

MOTORCYCLE INSTRUCTORS' SKILL REQUIREMENTS HARMONIZATION

Advanced Rider Training

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Opinnäytetyö
Lokakuu 2014
Degree Programme in
International Business

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TIIVISTELMÄ

Tampereen ammattikorkeakoulu
Degree Programme in International Business

TOMMI LUMIAHO :
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HARMONIZATION - Advanced Rider Training

Opinnäytetyö 51 sivua
Lokakuu 2014

Tällä hetkellä moottoripyöräkoulutusta Suomessa voi tarjota kuka vain, rajoituksia tai kykyvaatimuksia ei ole. Vajaan vuosikymmenen kotimaista moottoripyöräkoulutusalaan sivusta seuranneena sekä myös aktiivisena alan toimijana, olen saanut huomata hyvin-kin vaihtelevia tapoja, tyyliä sekä käsityksiä olennaisista tai vähemmän olennaisista moottoripyöräilyn liittyvistä asioista kouluttajien keskuudessa.

Pyrin tätä opinnäytetyötä tehdessäni haastattelemaan asiantuntijoita mahdollisimman laaja-alaisesti, jotta löytäisin tutkimuksellista pohjaa työhöni. Materiaalia kotimaisesta moottoripyöräkoulutusalaan on hyvin vaikea löytää muutoin kuin haastatteleamalla, koska olennaista painettua kirjallisuutta on äärimmäisen rajallisesti jos ollenkaan. Kotimainen moottoripyöräkouluttajien pätevyysvaatimusten harmonisointi on kuitenkin asia, jonka eteen tulisi tehdä töitä.

Työssä keskityn nykytilanteen kehittämiseen, ja uuden kouluttajapätevyysmallin määrittelyyn yleisellä tasolla. Selvitän kotimaan alan toimijat, ja vertailen näiden toimialoja ja erityisosaamista sekä heikkouksia. Pyrin minimoimaan päällekkäisyydet ja maksimoimaan tehokkuuden ja vaikutuksen. Kotimaisten kärkitoimijoiden, Liikenneturvan ja Suomen Moottoripyöräkouluttajat ry:n toiminnot nousivat työni kannalta keskeisimmiksi.

Etsin mallia maailmalta. Tein osan tästä työstä työskennellessäni Ramboll Finland Oy:ssä nuorempana suunnittelijana. Työni liittyi kiinteästi EU-rahoitteisiin moottoripyöräilyn turvallisuuden ja koulutuksen kehittämiseen. Tutustuin uusiin ja tunsin jo aikaisemminkin avainhenkilöitä alalta myös ulkomailta, ja erityisesti eurooppalaisten motoristiyhdistysten yhteenliittymän, FEMAn, riveistä sain runsain joukoin tietoa ulkomaiden mp-koulutus käytännöistä ja kouluttajien pätevyysvaatimuksista. Olennaiset kotimaiset esimerkit sekä yksi ulkomainen esimerkki alan toimijoista tuodaan työssä esiin.

Asiasanat: moottoripyörä, turvallisuus, koulutus, asiantuntija, pätevyysvaatimus, kehitys, harmonisointi

ABSTRACT

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HARMONIZATION - Advanced Rider Training

Bachelor's thesis 51 pages
October 2014

At the moment anyone in Finland can offer motorcycle training without any limitations. After nearly a decade of close observation and participation in the field, I have noticed several key aspects of motorcycling being taught quite differently and sometimes misleadingly among domestic instructors.

In doing this thesis I have endeavored to interview experts as much as was possible and relevant, in order to give this thesis academic relevance. However, material on this field is immensely scarce if it even exists, but it still does not undermine the importance of harmonizing the requirements of motorcycle instructors.

This thesis will focus on improving the current situation and defining a new model for future implementation. The thesis will introduce relevant domestic operators and compare their operations and strengths and weaknesses. Overlapping will be minimized and efficiency will be emphasized. The domestic spearhead operators, the Finnish Road Safety Council and Finnish Motorcycle Instructors Association, proved to be most relevant to this thesis.

The thesis also looks abroad. Part of this thesis completed during employment at Ram-boll Finland Oy as a junior designer. I worked closely with EU funded project regarding motorcycle safety and training development. Having acquaintances in the field also abroad, especially via the Federation of European Motorcyclists' Association, FEMA, I was able to harvest loads of relevant information from key experts in many countries regarding the PTW instructor qualification schemes and motorcycling in general. The thesis will introduce two domestic examples and one foreign example.

Key words: motorcycle instructor, safety, skill requirements, harmonization

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LYHENTEET JA TERMIT

ACEM	Association Constructeur Européen de Motocyclisme; no Finnish affiliates
Advanced rider training	Voluntary follow-up training
DDL	European Directive on Driving License
DG Connect	Directorate General Communications Networks, Content and Technology of European Commission
DG MOVE	Directorate General Mobility and Transport of European Commission
FEMA	Federation of European Motorcyclists' Associations; Finnish affiliates: Suomen Motoristit ry (SMOTO) and Moottoripyöräkerho 69 ry (MP69)
FRSC	Finnish Road Safety Council (Liikenneturva)
Initial rider training	Training in driving schools etc, training for a driver's license
ITS	Intelligent Transport Systems
PTW	Powered Two-Wheeler = motorcycle, scooter, moped
SMOK	Suomen Moottoripyöräkouluttajat ry (Finnish Motorcycle Instructors Association)

1 INTRODUCTION

As it states in the European Commission's *HORIZON 2020 (H2020) – WORK PROGRAMME 2014-2015*, improving traffic fluency and safety among all road user groups (=smart and integrated transport) is a key aspiration of the European Commission. The Work Programme clearly defines goals which should be reached with the help of the Programme and its affiliates.

As Ramboll has extensive experience in working with powered two-wheelers (PTWs) and future safety applications therein, participating in H2020 from a PTW-rider's point of view would be beneficial for business and traffic safety.

One way to affect traffic safety is ensuring proper and up-to-date vehicle operator skills. Ensuring the appropriate level of expertise and maturity of PTW-instructors is a key function in improving existing advanced training schemes for riders. Finland could act as a pilot site for national PTW-instructor requirements harmonization trials.

Initial training schemes are rigid and slow to change, due to the level of governmental bodies affiliated with the respective legislation. The current Initial Rider Training legislation is based on the third European Directive on Driving License (DDL) that entered into force in January 2013 (Dir. 2006/126/EU). This is to guarantee a freedom of movement to EU drivers, reinforce safety on European roads and reduce possibilities of fraud.

Driving licence rules also have a great impact on road safety. With more than 30.000 deaths on European roads each year, the new driving licence rules will help to enhance safety on European roads. The changes for motorcycles are the most important. By introducing gradual access to motorcycles for young riders the new European rules are to better protect this vulnerable group of road users. These rules will not affect a right to drive a vehicle that was acquired beforehand.

Advanced training, on the other hand, is organized majorly by small and agile not-for-profit organizations. This report will include processes of becoming a motorcycle instructor in those organizations, i.e. motorcycle clubs. These are the main operators in

advanced PTW-training in Finland. The criteria and merits for qualifying as an instructor vary between these clubs. The clubs are often formed by make of the motorcycle, gender, religion, driving habits, or region.

Concepts, roles, and activities of different organizations in this field in Finland are sometimes intertwined and may overlap, which causes challenges in making a document such as this easy to comprehend. This is also why all operators in Finland cannot be clearly introduced in this report, and consequently a brief introduction is given using a handful of relevant examples.

2 DRIVING SCHOOLS – A BRIEF COMPARISON

The task of educating driving school teachers is managed and executed by two institutions: Hämeenlinna University of Applied Sciences with their Traffic Instructor's Degree Program, and Jyväskylä Driving Instructor College, which is a part of Jyväskylä Educational Consortium. Only after a person has graduated from either of these institutions the person is allowed to give driving school lessons. Other educational prerequisites do exist, but in this report they are of no relevance.

Upon graduation, a driving school instructor is allowed to establish a driving school and give lessons which aim at the student passing the driver's exam (initial training). Still, depending on the specialization choices the instructor has made during his studies, there are limitations regarding the types of vehicle for which he is allowed to give instructing. For instance, only if the person has undergone education on motorcycles and motorcycle riding during his studies, is the person allowed to teach motorcycle-students in a driving school. (The same specialisation process also applies to heavy goods vehicles.)

This very recent change (June 2013) in the qualification to teach different vehicle types does not apply with driving school teachers who have been giving lessons before this development; They are still free to give lessons for all vehicle types.

3 MOTORCYCLE CLUBS, INSTRUCTOR CERTIFICATION

3.1 General

This report will introduce two institutions who give advanced PTW- training in Finland: Moottoripyöräkerho 69 ry (*Engl.* Motorcycle Club 69, or MP69 in short) and Motorg ry. Still, below is given brief introductions of other clubs as well.

