parties have clearly gained a better understanding of each others' circumstances and perspectives in the course of the project. The working group considers that the greatest success in the entire project was the spirit of mutual trust and co-operation that was achieved between the operators involved. For the working group specifically, the greatest insight came in developing the communal aspect, whose first manifestation was the training material databank.

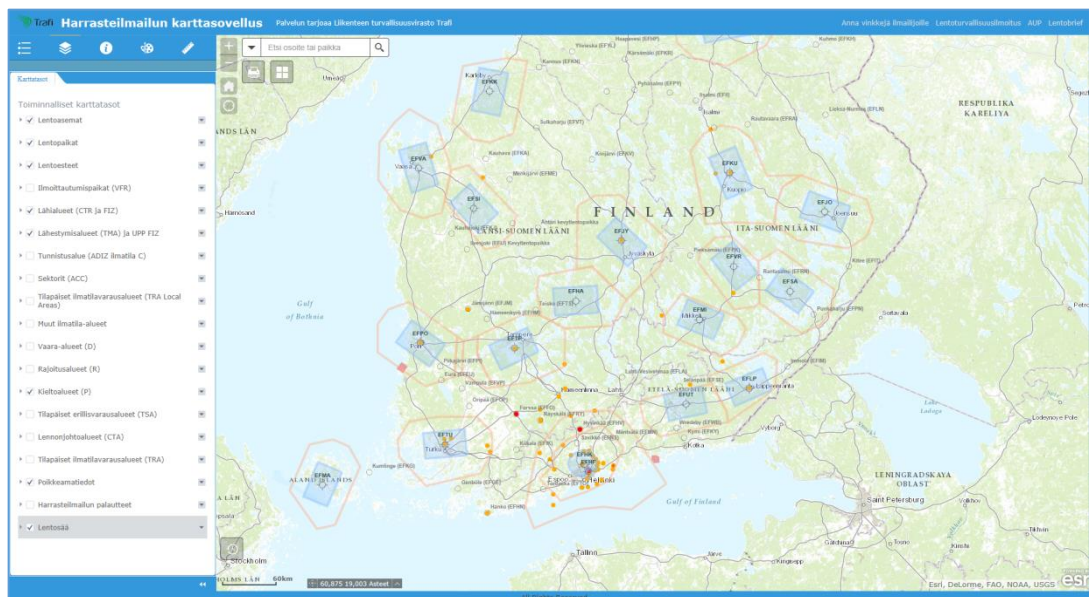
6.4 Working group 3: Safety promotion

The following is a detailed discussion of the concrete outcomes achieved by the working group for each goal and action.

Aviation map application

A map application for aviators was published as a project action on 18 June 2015 (www.trafi.fi/ilmailunkarttasovellus). This offers access to aviation charts, weather information and aeronautical information services to help with flight planning. The application also contains information not published anywhere else: occurrence reports from Trafi (redacted to prevent identification of persons, aircraft or individual cases) and tips added by aviators themselves. The application contains a selective site-specific summary of occurrence data collected from air safety reports issued pursuant to the Occurrence Regulation (EU 376/2014). The map application was produced in response to requests from general aviators for more information on occurrence reporting. Data on airspace violations or runway incursions, when entered on a map, show where occurrences are more likely to occur and thus help identify problem spots, target development actions and increase safety awareness. The application is still under development. At the moment, there are several data types for which the original source must be consulted to verify their accuracy, and the application as it now stands is not suitable as a flight planning aid. In 2016, the aim is to add dynamic data for instance on reserved airspace and more information on occurrences, and also feedback from aviators. The original idea was to involve the aviation community in the production of aviation safety information by developing an interactive online portal through which aviators could submit air safety reports, discuss them (taking into account privacy issues regarding the persons submitting the reports and the data in them) and receive feedback, and also view reports submitted by others. However, developing the application from what it now is into a modern portal would require considerable further resourcing.

Figure 4: Aviation map application



Communications to general aviators

At the moment, some aviators are not motivated to attend seminars or to join in the activities of aviation clubs. Just about the only way to reach them is by letter or by e-mail. Multi-channel communications has been found to be the most effective strategy. Attempts have been made during the project to find new communications channels (see section 5.5, Communications). Even before the project began, the Trafi website already had a form for ordering safety bulletins to be automatically sent to an e-mail address when published. However, the resulting mailing list and posting the bulletins on the website do not constitute an effective publicity strategy. As a format, the safety bulletins have been highly appreciated. They allow a rapid response to detected safety threats. In the course of the project, safety bulletins have been sent directly to the target groups on the basis of data in the Trafi licence register or aircraft ownership data. The distribution channels of organisations (SIL, AOPA Finland) are also important for safety promotion.