Gospel Riders is a motorcycle club formed by motorcyclists who wish to express their Christian lifestyle. During the last three years they have hosted six training events. They have three active instructors who have either been trained by the Finnish Road Safety Council (later FRSC)¹ or who are already driving school instructors (email conversation with Gospel Riders representative and myself, 2013).

Zoo MC is a motorcycle club centered in Helsinki, and aims its events for the "normal biker", according to their website. They have 14 active instructors, and host one training event a year. All their instructors are either driving school instructors or trained by the Finnish Road Safety Council (email conversation with Zoo MC representative and myself, 2013).

Yamaha Custom Club, or YCCF, consists of Yamaha custom bike enthusiasts. During the last three years they have organised seven training events, the contents of which are based directly on the Finnish Road Safety Council's MPEAK material. Seven out of their 15 instructors are certified by the Finnish Road Safety Council (email conversation with YCCF representative and myself, 2013).

Of course, there are many other groups and clubs who provide training for motorcyclists, but, when compared to MP69 or Motorg, their activities are limited either by visibility, quality or accessibility, i.e. the courses may be available only for club members. The training events also may include mere driving line training at a race track during a track day, with little or no attention paid to any other aspect of motorcycle handling.

¹ Liikenneturva's mission and goals are described in law. Liikenneturva launches campaigns and informational advertisements to affect the traffic situation in Finland. More on Liikenneturva later in this document.

Also, the expertise of the instructors varies greatly, just like the emphases and quality of the training events.

3.2 Motorcycle club 69 – MP69

3.2.1 MP69 in general

MP69 is a nation-wide motorcycle club for touring motorcyclists, and was founded in 1969. The purpose of the organisation is, among other things,

to affect the Finnish legislation and to monitor the rights of motorcyclists nation-wide, to assist its members to adopt aspects of the correct riding habit, and to establish good relations between motorcyclists and the public and to maintain them, and to assist its members in the handling and maintenance of motorcycles²

MP69 consists of its members, the board, and the chairman. There are no prerequisites for membership, and thus anyone can join.

In June 2013 there were 1,960 members in MP69. A typical MP69 member is a person who rides a motorcycle as a hobby. The typical member rides long stretches, makes trips with the motorcycle and attends motorcycle meetings.

MP69 has 15 active instructors. Nine of them are accredited by SMOK and four are certified by the Finnish Road Safety Council. The club trains around 120 motorcyclists every year, with orders for training coming from outside the club as well, i.e. companies or small groups.

MP69's Motoristi Survival -course has been refined from the Finnish Road Safety Council's earlier course packages some decades ago, and is organized 1-3 times a year.

² Taken from MP69's rulebook, translated by the author.

3.2.2 Instructor Course

This training event is less formal than the other MP69 events due to the fact that it is not part of the regular MP69 event calendar. It is organised if suitable candidates are identified, and it is organised by the more experienced *Motoristi Survival* instructors. The applicants are chosen from among active motorcyclists and people who participate in the activities of MP69, and who show sufficient potential, suitable attitude and relevant basic skills.

Right after participating in, and graduating from, the instructor course, a new instructor is not yet immediately granted full autonomy. The instructor has to first participate in the training activities organised by MP69 as an assistant instructor, under the supervision of a more experienced instructor (who is also chosen carefully), in order to gain experience and confidence. When the new instructor begins to show signs of adequate experience and proper poise, he will be given, and is ready to take, more responsibility on the field. The newly appointed instructor is not to organize events by himself, posing as a representative of MP69. All training events are organized by an official channel, the MP 69 Director of Training.

All MP69's instructor applicants go through the *Motoristi Survival* Instructor Course. Due to the fact that many MP69 instructors are also certified by SMOK (with some having taken part in the design and initial implementation of the SMOK tests in the early 1990s) the quality, standards, and methods of *Motoristi Survival* Instructor Course are close to those of SMOK.

To become an instructor for MP69, the applicant must participate in, and pass, the *Motoristi Survival* Instructor Course. The course is informal, but has to be gone through and passed.

3.3 Motorg ry

3.3.1 Motorg in general

Motorg ry began as an internet based community under the name "Moottoripyörä.org" in 2002. The community quickly grew and an association was established to manage the community. Thus Motorg ry was founded in 2004. Information was gathered via email conversations between Motorg director of training and myself (2013).

The Motorg internet forum hosts approximately 30,000 registered users. Motorg is among the biggest (if not *the* biggest) motorcycle training operators in Finland, with around 20 training days every year. The vast majority of the training events take place on a race track. Motorcyclists from all genres are represented in Motorg, although an emphasis is on riding on a race track. Motorg is the biggest organiser of training events that take place on a race track in Finland.

3.3.2 Instructor Course

In Motorg instructors are picked from among the active and promising event participants and then asked to become instructors. All instructor applicants attend the MPEAK-course organised by the Finnish Road Safety Council, so all Motorg instructors are certified by the Finnish Road Safety Council. Incidentally, additional three are accredited by SMOK.

4 NATIONAL INSTRUCTOR TRAINING AND CERTIFICATION

There are two institutions in Finland who provide training for future instructors. In the advanced training scene, there is no obligation to undergo training or tests from either of these institutions, but they are highly regarded, though insufficiently visible and known.

4.1 The Finnish Road Safety Council

4.1.1 Finnish Road Safety Council in general

The Finnish Road Safety Council (FRSC) (in Finnish Liikenneturva, *liikenne*=traffic, *turva*=safety, protection) is an organisation founded to manage traffic safety in Finland. It aims at providing high quality information and instructor training. In their own words (from their website):

The objective of the Finnish Road Safety Council's communications is to rapidly communicate and comment current traffic safety issues, generate debate and to distribute expert information for the benefit of the road users and decision-makers alike.

The Finnish Road Safety Council provides the road users with the proper means to enjoy safe travel – among other things – through publishing. The services available for media are also under constant development.

It is legislated that the Finnish Road Safety Council is a public association that acts as the national central organisation for traffic safety work. Its tasks consist of, similarly stipulated by law, the following:

- 1) practise publishing, enlightenment, and educational activities regarding traffic safety;
- 2) conduct research that serves the purpose of the Finnish Road Safety Council;
- 3) guide and consolidate the traffic safety work of its member organisations (see Appendix); and

- 4) make initiatives and act in benefit of traffic safety in general³

By law, the majority of the Finnish Road Safety Council's funding comes as a percentage figure taken out of all national traffic insurance revenues. It is estimated that 97% of the Finnish Road Safety Council's funding comes via this traffic insurance revenue payment. In 2012 the Finnish Road Safety Council's turnover was 6,3M€. The FRSC employs 46 people.

Essentially, the FRSC organize informative campaigns and produces advertisements on television and magazines and newspapers of their interest. FRSC have a group of different kinds of EAK (pre-emptive driving) instructors consisting of volunteers, accident victims, and Liikenneturva personnel.

4.1.2 The Finnish Road Safety Council's Instructor training

MPEAK (in Finnish *moottoripyöräilijän ennakoivan ajon kurssi*) is a concept introduced by the FRSC, which aims at improving the safety of motorcyclists. MPEAK was established in 1977 as a response to the motorcyclists' worrying perceptions of their own safety. FRSC, together with motorcyclists, designed an advanced training course which brought up the aspects of traffic safety as well as contributed to the safety development of other transport modes. This was the time, when a motorcycle license was complementary alongside a driving license for a car.

4.1.3 MPEAK Instructor Course

There are three degrees of MPEAK training. Depending on one's targets and skills, one or more of them may apply simultaneously. The degrees are listed below.

Firstly, a regular motorcyclist is able to take part in a pre-emptive riding course (an MPEAK course) and upon completion that motorcyclist is a few experiences richer, and at least knows how to handle his motorcycle better and is perhaps more enlightened. The course is not organized FRSC, but is organized by an instructor who has been trained by FRSC.

³ Source: www.finlex.fi

Secondly, a motorcyclist is able to take part in an MPEAK Instructor course, the completion of which grants the motorcyclist the certification of an MPEAK instructor (a pre-emptive riding instructor). The instructor is provided with training material by FRSC, and he is able to give pre-emptive riding training, with the authority granted by FRSC.

Thirdly, not all have the chance to become instructors at the MPEAK instructor course. FRSC chooses the instructors for the course themselves. According to the training coordinator at FRSC "we have aimed at providing the participants with knowledge from the best experts in Finland." Many SMOK accredited and affiliated instructors are instructors in the MPEAK Instructor Course.

This why, later in the text, no attention is paid to the criteria of becoming an instructor for the MPEAK instructor course, but instead, focus is on the requirements for passing the MPEAK Instructor course.

In order to pass the MPEAK instructor course, the applicant must participate in the course full time i.e. no absences are allowed. Also, the minimum requirements are:

- Pass the handling test identical to the test required for a motorcycle license
- Perform in giving a theory lecture demonstration and riding demonstrations
- Exemplary conduct; abides the traffic legislation, is fit to drive, etc.

No testing of the instructor applicants is included.

4.2 Finnish Motorcycle Instructors Association

4.2.1 Finnish Motorcycle Instructors Association in general

Suomen Moottoripyöräkouluttajat ry (in English Motorcycle Instructors Association), or SMOK for short, was founded in 1994. SMOK was founded by initial and advanced PTW-instructors to tackle the issue of low or questionable know-how and skills among motorcycle instructors in driving schools. Information was gathered via email conversations between SMOK chairman of the board and myself (2014).

SMOK has a reputation of an association who put out high quality motorcycle instructors. SMOK is not an official monitoring body, but was founded as an association to monitor, maintain, and improve the quality of Finnish motorcycle instructing in driving schools. SMOK also trains private individuals to become authorized motorcycle instructors.

The aim of the organisation is to educate and produce highly capable and skilled PTW-instructors. As an association, SMOK does not directly train motorcyclists, but has obtained the role of training and accrediting motorcycle instructors.

According to the rules of the association, the purpose of SMOK is:

...the advancement of motorcycle training, and development of the expertise and readiness of motorcycle instructors

SMOK consists of the association's members, certified instructors (i.e., members who have successfully passed the SMOK tests), the board, and the chairman.

SMOK offers the possibility of a mere membership in the club, but practices a certain level of exclusion in the application process. Mainly, the applicant must have passed a motorcycle instructor course of some kind (not specified) in order to be approved as a member. Also, the applicant must have an active motorcycle riding history from two years' time and the applicant must have driven at least 20,000 km on a motorcycle. The applicant fills in the application form online, and the form is then received by the board. The board finally accepts or discards the membership application.

In June 2013 there were 197 members in SMOK. A typical SMOK member is a driving school teacher, but there are also members who do motorcycle training as a hobby. SMOK has accredited 65 instructors during its lifetime.

4.2.2 SMOK Tests

In order to be certified as a SMOK instructor the applicant must be a member of SMOK, and the applicant must have successfully passed all of the SMOK tests. The

tests must be done on a “large motorcycle”, i.e. over 125 cc, according to the SMOK website. After successfully passing all tests, the applicant is provided with a degree, as well as the right to wear the SMOK logo on his/her bike or clothing. Typically one-to-five people are accredited every year.

It is not required to pass all tests at once. The tests are organized annually, and an applicant may try for as many years as is necessary.

4.2.3 Test Assignments

The SMOK tests are divided into six categories: *Slow exercises*, *fast exercises*, *theory*, *track*, *off-road*, and *instructing*. The grading for each individual performance under each individual category is graded on a scale 1-5. The applicant must achieve grades 5, 4, or 3 in order to pass that particular test. Grades 1 and 2 will cause the applicant to fail the test. (To pass the SMOK tests, all performances must be accepted.) There are two SMOK certified instructors observing and judging every driving test performance. There are typically ten participants. The quality of every driving performance must be of a high standard, so as to be acceptable to be shown to a group of pupils as a good and informative demonstration.

Slow Exercises

The slow exercises include driving slowly in a straight line and driving slowly in a circle. The straight line course is 20 m long and 60 cm wide. The applicant must spend no less than 30 seconds on the course, while maintaining a steady speed and control of the motorcycle.

The circle test must be performed by riding two consecutive circles in each direction with the steering turned against the limiter. The speed must be adjusted so that the rider is able to stop the motorcycle at any moment in a controlled manner, so the speed should therefore not exceed that of the driving in a straight line exercise. The circle is driven in two directions.

Fast Exercises

All fast exercises are done at speeds of 60 km/h or over.

The standard braking test is done from 80 km/h. The expected braking distance is about 25 m on dry asphalt, and it is required to be done without the assistance of ABS. The speed is measured with a photocell one meter before the first pair of cones.

The dodge test is done at 60 km/h. An efficient and controlled dodge by counter steering is expected. The speed is measured with a photocell one meter before the first pair of cones.

The *brake & dodge* test is done at 100 km/h. Upon entering the first alley of cones the applicant must begin powerful and controlled braking. The applicant must then release the brakes and avoid the obstacle in a controlled manner, as described in the dodge test. The speed is measured with a photocell one meter before the first pair of cones.

Theory

The theory test includes questions regarding motorcycle instructing and training event practicalities and legislation. The theory test is graded pass/fail.

Track

The track test measures the applicant's ability to ride a motorcycle on a race track at an adequate pace, with attention paid to riding stance, riding lines, gaze control, and other important aspects. A lap time is taken, but it is not of the essence. A SMOK instructor typically drives a model time lap, traditionally without using brakes. The applicants' lap times are then compared with the model time. The goal is not to train racing riders, but to test the applicants' skills in changing environments. During the actual test a SMOK instructor rides behind each applicant. The track test is graded 1-5.

Off-road

The off-road test measures the applicant's skills off-road. The applicant agrees on the time and place of the test with a SMOK instructor. The applicant is free to choose the motorcycle. The off-road test is graded pass/fail.

Instructing

The applicant must show that he/she is capable of instructing another motorcycle rider on his/her riding performance. The applicant must show expertise, fluency, the applicant

must be understood and must have a clear sense of direction regarding each topic, and the applicant must be alert for the model-pupil's potential mistakes or inadequate riding gear wear or wrong usage. Evaluators also observe if the security of the student is being taken care of, i.e. is the instructor prepared to attempt to save the student from falling by standing close by, etc. The instructing test is graded 1-5.

4.3 Comparison

Lastly, here a clear difference can be seen between the practices of FRSC and SMOK: When SMOK grants their instructor applicants the authority of a "professional in motorcycle instructing" (as is said on their diploma), SMOK also grants the right to participate in future SMOK instructor courses as an instructor.

SMOK also has the requirements and contents of the SMOK tests public on their website. FRSC procures its instructor-instructors through non-official channels, and the prerequisites of an MPEAK Instructor course's instructors remain undefined. During the lifespan of MPEAK, some 800-1000 people have been trained by FRSC. An MPEAK course costs 500€. The participant must also pay for the housing during the three-day course.

The SMOK instructor course costs 550€, and lasts for three days. Completion of the course grants no authority, only passing the tests does. Instructors for the SMOK instructor course are accredited SMOK instructors, and they also are the ones who evaluate performances in the SMOK tests.

5 THE NEED FOR TRAINING

5.1 German and Austrian Accident and Riding Studies

It is found that young people have the highest risk of serious motorcycle accidents, despite motorcycle type (Fored, Granath, 2014). It is also shown that riders are prone to running off the road specifically in left hand corners, which causes them to have an accident, or to cutting corners, similarly in left-handers, creating a viable risk of running into on-coming traffic (Winkelbauer, 2014).

Based on my expertise in post-license PTW-training, I assert that lane cutting can most often be traced down to inefficient use of sight, i.e. one's eyes. Incidentally, I also think that due to lack of proper observation methods, valid scientific data on this subject is hard to come by. Winkelbauer et al have published a recent study on riding in the left hand corners in Austrian Alpine roads.



FIGURE 1 Photomontage of rider and cutting a corner, and a bus (Winkelbauer, 2014).

A popular saying among motorcyclists (instructors and participants alike) at training courses states, that “the bike goes where you’re looking”. In short, this means that a motorcycle (and mainly its handling) is characteristically sensitive to the direction of

the rider's eyesight. The same effect can be observed among car drivers as well, but it is more emphasized on a motorcycle.

Because of this, doing exercises, which actively train the use of one's eyes to appropriately ease the handling of one's motorcycle, is among the first things taught at practically all training events. Correctly using one's eyes, not only to see, but to *steer*, is a fundamental part of motorcycle riding.

Also, insufficient braking has been identified as a factor for accidents leading to injury or death (Liers et al, 2014). It has been shown that in cases of acute disturbance in traffic flow motorcyclists have insufficient deceleration abilities. In short, motorcyclists are unable to brake properly, which leads them to crash into an object or steer off the road, causing them to have an accident. Again, I assert that braking is among the most crucial aspects of motorcycle handling training.

A German study looked into and defined different kinds of PTW-accidents (*Analysis of the accident scenario of powered two-wheelers on the basis of real accidents*, Liers et al, 2014) and portrayed them individually by accident type (Figure 2).