Aviation clubs play an essential role in the general aviation community. They are where aviators often begin their hobby, they facilitate exchange of information and they provide training. A questionnaire was sent to aviation clubs in February and March 2015 (see section 6.2), and an online survey of skydiving clubs and operators was conducted in October 2015 (see section 6.5). At the end of December, the safe operations model was sent as a Christmas present to all Finnish aviation clubs (see section 6.2). The safety bulletins and training material databank documents created within the project are intended for the use of individual general aviators and aviation clubs. The potential of the clubs was not fully leveraged in 2015 with a view to developing the coverage of distribution channels for safety promotion to the clubs.

Analysis of aviation safety data in co-operation

In recent years, analysis of air safety reports from general aviation has mainly been conducted by Trafi. Because analysis of commercial aviation takes priority, it has not been possible to allocate sufficient resources to producing the required range of safety promotion for general aviation. In the present project, experienced volunteers in the various genres of aviation (sailplanes, ultralight aircraft, general aviation), from the Finnish Aeronautical Association and AOPA Finland were enlisted to analyse air safety reports – in confidence and according to jointly agreed ground rules.

Figure 5: Safety bulletins published as a result of collaborative analysis in the project



The purpose of this action was to involve the community in producing safety information by genre, for clubs and individual aviators. This addressed a long-standing need for more feedback and concrete benefits from occurrence reporting. Trafi and the associations signed an agreement on analysis work. The collaborative analysis resulted in four safety bulletins being published for general aviators (see section 6.8, Publications). The collaboration got off to a good start and was considered useful, and it will thus be continued in 2016. Volunteer analysts are welcome to bring in suggestions and develop new ways of using the data, for instance in training materials and in support materials for clubs.

In addition to the above collaboration, a safety bulletin on *aviation safety in parachuting flight operations* was published in the project in co-operation with the skydiving community in April 2015.

Lentoon! [Take off!] safety seminar

Safety events and seminars have been organised before, but usually by a single party. By contrast, the two-day aviation safety seminar held at the Aviation Museum in November 2015 was the first ever jointly organised by Trafi, the SIL, AOPA Finland, Finavia and the Finnish Meteorological Institute. The seminar proved a great success, and it was agreed that it would become an annual event. The seminar was also streamed live by video to satellite events in Kuopio, Rovaniemi and Oulu, allowing it to be experienced by other members of the aviation community besides those actually on site at the Aviation Museum, including both aviation clubs and individual aviators. For more on the seminar, see section 6.7.

Challenges and successes

Involving the community in the use of safety information may be considered to have succeeded, mainly because collaborative analysis work was launched and produced results in the form of safety bulletins, for instance. Safety bulletins were found by the community

to be a useful feature. The joint aviation safety seminar in November 2015 was also seen to be a very good thing; we may go so far as to observe that it concretely improved the cohesion of the aviation community.

The analysis work carried out by the organisations, aviation safety seminars and direct contacts to aviators will hopefully be continued for the foreseeable future. It is also hoped that the development of the aviation safety online portal will be launched, based on the aviation map application already created. The major challenges for the communications working group in the project were a shortage of resources and difficulties in developing information systems. The working group saw as its major successes the smooth running of the collaborative analysis and the launching of the map application.

6.5 Working group 4: Authority tasks

The following is a detailed discussion of the concrete outcomes achieved by the working group for each goal and action.

Wanted questionnaire and national regulation development needs

One of the tasks of the working group was to conduct a survey of development needs in national regulation for general aviation. This is something that is done as part of Trafi's authority tasks whenever resources allow. A large portion of the available resources is taken up by necessary tasks caused by changes in EU regulation. It was clear from the feedback received from the aviation community that the reform of national aviation legislation should proceed more quickly. In January 2015, the working group posted a survey for general aviators on the project website (Figure 6), requesting them to report bad and outdated aviation regulations.

Responses were received from general aviators both by e-mail and through FlightForum, a chatroom for aviation enthusiasts. The first list of aviation regulations that should be repealed or amended was compiled in April 2015, and the decision on a regulatory project to repeal certain aviation regulations was adopted on 29 April 2015. On the list were 13 regulations to be eliminated and two to be repealed, and eight bulletins.