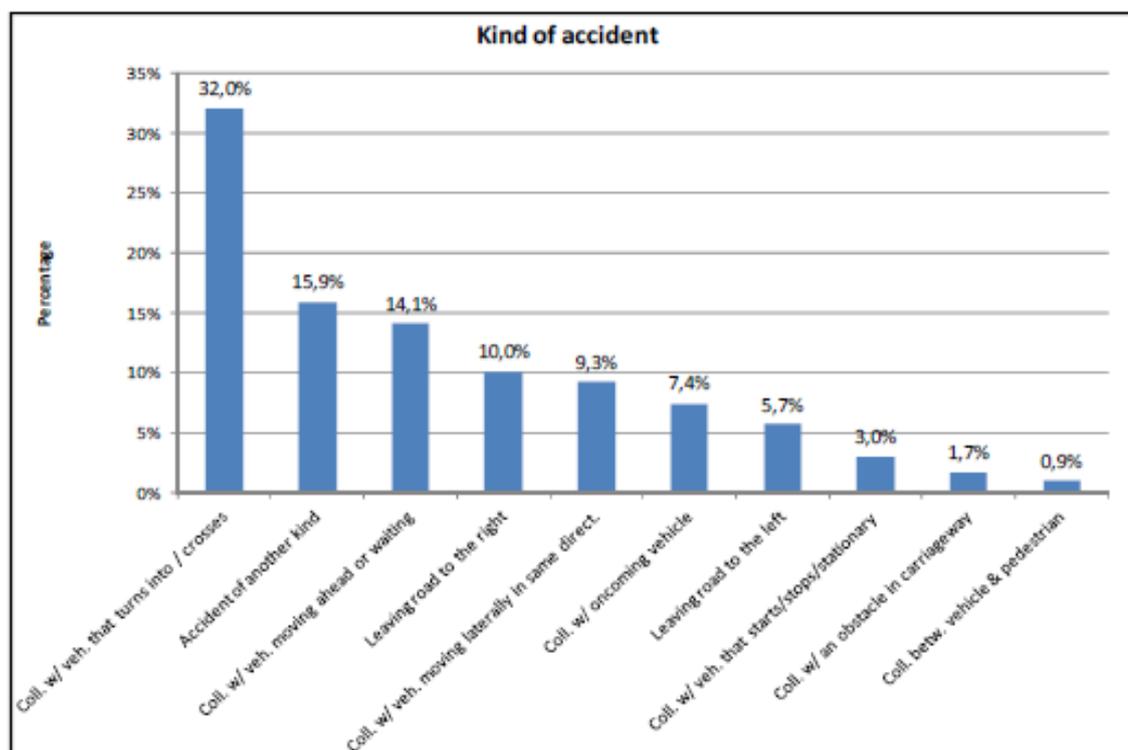


FIGURE 2 Kind of accident, Germany. N=1711.9 after statistical correction. (Liers et al, 2014).

Collisions with other vehicles in urban areas and intersections proved among the most frequent collisions. Also, running off the road in left hand corners proved twice as likely as to the right. It can be speculated that in right hand corners the oncoming traffic subconsciously restricts the riders' will to engage in extreme lean angles, whereas to the left, there is no oncoming traffic, but, obviously, only the bushes or similar obstacles.

According to the study, a significant number of the recorded accidents are single crashes due to loss of control, which speaks loudly for need for training schemes to prevent these kinds of individual blunders on the road (Figure 3). The study also states that “...every fourth accident of a PTW is a driving accident where loss of control played an important role.”

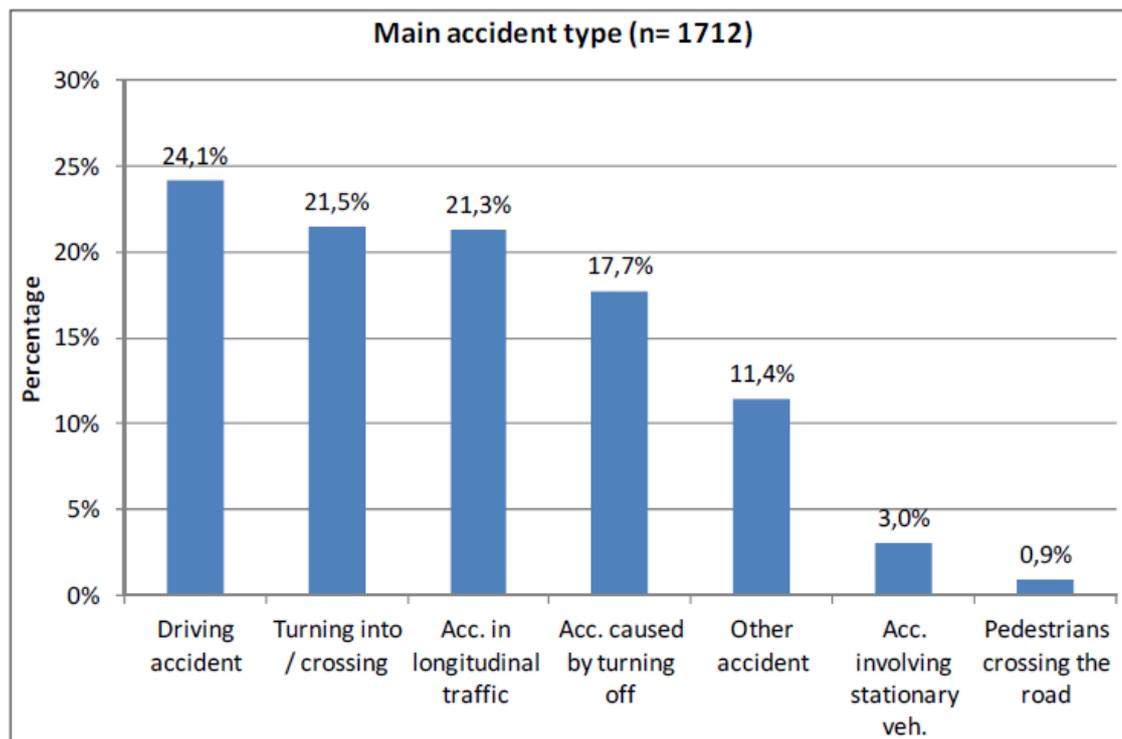


FIGURE 3 Accident type. Liers et al, 2014.

Regarding braking abilities and skills, the study goes on to say that “An important point in PTW accidents is the braking behavior. In general, the majority (72,8%) of motorcyclists is braking prior to the collision. About 40% are braking with more than 5 m/s² and less than 7,5 m/s² as reaction to the critical situation. Only 5% achieve a braking

deceleration above 7,5 m/s².” In figure 4 is demonstrated, that a skilled motorcyclist is able to brake at full capacity, even on a wet surface.

The study also suggests that “...motorcyclists that already had a safety training showed slightly higher braking decelerations than riders without any training.” The study concludes that, “...the proportion of loss of control accidents (especially in rural areas) is remarkably high.”

A large German devices manufacturer Robert Bosch GmbH is also closely affiliated with equipping motorcycles with cutting edge technological solutions. In their study on PTW-safety factors (Gröger et al, 2014) the rider and his/her riding skill and abilities are clearly emphasized (Figure 4).

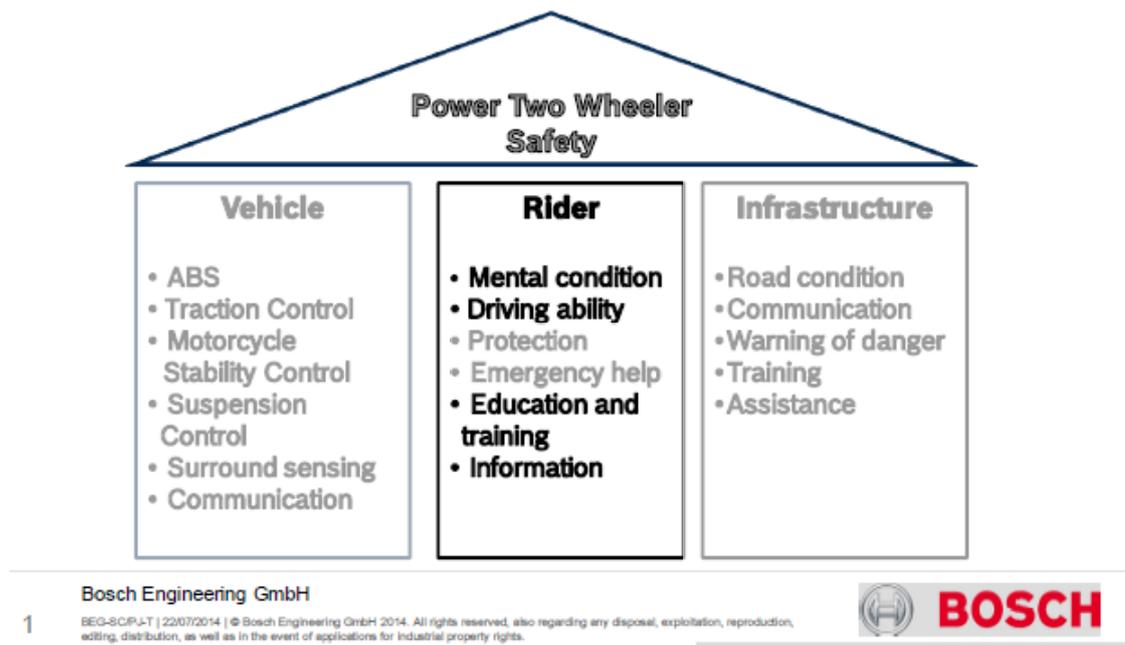


FIGURE 4 BOSCH PTW safety structure, with rider abilities highlighted by signatory. Gröger et al.

Based on this, it is a simple conclusion that training is vital to survival on the road, specifically among motorcyclists. The instructors must therefore be in control of their subject to maximize the value of the training for the participant.



FIGURE 5 SMOK Accredited MP69 instructor at braking practice. Credit KH Drive.



FIGURE 6 A crash site visualization. Red line marks the driven line, yellow the desired line. Skidmarks on the asphalt. Winkelbauer, 2014.

5.2 Finnish Statistics and Studies

Domestically motorcycles are gaining popularity, and the death statistics make a grim reading. As the number of PTWs in Finland is in a constant rise, and as the number of

fatal accidents on PTWs is in decline, one can observe a positive effect caused by increased training. People are enrolling in PTW handling courses organized by enthusiastic riders, and the number of fatal accidents is declining regardless of the rising number of PTWs.

The number of PTWs has been rising at a steady rate ever since 1985 (), when the corresponding number was 47,713. Between 1966 and 2013, the lowest motorcycle base was in 1971 with 43,178 units on Finnish roads. In June 2013 there were 247,925 PTWs (Trafi, 2013) registered in Finland. This massive amount and continuing growth in the number of motorcycles demands for modern approaches to tackle the growing needs of a growing number of vehicles, and consequently more vehicle operators on the road.

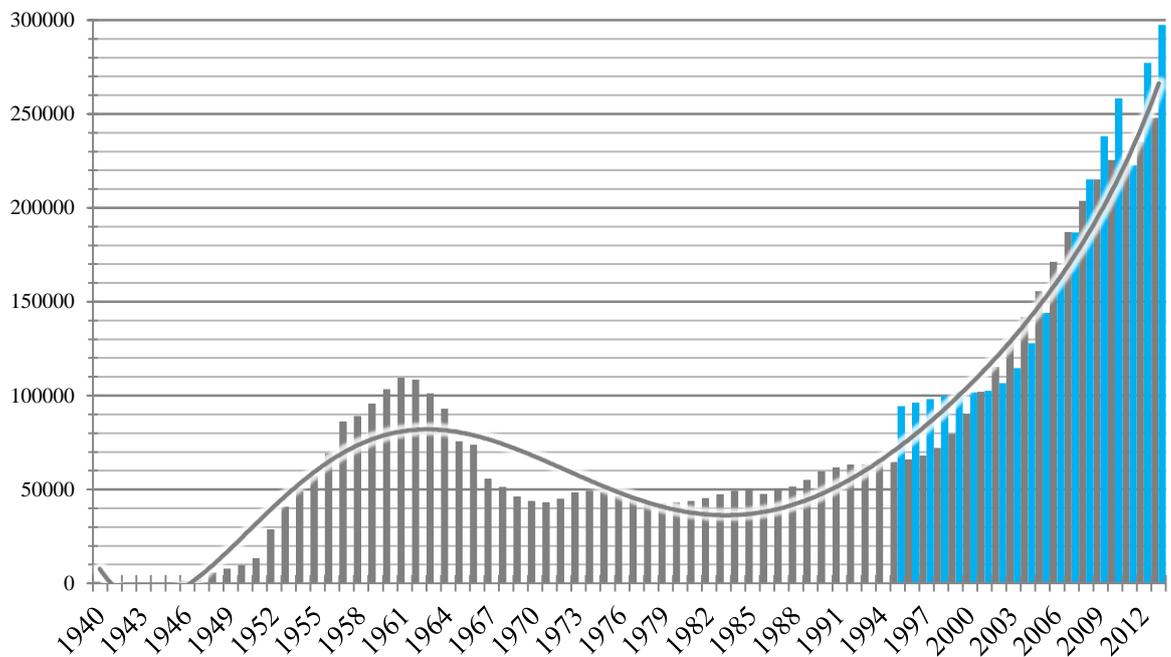


FIGURE 7 Development of the PTW base in Finland from 1940 to June 2013. Legend: Grey, motorcycles; Cyan, mopeds; Trend line, motorcycles. Source, Trafi.

5.3 Deaths by Transport Mode

Statistics show that the number of deaths per transport mode fluctuates constantly (Figure 8). It has been estimated by riders, that since technology increasingly tackles issues like correct braking or wheel spin control, the human factor is soon the only thing left that might cause an accident. This of course might mean that since the human factor is

unpredictable, so are the statistics, and they might mean anything. However, a clear correlation of death and vehicle base cannot be seen. Regarding mopeds, despite a dramatic increase in the number of vehicles, deaths have been in almost constant decline.

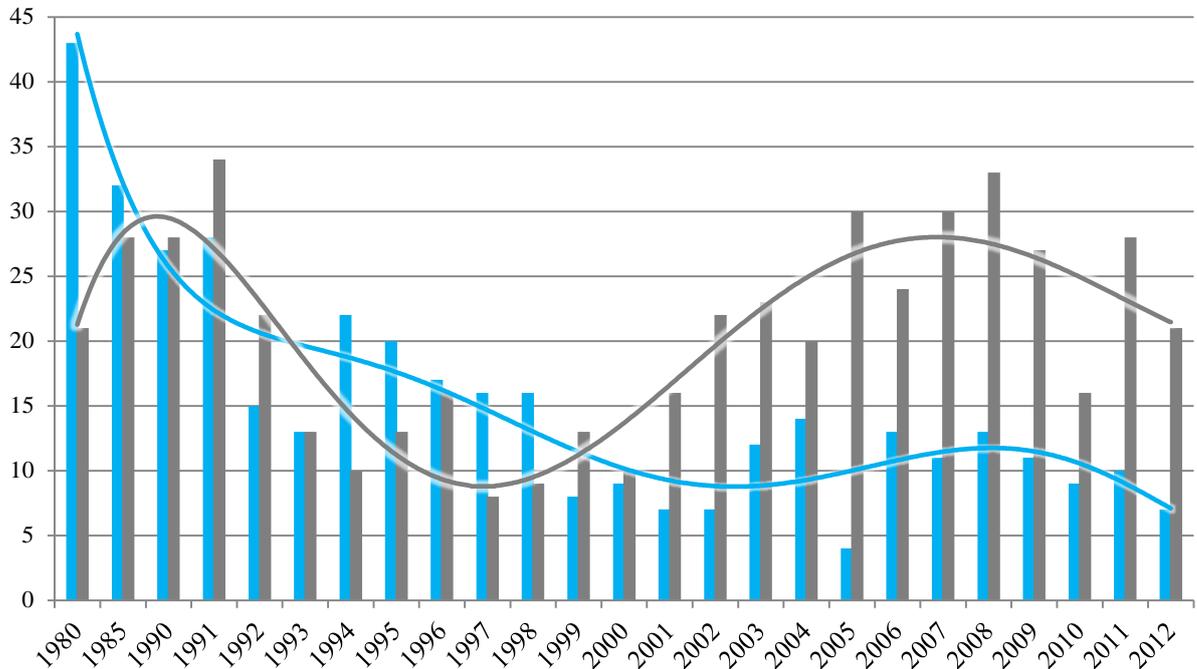


FIGURE 8 Number of Deaths by Transport Mode. Legend: Grey, Motorcycle; Cyan, Mopeds; Trend lines: trend line for each transport mode with matching colour. Source, the Finnish Road Safety Council.

Additionally, a Finnish motorcycle training and research company KH Drive has found that a skilled and practiced motorcyclist is able to brake at little over 1G deceleration, which equals to $10\text{--}12\text{ m/s}^2$ in deceleration ($1\text{G} = 9.81\text{ m/s}^2$), provided that the tires are in good condition (Figure 4).

5.4 Injuries by Transport Mode

A modest increase in both modes can be seen starting in the late 1990s, but a dive has occurred in both modes during 2009-2010 (Figure 9). Injuries among moped riders seem to have increased twofold during the last 10 years, but a turn for the better can be seen.