Aviation Regulation GEN M1-11 on the repealing of certain aviation regulations was issued on 6 October 2015 and entered into force on 7 October 2015. This Regulation repealed several aviation regulations that had been supplanted by EU legislation or the Aviation Act or whose provisions were considered no longer feasible. At this point, the work concerned mainly operational regulations. The work will continue until the Air Operations Regulation and the Flight Crew Regulation enter fully into force in Finland, i.e. until 2017–2018.

Figure 6: The Wanted questionnaire aimed at general aviators

WANTED

Have you noticed any aviation regulations that are badly formulated or do not work in practice? Please report them to the Finnish Transport Safety Agency (Trafi). To help us identify the suspect, give a detailed description of the bad provision (title, reference number and paragraph). We are also grateful for any suggestions on how the regulation could be improved.

<http://www.trafi.fi/ilmailu/saadokset/ilmailumaarayskokoelma>

Send your reports by e-mail to:

[harrasteilmailu.saantely \(at\) trafi.fi](mailto:harrasteilmailu.saantely@trafi.fi)

Looking forward to your ideas and suggestions,

Trafi's recreational aviation safety team

Drafting an OPS aviation regulation for the aircraft listed in Annex II of the EASA Regulation 216/2008

An OPS aviation regulation for the aircraft listed in Annex II of the EASA Regulation will extend the coverage of that Regulation to general aviation. Requirements for autogyros will also be drafted; at the moment, those requirements are determined through flight conditions on a case-by-case basis. The work on the development of national regulation and the OPS aviation regulation for aircraft defined in Annex II is still incomplete, but the aim is to finish these tasks by 25 August 2016. The number of aviation regulations applying to general aviation will be substantially reduced as outdated and contradictory regulations of different ages are eliminated. This reform will make the regulatory framework easier to understand and to manage.

Training package for aerodrome operators

The working group reviewed the need to undertake actions at Trafi with a representative from the aerodromes and safety matters unit on the project team. It was noted that the unit had taken the outcomes of the risk survey under advice in its operations and had sent a letter on this topic to aerodrome operators. The aviation map application created in working group 3 can be used as a new information platform for aerodromes too. The Lentoon! [Take off!] seminar was marketed directly to aerodrome operators, encouraging them to attend. It was further noted that the potential for utilising the aviation map application with regard to aerodromes should be periodically reviewed. In safety promotion, it will remain necessary to target communications to aerodrome operators. This target group must also be remembered when planning advance publicity for safety seminars.

Ultralight aircraft modifications, approval of new type manuals, standard checklists

Work instructions concerning ultralight aircraft modifications and approval of new type manuals were prepared early in the year and sent to the service partner on 2 April 2015. The matter of standard checklists for ultralight aircraft will be discussed together with the Annex II aviation regulation.

Challenges and successes

The working group has not yet found a suitable way of involving interest groups fully in the initial stages of regulation preparation, although representatives of the SIL and AOPA Finland have been invited to attend the weekly regulation preparation working meeting, and the challenges of the work have been discussed with them. It is more feasible to involve the interest groups more closely in the preparation process once the draft is finished and circulated for comment. Also, the initial stages mostly involve legal technicalities rather than substantive content, and this together with the tight timetable make it difficult to involve more people at the drafting stage.

What was challenging in the project was to find a style of communications and support material consistent with the sometimes very widely varying levels of knowledge in the general aviation community, including things like how to give a talk on the complexities of EU regulation without resorting to pan-European aviation slang. Many general aviators are quite comfortable with reading regulatory or support material in English, but in other cases a lack of language skills among aviators has complicated the distribution of information. As a result, the aim is to have all important and relevant material on safety translated into Finnish even when it is not mandatory to do so.

The working group sees as one of its greatest successes the fact that Trafi raised its profile at events, engaged in publicity, issued instructions and through this project engaged the general aviation community in working together. The regulation sub-area was not the most important aspect of the project; it is supportive of the work of the other groups. It would be important for future efforts to have operators understand that aviation safety can be improved without compelling provisions or orders from Trafi telling them to do so. Often regulations simply specify a minimum or maximum level. Operators could determine a target level of their own for their operations, aiming at a better level of achievement than specified in the regulations, and indeed it would be worthwhile for them to do so.

6.6 Working group 5: International comparability

The working group discussed the major challenges under the project themes at the moment: in which matters the reference countries are ahead of Finland and in which matters we could find helpful hints in reference countries.

The following is a detailed discussion of the concrete outcomes achieved by the working group for each goal and action.

Best practices in reference countries

Best practices in reference countries were surveyed with a questionnaire that was sent out in December 2014, with a reminder sent in January 2015. The responses were collated in a table and distributed to the other working groups. Then, a survey was sent to Member States in March 2015 concerning how matters have been delegated to organisations in general aviation. A specific questionnaire on fees was sent out in August 2015. The responses to the questionnaires were used in the work of the working groups in the

present safety project and in a separate project conducting a preliminary investigation of the transfer of authority tasks in general aviation.

Flight planning information

With regard to flight planning, the working group consulted Finavia concerning the situation with VFR-Finland and how they collaborate with air navigation service providers in other countries. It was found that a user fee was charged for most flight planning programs abroad. It was proposed that flight planning materials should be brought together on a single website to avoid fragmentation. This action was then implemented by working group 3 (see section 6.4).

Learning material translated into Finnish

The working group checked the content of two leaflets translated into Finnish by the EGAST group: *Stall and Spin Loss of Control* and *Weather Anticipation*. Both leaflets were published on the project website in July 2015. The meteorology learning material authored by the Finnish Meteorological Institute, when completed, replaced the EGAST weather leaflet, because it is more comprehensive and better aware of Finland's weather conditions (see the training material databank addressed by working group 2 in section 6.3, and section 6.8, Publications).

Challenges and successes

It was a challenge to obtain responses to questionnaires sent to reference countries, even after several polite reminders. It was positive to note that general aviation communities were active in responding. Their responses will undoubtedly be useful in the allocation of authority tasks. Another positive outcome of the questionnaires was the generation of an international network in general aviation: in the future, it will be possible to contact the relevant opposite party immediately, thus improving interaction. There is plenty of training and publicity material available in the reference countries. The challenge lies in translating materials into Finnish and having them checked.

The working group attained its assigned goals. However, the usefulness of the actions undertaken will have to be evaluated through further action. The training materials and communications produced will remain in use, and information on the network of contact persons will be retained.

The monitoring of materials and practices in reference countries should be included as a normal part of communal activities in general aviation. Information and training materials, etc., are distributed within Finland, and this practice could easily be expanded to include distributing information from other countries to Finland and vice versa. The essential thing is to set up a functioning network, and in this the general aviation associations and contact persons in other Member States play an important role. The working group counts among its successes the fact that the representatives of the SIL and AOPA Finland made a very active contribution to the work of the working group, for which much thanks. The rest of the working group has also been remarkably committed to the project, and all were keen to improve the status and safety of general aviation.

6.7 Lento! [Take off!] safety seminar

The co-operation undertaken during the project culminated in the first safety seminar jointly organised by general aviation operators, held at the Aviation Museum in Vantaa on 14–15 November. The organisers were Trafi, Finavia, the Finnish Meteorological Institute, the SIL and AOPA Finland.

There were more than 200 attendees at the Aviation Museum. Smaller satellite events were held at the same time at the premises of the Savo Consortium for Education in Kuopio and at the premises of the Lapland Vocational College in Rovaniemi. A similar event in Oulu was organised at short notice at the premises of AOPA Finland. There were live video links connecting the seminar at the Aviation Museum to the satellite events. A total of about 60 people attended the satellite events. AOPA Finland assumed overall responsibility for the organising of the satellite events, which involved people from the SIL and Finavia and the educational institutions providing the facilities. The educational institutions and the satellite event working groups demonstrated a genuine volunteer spirit in putting things together. AOPA Finland made a major contribution by organising the video link. In addition to providing a real-time connection, it also facilitated the recording of the presentations.

The seminar was aimed at aviation clubs, aerodrome operators, instructors and any other interested aviation enthusiasts. The following themes were discussed:

- The current state and future of general aviation
- Communalities and club activities
- Airspace, aviation weather and flight planning
- Preventive safety work and maintaining competence
- Current regulatory events

The discussion at the Museum was lively and at times heated. The atmosphere was intense but positive; plenty of laughter and insights, and talks covering a wide range of topics. There was also the added anxiety of whether the remote connections would work as intended. In a word, there was interaction.

An online message wall was in use, displaying not only the questions submitted in advance but also the questions that were sent in at a rapid rate throughout the event. Many of the questions received were answered immediately. The remaining questions were saved, and answers were later posted on the seminar website.