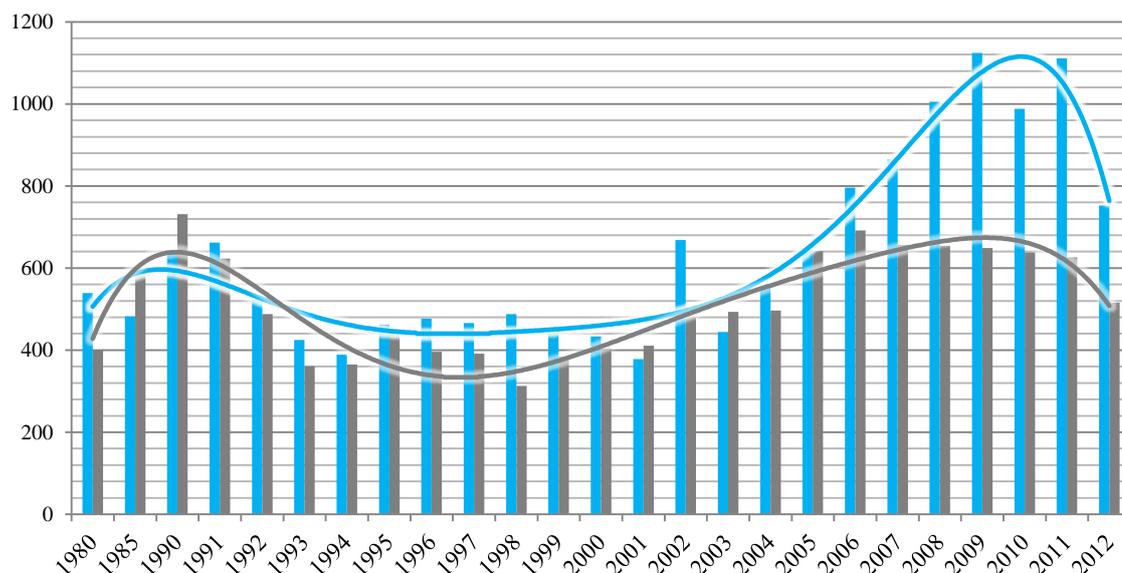


FIGURE 9 Number of injuries by transport mode. Legend: Grey, motorcycles; Cyan, mopeds; Trend lines, trend lines for each transport mode in matching colour. Source, the Finnish Road Safety Council

Motorcycles

Between 1922 and 1945 the number of motorcycles was practically stationary in Finland, with only minor fluctuations and constantly under or around 1000 units (Figure 7). After a significant decrease between 1961 and 1971 the number of motorcycles has increased steadily. In June 2013 there were 247,925 motorcycles registered in Finland. As for the recently changed driver's license legislation, it is too early to form educated opinions regarding the effects of modified initial training.

Mopeds

Moped is a vehicle which one may ride at the age of 15. Despite recent legislative changes based on 3rd DDL in the requirements for a license, mopeds have been gaining popularity. Powerful engines, advanced technology and improved styling and quality of materials and components have contributed to this development. The number of mopeds has been on a steady rise. No data is available on the number of mopeds before 1995, but since then the number of mopeds has more than doubled. In June 2013 there were 297,503 mopeds registered in Finland, almost 50,000 units more than motorcycles.

5.5 Impacts of Increased Requirements for Instructors

Increased level of quality control is essential, because poorly skilled instructors easily get into confrontations with training participants. The physical phenomena related to the motorcycle is often the subject of debate at training events, specifically if the instructor is not entire up to speed regarding the physics and dynamics of riding a motorcycle. These debates on the field often eat up a lot of time for training and also diminish the credibility of the instructor and therefore the entire training event.

The motorcycle instructor community in Finland is small and volatile to change. Only few instructors do advanced PTW-training for a living, and the rest are in it for the fun of it, i.e. it's a hobby. Changes in requirements for qualification must therefore be planned well and executed carefully, if execution even turns out to be the suitable course of action.

Keeping with the current system, instructors would not have any requirements in order to offer training. Motorcyclists would continue to participate in instructor training either organized by the FRSC or SMOK. The training in either of these institutions is not mandatory, and costs approximately 500€. The courses are 3-4 days long.

Hennes Fischer from Yamaha Motor Deutschland and Task Force Leader at Association Constructeur Européen de Motocyclisme (ACEM) thinks⁴ that if a nation-wide harmonization is executed, the reactions of the instructor community will vary. He goes on: *“The instructors who understand a quality label/control as an opportunity to re-ensure their customers will have positive reactions. But such quality control needs to be transparent, understandable and not overloaded by bureaucracy. Otherwise it usually keeps people negative about such regulations or initiatives particular if originated from Brussels.”*

Jesper Christensen of Swedish Motorcyclists (SMC) and Director, Member of Board of Fédération International de Motocyclisme (FIM) is along the same lines⁵, and says the instructors might have more reason for professional pride, knowing their credentials are widely known and appreciated.

⁴ Source: An email conversation between Mr. Fischer and me, 14.5.2014

⁵ Source: An email conversation between Mr. Christensen and me, 20.5.2014

6 INTERNATIONAL BENCHMARKS – FINDING A PRECEDENT

6.1 Case Germany

In Germany the amount of traffic fatalities has been in a steady decrease for some years, as can be seen in figure 3 and. While practically every second fatality on German roads is currently a car driver or occupant, the number and portion of total fatalities is also decreasing. The same cannot be said of motorcyclists.

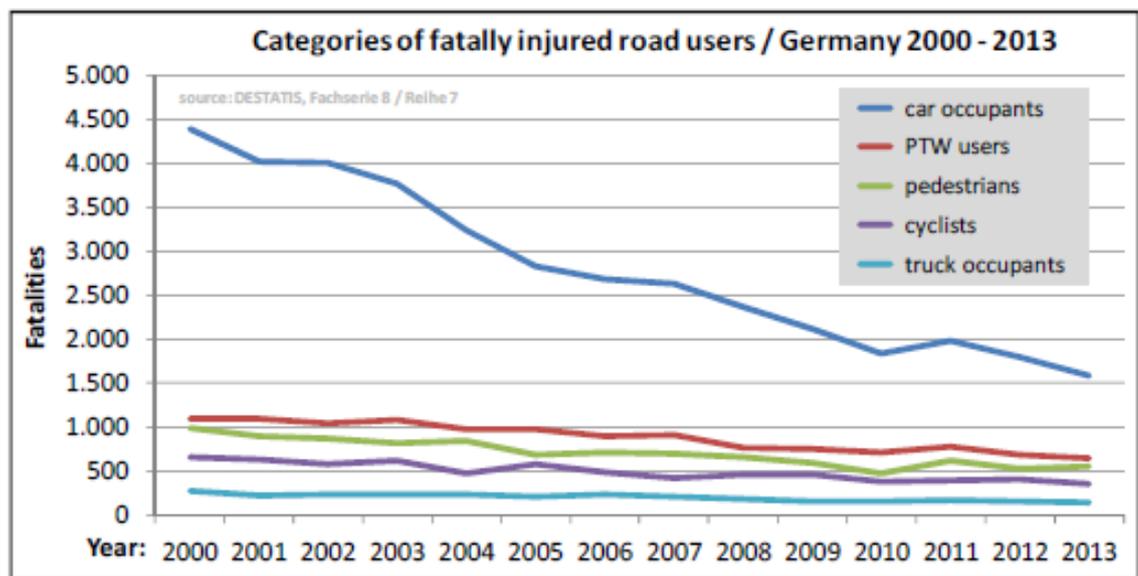


Figure 10 Type of fatally injured road users, Germany, 2000-2013. Liers et al, 2014.

Table 1 Type of fatally injured road users, Germany. Liers et al, 2014).

	Rank 2013	Fatalities 2012	Fatalities 2013	Proportion 2012	Proportion 2013
Car occupants	1	1.791	1.588	49,8%	47,6%
PTW users	2	679	641	18,9%	19,2%
Pedestrians	3	520	557	14,4%	16,7%
Cyclists	4	406	354	11,3%	10,6%
Truck occupants	5	152	147	4,2%	4,4%
(Others)		(52)	(52)	1,4%	1,6%
TOTAL		3.600	3.339		

Even though a slight decrease can be observed in the number of PTW-fatalities, “Assuming further improvements in the field of occupant protection this trend will continue and the proportion of motorcyclists will further increase” (Liers et al, 2014). The trend of decreasing PTW-fatalities is slower than that of car occupants, because the growing amount of protection systems in cars is helping the development. In PTWs this aspect of safety is slower in progress.

6.2 The German Road Safety Council Quality Seal

Upon contacting FEMA, little data could be found of an organization that controls the quality of advanced PTW-instructors in Europe as a rule. None of the countries in question (UK, Norway, Sweden, Germany, the Netherlands, France, Denmark, Finland) have a mandatory-to-pass test for advanced riding instructors. Information was gathered via email conversation between the respective representatives and myself.

However, the German Road Safety Council (DVR) has launched a quality label for advanced rider trainings. Reiner Brendicke, the former leader of the DVR, and current General Executive Manager of IVM (Industrie-Verband Motorrad Deutschland, or German Motorcycle Industry Association) shared a document revealing several aspects of German PTW instructor certification, called the DVR Quality Label, which was launched within the last year. It was only recently introduced at the 10th International Motorcycle Safety Conference organized jointly by IFZ, ACEM and MSF in October 2014 in Cologne, Germany. ACEM is a strong supporter and co-initiator of the Quality Label scheme.