After the seminar, all the people who had signed up were sent a feedback questionnaire, and the response was robust. There were 87 respondents, and on the school grade scale of 4 to 10 they gave the seminar an average grade of 8.38. Respondents particularly commended the content of the presentations, the brilliant host and the positive mood and discussion. There were also plenty of development points with regard to the functioning of the technology used and the remote video links. It was also noted that the timetable could be a bit less tight. All feedback and development proposals will be taken into account in the organising of future seminars. Clips from the seminar, presentation materials, videos and a summary of the feedback are available [on the seminar website](#).

The seminar was an excellent example of collaboration towards improving the safety of general and general aviation. The Lentoon! [Take off!] seminar will be included as an annual fixture in the operating model for safety work in Finnish general aviation (see section 6.2). As the project leader, Trafi managed the co-ordination of the 2015 seminar; Finavia has promised to take up this task for 2016.

Figure 7: Logo of the Lentoon! [Take off!] seminar, photo Reija Koistinen



6.8 Publications

A considerable volume of material supporting safety work authored in collaboration was published under the project. The following is a list of the documents published. Some of the items under *Training support materials* were authored or translated within the project itself, while others were donated by general aviators or operators to be made available to everyone in the *training material databank* developed in the project (see the outcomes for working group 2, section 6.3). The safety bulletins were authored under the analysis collaboration with the SIL and AOPA Finland (see the outcomes for working group 3, section 6.4).

Publication	Date
Operating model for safety work in Finnish general aviation	
Suomen harrasteilmailun toimintasuunnitelma [Action plan for Finnish general aviation]	28/12/2015
Summary of outcomes of the communality workshop in Oulu, 11 April 2015	05/2015
A safe operations model for aviation clubs	
<p>This model may be downloaded in its entirety from the Trafi, SIL or AOPA Finland websites: http://ilmailu.fi/ (SIL), http://www.sml.fi/ (SMLL) ja Trafin sivuilta linkistä http://www.trafi.fi/ilmailu/harrasteilmailun_turvallisuus/harrasteilmailuyhteisty</p> <p>Basic model</p> <ul style="list-style-type: none"> • TTM 11 Turvallisen toiminnan malli ilmailukerhoille ppt[A safe operations model for aviation clubs] • TTM 12 Turvallisen toiminnan malli käytännössä ppt [The safe operations model in practice] • TTM 13 Turvallisen toiminnan malli doc [The safe operating model] • TTM 14 Turvallisen toiminnan malli ympyräkaavio [The safe operating model, circle diagram] • TTM 15 Poikkeamailmoitusten käsittelymalli doc[Model for handling occurrence reports] 	23/12/2015

<p>Risk management</p> <ul style="list-style-type: none"> • TTM 21 Riskienhallinnan malleja ppt[Risk management models] • TTM 22 Harrasteilmailun keskeiset riskit ppt[Key risks in general aviation and how to manage them] • TTM 23 Riskienhallinnan työpohjia ppt [Risk management templates] <p>Just culture</p> <ul style="list-style-type: none"> • TTM 31 Just Culture - oikeudenmukainen toimintakulttuuri ppt • TTM 32 Malli hyväksyttävän ja ei-hyväksyttävän toiminnan rajan asettamiselle doc [Model for determining the limit between acceptable and unacceptable operations] <p>Good airmanship</p> <ul style="list-style-type: none"> • TTM 41 Hyvä ilmailutapa ppt [Good airmanship] 	
Safety bulletins	
Turvallisuudesta purjelentotoiminnassa [Safety in sailplane operations]	18/05/2015
Ultrat - tekniikkaalien analyysi [Ultralights – analysis of technicals]	03/06/2015
Sailplane safety through training	01/07/2015
Safety in ultralight aviation	13/11/2015
Training support materials	
KILA SAFE PILOT (KSP) further training programme for ultralight pilots	10/07/2015
KILA SAFE PILOT flight log notebook	10/07/2015
Sailplane instructor’s support material (draft)	01/07/2015
Introduction to sailplane aerobatics	08/06/2015
Training cards 2015	08/06/2015
Checklist 2015	08/06/2015
PIK-20 TurboD (V-n) drawings	08/06/2015
Oppimis- ja opettamisprosessit 1.0 [Learning and teaching processes 1.0], teaching support material for general aviation instructors	7/2015
Lennä turvallisesti [Fly safe] (Finnish translation of material from the Swedish package ‘Fly Safe – Flyg Säkert’)	21/09/2015
Lentovirebarometri [Flight alertness barometer] (Finnish translation of material from the Swedish package ‘Fly Safe – Flyg Säkert’)	21/09/2015
EGAST: Sakkauksesta ja syöksykierteestä johtuva hallinnan menetys	7/2015