The DVR Quality Label includes many similar aspects to training as FRSC and SMOK, but it is not for individual instructors. The Quality Label is awarded to a training program, such as *Motoristi Survival*, or *Ajotaito 1, 2, or 3*.

The Quality Label asks the following questions (with answers No, Not likely, More likely, or Yes) about the instructors within the program that has applied for the Seal:

1. Does the organization have an effective, written policy for recruiting instructors?
2. Does it have a well-documented training schedule for prospective instructors?

3. Can instructors “sit in” on classes as part of their training?
4. Is there any “co-training” for trainee instructors?
5. Are instructors required to give a demo lesson to have their teaching skills evaluated?
6. Does instructor training include a course in communication skills?

In addition to this, the program which is up for the Quality Label, must take into consideration every individual student and respond accordingly to their skills and learning. The Label is awarded after careful auditing by a 3-5 person jury consisting of independent experts.

In Germany a large scale adaptation of the DVR Quality Label is envisioned. In my opinion, this is possible due to the high quality of accidentology data and prior research. Comprehensive investigations have been made to find what causes traffic accidents for motorcyclists, and consequently appropriate measures have been applied to training and for participants and instructors.

Upon contacting Ramboll’s Mobility and Innovation Team, it became clear that such investigations or inquiries have not taken place in Finland to even nearly the same extent. Large scale PTW accidentology research should be conducted also in Finland to find out the specifics of motorcycle accidents domestically, to reduce errors in applying foreign information to domestic roads and culture, and most of all, to understand what kinds of actions are needed and create and design specific counter-measures.

7 A PROGRAM TO VALIDATE THE EXPERTISE OF FINNISH ADVANCED PTW-INSTRUCTORS

7.1 Comparison

The correct organizations and expertise in Finland are already in place and are operational, but are operating separately from, or overlap with, each other, and thus are inefficient in performance.

7.2 The Finnish Road Safety Council – Strengths and Weaknesses

FRSC has many strengths domestically. FRSC are widely known and recognized in the media through its campaign work for traffic safety. FRSC is also active in instructor training, putting out a dozen new instructors every year. FRSC also has good experience and resources regarding marketing issues and campaigning.

However, the quality of the MPEAK instructors the FRSC puts out is not validated through a known model or quality program. The FRSC aims at accrediting all participants at their MPEAK instructor course, and has practically never failed a participant.

Lastly, the FRSC gets the MPEAK instructor instructors via SMOK (see Table 2).

7.3 The Finnish Motorcycle Instructors Association – Strengths and Weaknesses

The strength of Finnish Motorcycle Instructors Association, SMOK, is quality over quantity. This is embodied in their annual instructor tests. SMOK trains around the same amount of future instructors as the FRSC, but does not accredit them without proper testing. SMOK puts out on average three new instructors every year through their intense testing procedure. These instructors are highly capable both on their bikes and beside them. Similarly to the FRSC, SMOK is then active in PTW-instructor training. SMOK fully utilizes the know-how of their own accredited professionals.

SMOK has still several key weaknesses. The knowledge about the existence of SMOK among the rider community is poor. SMOK is a small volunteer organization which has been going down in performance over the last few years. SMOK also has poor campaigning and marketing resources, as well as experience (see Table 2).

TABLE 2 Comparison of Finnish Road Safety Council's instructor course, and Finnish Motorcycle Instructor's Instructor Tests.

FRSC MPEAK	SMOK
Widely known	Not widely known
Trains over a dozen new instructors every year.	Trains on average a dozen new instructors every year (new instructors not yet validated through tests)
Doesn't validate instructors through testing.	Validates 1-5 instructors through testing every year.
People who pass the standard handling test required for a license, may enter the course. No testing to authenticate instructors' expertise.	Has high criteria for passing. New instructors' skills are authenticated.
Active in instructor training.	Active in instructor training and rider training.
Experience in campaigning and advertising. Good resources.	Poor experience in campaigning and advertising. Poor resources.
Instructors for the training courses come from SMOK.	Well experienced Instructors from SMOK.

7.4 Current problems

The activities of the Finnish Road Safety Council's MPEAK and SMOK overlap clearly. Both train PTW-instructors, majorly using the same crew year after year (the same people train at *both* organisations' courses), with essentially the same content. The major differences are the skill and knowledge levels that are required to pass and accredited as an instructor, and significant variations in brand value.

SMOK has established separate, multidisciplinary and demanding tests to authenticate the skills of their instructors, whereas the Finnish Road Safety Council enforces no official level of skill-requirements for being accredited as their instructor.

Both organizations have their own strengths and weaknesses, but in the current situation the strengths are inefficiently utilized due to overlapping, and the weaknesses feed on each other, causing a situation that is beneficial to few and confusing to many.

Both organizations have a 3-4 day instructor course, with varying levels of skill demanded from applicants. Both courses cost over 500 €.

7.5 Help from Abroad

There are good aspects to be applied from the German DVR model, such as the accreditation of training programs instead of individual instructors. Forcing all instructors within a training program to acquire equal accreditation for themselves may not be the only solution for the future condition.

However, obviously a significant portion of the instructors within a training program should be accredited individually, in order to get accreditation for their training program. For example, if 50 % of the instructors within the training program are accredited individually, the program should be qualified for a quality seal.

8 OUTLINING THE FUTURE OF RIDER INSTRUCTOR TRAINING

8.1 Advanced Rider Instructor Training Program Outline

8.1.1 Scope

It is not for this thesis, how the details and minute aspects of the new quality seal are executed, as is the name, logo, slogan, and other such marketing material for the new potential validation program. Below is therefore an outline, a framework, of the new validation program, based on expert advice and with a focus on agility, affordable cost, and efficiency.

There should be a program in Finland that validates the expertise of advanced PTW-instructors. The correct organizations and expertise are already in place and are operational, but are mismanaged resource-wise.

The organization should be widely known and highly regarded, and its accreditation should be mandatory for all who wish their training event to have a mentioning on the FRSC website's training calendar. An increase in bureaucracy must be avoided.

8.1.2 Vision and Strategy

The vision of the process follows to some extent that of the European Motorcycle Industry organisation's, ACEM's.

Advanced Rider Training Program vision:

to ensure good quality and transparent processes so the consumers – i.e. training participants – can better identify a good and accredited training event

Training events are, according to ACEM, “heterogenous” in quality, and therefore transparent harmonization of instructor requirements is needed. (Perlót, 2014)

The general strategy to implement the harmonization of skill requirements for instructors is to merge existing resources and exclude overlapping. The strategy is to induce minimal cost and achieve organizational agility and transparency.

Actions and proposed practical steps are introduced below.

8.1.3 The Organisation and responsibilities

The organizational structure need not be massive (see Figure 11). Simply a collection of authenticated advanced PTW-training professionals will do to execute testing. Existing resources are sufficient.

The current situation would have to change only slightly. As SMOK-instructors are currently the ones visible at FRSC's MPEAK instructors training events, the modification to the instructor training concept would have to adapt only content-wise.

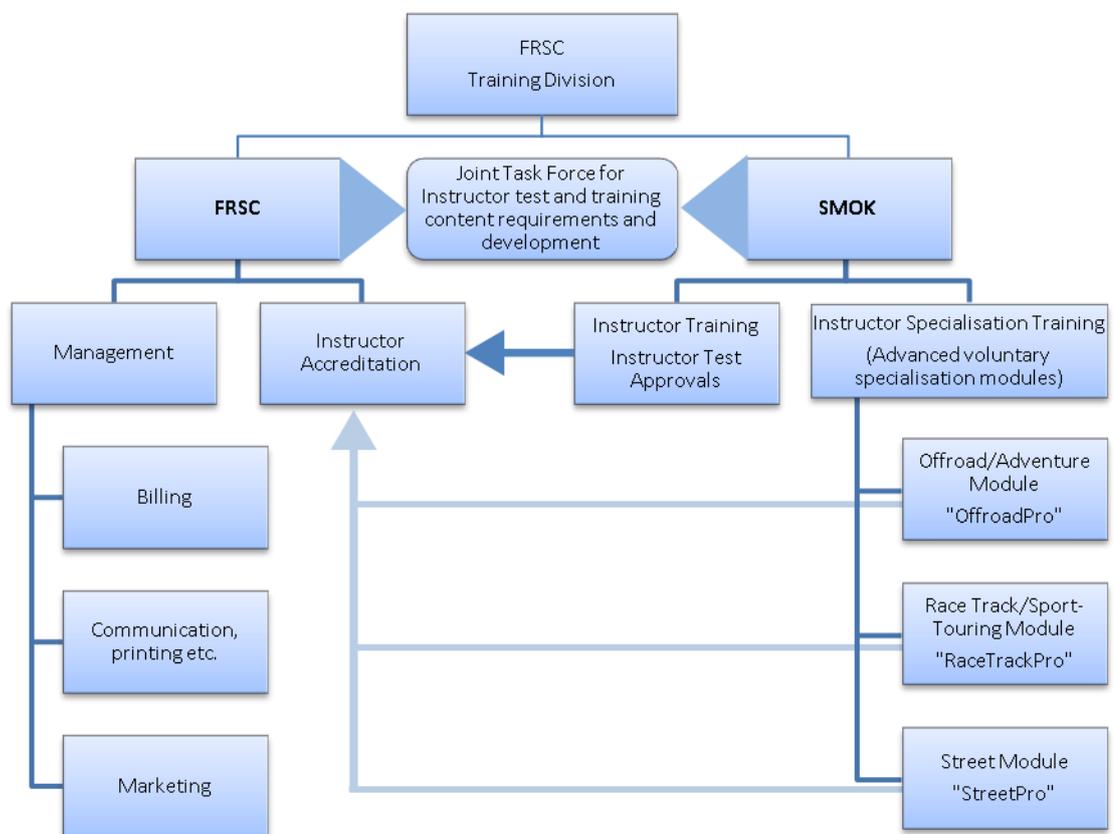


FIGURE 11 Organisational structure of the harmonized PTW-instructors' skill requirements