(Finnish translation of the EGAST leaflet ‘Stall and Spin Loss of Control’)	
UPL instructor manual 1.0	27/11/2015
Lentosääoppia harrasteilmailijoille XI 2015 [Meteorology for general aviators]	19/11/2015
Lisämateriaalia lentosääoppiin harrasteilmailijoille XI 2015 [Additional material for meteorology for general aviators]	19/11/2015
Opas kannuspyörälentämiseen [Guide to flying tailwheel aircraft]	30/12/2015
Revised regulations	
Määräys GEN 1-11 eräiden ilmailumääräysten kumoamisesta [Aviation Regulation concerning the repealing of certain aviation regulations]	07/10/2015

7 Critical review of outcomes – summary and thoughts for the future

The overall goal of the project was attained. However, as noted above in section 6.1, it is vital to ensure a good culture of co-operation in Finnish general aviation and its constant improvement. Implementing such a change with broad and permanent impact will take several years. The continuity of this work is specified in the *Operating model for safety work in Finnish general aviation* (Appendix 1). Measuring a culture is a challenging task, but indicators have now been established that can be used for gauging the impact and continuity of the change being sought.

Some of the working group actions were completed in early summer, while others will not be completed until 2016. Some of the actions are intended to remain in place as permanent practices. In addition to this final report, a *follow up plan* was drawn up, listing by working group for each action its outcomes, completion timetable, effectiveness indicator, monitoring timetable and responsible parties, and whether the action was a one-off action or intended as a permanent practice. The follow up plan is intended as a tool for internal co-ordination at Trafic but also includes further actions for impact assessment.

There are plans to circulate a questionnaire in the aviation community in spring 2016 to gauge awareness of the various actions and outcomes. A follow-up questionnaire will be circulated in the autumn, focusing on assessment of the adoption and effectiveness of the project outcomes and related development needs. The responses to these questionnaires will be discussed at the *meetings outlined in the operating model for safety work in Finnish general aviation*.

In the context of general aviation in Finland, ‘operating culture’ refers to not only the various operating models in use but also a culture of co-operation; how advanced and mature that culture may be is up to the contribution and commitment of each individual. Therefore the conclusion of this project is not an ending; rather than a full stop, it is a comma in a long string of collaborative efforts. On the other hand, this project was also not a beginning: there is an extensive tradition of communal safety efforts undertaken by aviation clubs and by the aviation community at large. As an example of co-operation at the national level, we may mention the cooperation forum for aviation launched in the early 2000s. Meeting two times a year, the forum offered various interest groups in the

aviation sector the opportunity to voice the opinions of their respective organisations. Both commercial and general aviation were represented at the forum. Other examples include co-operation in organising various aviation events and seminars. The purpose of the present project was to support and revive these traditions and to revise them as necessary.

The aviation community has made a huge contribution to the project, engaging in a communal effort to improve safety. As noted in the sections of this report concerning communications, the community itself plays a vital role in increasing safety awareness and communality. Achieving 'critical mass' is crucial for every process of change, and effecting a change in the safety culture is no exception. Introducing and utilising the outcomes of this project and building on them are very much up to the community itself.

In the course of the project, there has been much talk about freedom and responsibility going hand in hand. In any field of human life, amateur activities enjoy a greater freedom than commercial operations. According to the risk hierarchy adopted by the European Aviation Safety Agency (EASA), the purpose of the authorities is principally to protect uninvolved third parties and passengers on commercial air transport. This is about prioritisation. At the European level, the trend is towards lighter regulation and the transfer of authority tasks and responsibility to general aviation organisations. It is widely understood that added or tighter regulation is rarely the most efficient way to improve safety. The emphasis is on operators themselves taking responsibility. The role of the authorities will then also evolve from oversight and control to sparring partner and facilitator. An aviator is also a customer, and one of the important functions of the authorities is good customer service.

Lighter, risk-based and performance-based regulation requires operators not only to assume responsibility but to acquire new competence. On the other hand, often the best competence in ensuring the safety of general aviation operations may be found within the aviation community itself. It would be important for future efforts to have operators understand that aviation safety can be improved without compelling provisions or orders from Trafi telling them to do so. Often regulations simply specify a minimum or maximum level. Operators could determine a target level of their own for their operations, aiming at a better level of achievement than specified in the regulations, and indeed it would be worthwhile for them to do so.

Having a strong safety brand in general aviation is a requirement and a solid basis for maintaining the vitality and general acceptability of aviation as a leisure pursuit. It is also important to uphold the operating potential of a vibrant general aviation sector. **Interaction** within and between private individuals, small communities (clubs, associations, operators at specific airfields or aerodromes) together with functional networks tying together the nationwide community form the foundation of maintaining a good safety culture. This was identified as the core of safety work in opinions voiced at the Lentoön! [Take off!] seminar.

Appendix 1. Operating model for safety work in Finnish general aviation

GENERAL AVIATION SAFETY PROJECT

– OPERATING MODEL FOR SAFETY WORK IN FINNISH GENERAL AVIATION

TRAFI, FINNISH AERONAUTICAL ASSOCIATION (SIL), AOPA FINLAND, FINAVIA, FINNISH METEOROLOGICAL INSTITUTE

VERSION 1.0, ADOPTED 17 DECEMBER 2015

IDENTIFIED PROBLEM: the Finnish aviation community does not work as a whole to promote general aviation: there are no shared goals, or goals are contradictory; there is no co-operation; operators duplicate each others' work with inadequate resources; there is no shared forum

GOAL 1: Bring the Finnish general aviation community into closer co-operation, define shared goals and commit to them, engage in co-operation and establish a forum for regular meetings of all key operators in general aviation.

Practical actions: how to improve?	Responsible party	Timetable
<p>1. Establishing a co-operation forum for parties active in general aviation</p> <ul style="list-style-type: none"> - regular meetings of bodies responsible (VT) for co-operation in general/general aviation <ul style="list-style-type: none"> o autumn meeting theme: how was the past season? o spring meeting theme: what is new or current before the start of the next season? o give feedback (praise and development points) by organisation o talk and select current major themes for safety promotion and seminars o rotating responsibility for hosting the meetings - publish the outcomes of the meetings in a joint half-year plan - this plan should include the major (e.g. 1 to 5) safety-improving actions or themes that have been identified and selected as focus areas and which the participants will take into account in their operations 	<ul style="list-style-type: none"> - Trafi, Finnish Aeronautical Association (SIL), AOPA Finland, Finavia, Finnish Meteorological Institute - co-ordination: contact persons appointed by the organisations 	<ul style="list-style-type: none"> - first VT meeting: communality workshop, Oulu, 11 April 2015 (FMI not yet participating), next one held 16 September - spring 2016 VT meeting: Oulu, March, hosted by AOPA Finland - autumn 2016 VT meeting, also the planning meeting for the Lentoon! [Take off!] seminar 2016: September
<p>2. Co-operation in organising safety seminars and events for clubs and individual aviators (Trafi, Finavia, SIL, AOPA Finland, FMI)</p> <ul style="list-style-type: none"> - Lentoon! [Take off!] seminar <ul style="list-style-type: none"> o annually in the autumn at an agreed time o publicised to the entire community in good time, over multiple channels and with the aim to reach new 	<ul style="list-style-type: none"> - Trafi, Finnish Aeronautical Association (SIL), AOPA Finland, Finavia, Finnish Meteorological Institute - co-ordination: contact persons appointed by the organisations 	<ul style="list-style-type: none"> - Lentoon! [Take off!] seminar held on 14–15 November 2015 - Lentoon! [Take off!] 2016 <ul style="list-style-type: none"> - dates to be confirmed in January 2016 - rotating hosting responsibility held

<p>participant groups</p> <ul style="list-style-type: none"> o 2 days (weekend) o Aviation Museum + remote events o 5 organisers but rotating responsibility for practical co-ordination o themes selected at VT meeting (autumn/spring) <p>- Video seminar experiments</p> <ul style="list-style-type: none"> o An idea proposed at the Lentoon! [Take off!] seminar; can be tried out in spring 2016 o 1-2 themes selected, experts (from Trafi, Finavia, the FMI, the SIL, AOPA Finland) brought together in an expert panel with video feed streamed live online. Anyone can ask questions of the panel members through the online message board, either from their home computer or from an aviation club session, for instance. o aims: direct interaction, dialogue and sharing information <p><u>Further information</u></p> <ul style="list-style-type: none"> - create and publish an annual clock of the key safety-related events in the general aviation community <ul style="list-style-type: none"> o where, when and what events during the year, and which events will be attended o makes co-operation and prioritisation easier - NOTE: jointly organised events do not exclude the possibility of other seminars, but they do reduce duplication of efforts and help prioritise important overall themes - for events organised around Finland, operators of uncontrolled aerodromes in the surrounding region should be invited to attend planning meetings and the events themselves - new ideas should be used in information distribution, such as video seminars and 'aviation phone-ins' 		<p>by Finavia in 2016</p> <ul style="list-style-type: none"> - a regular annual date is to be decided, and the venues will be publicised to the aviation community in January–February
<p>IDENTIFIED PROBLEM: challenge in reaching out to clubs and their members; they need more support, clubs duplicate each others' efforts with inadequate resources, no systematic competence management or methods for developing and supporting safety culture</p> <p>GOAL 2: Support club activities, create operating models to support clubs</p>		
<p>Practical actions: how to improve?</p>	<p>Responsible party</p>	<p>Timetable</p>
<p>3. Define an acceptable quality of operating culture for an aviation club in general aviation by drafting a guideline to be distributed to clubs. This guideline will inform clubs of the operating culture quality defined by the SIL and AOPA Finland, with support from Trafi and Finavia, that member clubs of those associations are expected to comply with</p> <p>Support the adoption of the model at aviation clubs.</p>	<ul style="list-style-type: none"> - Guideline working group: Trafi as co-ordinator, members: the SIL, AOPA Finland, the aviation community - adoption: aviation clubs - support and monitoring: SIL, AOPA Finland, Trafi 	<ul style="list-style-type: none"> - first workshop meeting at Trafi on 10 September 2015 - draft of the guideline to be distributed to the clubs completed for the next VT meeting – done, model presented at the Lentoon! [Take off!] seminar; layout+printing+mailing to clubs for adoption December 2015 - questionnaire on familiarity with the model sent to clubs March 2016, and questionnaire on the use of the model September 2016 ,
<p>4. FURTHER ACTION: To be discussed at VT meetings: leveraging competence in the general aviation community (clubs, individual aviators) for universal use; means include creating a communal online platform including shared training material, a chatroom function, an instructor pool (flight instruction, theory instruction, safety briefings)</p>	<p>FURTHER ACTION: To be discussed at VT meetings:</p>	<p>FURTHER ACTION: To be discussed at VT meetings:</p>

<p>Further processing and use in the community of the basic concept of the training material databank created in the project and the materials in it</p>		
<p>5. FURTHER ACTION: To be discussed at VT meetings: clarifying the basic task and role of each operator, determining responsible parties and communicating these matters on the basis of feedback received in the project, as part of own operations</p> <p>As in the Oulu workshop, "make the current situation visible" to facilitate development, i.e. give feedback specific to each organisation regularly at VT meetings (positive and negative), listen to the feedback with an open mind and use it to improve own operations.</p>	<p>FURTHER ACTION: To be discussed at VT meetings:</p>	<p>FURTHER ACTION: To be discussed at VT meetings:</p>
<p>PROBLEM: difficult to reach 'solo amateurs' who are not members of a club – how to ensure that the competence of these aviators is maintained and improved</p> <p>GOAL 3: reach out to 'solo amateurs' who do not belong to clubs: support the maintaining of competence and continuous development of these 'solo amateurs'</p>		
<p>Practical actions: how to improve?</p>	<p>Responsible party</p>	<p>Timetable</p>
<p>6. active use of communications channels</p> <p>SIL, AOPA Finland, Trafi, Finavia, FMI – multi-channel communications as part of own operations, leveraging co-operation opportunities identified in the project (e.g. reaching out to members of associations, committees and clubs through organisations, reaching out to individual licenceholders through Trafi)</p>	<p>SIL, AOPA Finland, Trafi, Finavia, FMI</p>	<p>FURTHER ACTION: To be discussed at VT meetings:</p>
<p>7. reaching out to aviators who do not belong to clubs and inviting 'solo amateurs' to join a club – means?</p> <ul style="list-style-type: none"> - through actions listed under goals 1 and 2 - developing check flight operations (risk-based operations, themes) - exerting influence through insurance companies (motivating membership of a community) - increasing the attraction of club activities is also of vital importance 	<p>FURTHER ACTION: To be discussed at VT meetings:</p>	<p>FURTHER ACTION: To be discussed at VT meetings:</p>