It would be stated in the establishment documents of the quality seal, that the two organizations would begin the work together. SMOK would implement the evaluation of all applicants' training and riding performances and FRSC would be the owner of the system, thus being the one to accredit the newly graduated instructors. The SMOK-FRSC label would begin to grow.

A Joint Task Force would be established between the two organisations to ensure mutual contribution in order to find and agree on best practices. The goal of the Joint Task Force would be to achieve constant updating of state of the art domestically and to maintain development. The organisations would look abroad for best practices and cooperation agreements. They would interact actively domestically and internationally to keep up with the cutting edge of methods and practises. This would keep the FRSC-SMOK label alive and well, as well as innovative and up to speed and ahead of everyone else.

Management operations would fall to the hands of FRSC. This takes little if any extra time to implement and they already have similar functions in similar regards. The management operations include as the main topics a.o. marketing of the PTW-instructor training, communications with media and stakeholders, and invoicing and billing the attendees.

SMOK, i.e. SMOK accredited PTW-instructors, would implement testing and training as well as test evaluation. The testing procedure will be multidisciplinary and challenge the applicants in various terrains and environments.

8.1.4 Approvals and Accreditation

The FRSC and SMOK would both be in charge of their own responsibilities. Once SMOK has finished evaluating the applicants' performances and has given each applicant either a grade or a "fail", FRSC would award all successful applicants with SMOK. The graduates would receive a modified badge combining the graphics of both SMOK and FRSC.

8.1.5 The First Steps ahead

Combining the know-how of the FRSC and SMOK would be sufficient in launching a new PTW-instructor accreditation program. Obviously neither organization should perish, because the know-how and reputation of both organisations is important to either's independent projects and aspirations.

The FRSC and SMOK would further strengthen their cooperation and some organisational changes would have to be made. Minimal organizational change would bring with it organizational agility and low cost. Experts spend parts of their free time to improve themselves (as they do now) which negates the frustration or droopiness caused by full-time employment, i.e. daily routines.

It would be advisable that SMOK would therefor become the *official, authorised* and visible service provider of the PTW-instructor training and accreditation process to the FRSC regarding motorcycle instructor training, i.e a subcontractor.

8.1.6 First impacts on the current PTW-instructor training offering

The SMOK label would still be awarded to individual PTW-instructors. It will need some specific discussions in near future among the key stakeholders of rider training on how the actual Training Program Quality Label would be applied in Finland. Thus as an intermediate solution a quality label could be awarded to those rider training programs, in which the number of SMOK and in future also SMOK-FRSC accredited instructors is above 50 %. This would then ensure each group of a handful of participants and two instructors to have at least one SMOK accredited instructor in the group.

The new accreditation program would, however, diminish if not zero the necessity of either MPEAK or SMOK labels as a method of validation. These two should therefore be critically assessed and as an outcome maybe combined using the best practices from both of them. It may become obvious that there is a need to have a procedure to have only the qualified instructors accredited as advanced PTW-instructors in Finland.

I strongly believe that the above-described scenario and cooperation between SMOK and FRSC would increase the effect of both operators on PTW-safety in Finland in a positive way.

8.1.7 Optional Specialization Modules

In general, the training program would include maneuvering training in low and high-way speeds, adequate performance on a race track as well as offroad, good communication abilities, agreeable capabilities for instructing individuals and good practical and theoretical knowledge about motorcycle maneuvering and pre-emptive riding.

Addition to this, the program would also offer the possibility for extra-curricular specialization modules with three possibilities: Offroad/Adventure Module, Race Track/Sport-Touring Module and Street Module. Taking this a bit further, upon completion of some or all of these modules, the graduate instructor could receive, in addition to the badge for passing the test, a complementary specialization badge, stating either “OffroadPro”, RaceTrackPro”, or “StreetPro” respectively (see Figure 11 above).

8.2 Instructor Training Process

Currently, FRSC publishes a training event calendar on their website every spring, which compiles all motorcycle training events in Finland to one place, with dates and times and contact information.

Many different organizations in Finland can and might continue organizing training events, but only those who have the SMOK-FRSC quality label are able to get their event published in the FRSC calendar. This would encourage instructors to strive for an accreditation so as to get the label for their program, and thus their program would receive a spot in the FRSC calendar, as demonstrated in Figure 12.

Even though driving schools get their valid instructors through the educational system described earlier, they might still be interested in boosting the expertise of the instructors with the new label and associated testing.

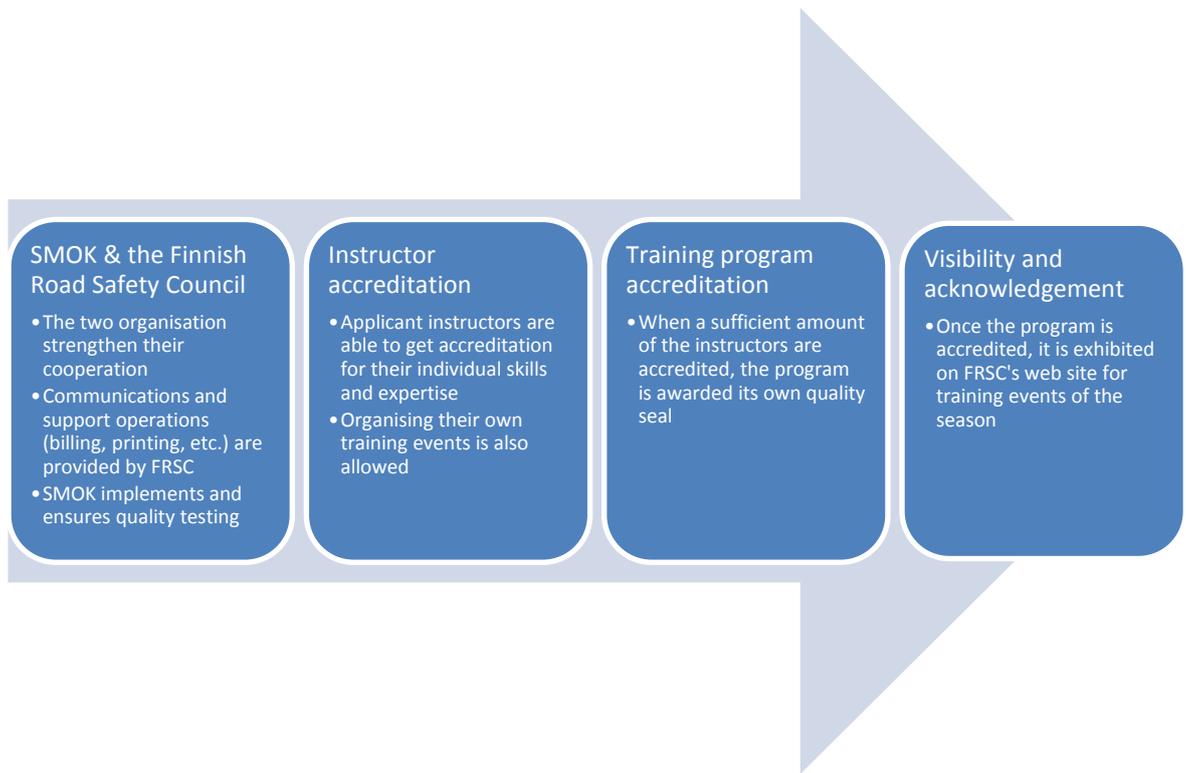


FIGURE 12 Process chart of the new quality label and its effect.

8.3 Ramboll within the scope of this thesis

Ramboll has a well-functioning group of experts working on intelligent transport systems (ITS) with an emphasis on PTW applications as well as advanced rider training. These experts can be of key relevance in a project, the coordinator of which Ramboll could be. Ramboll's role has been for years that of an expert consultant to Ministry of Transport and Communications, Transport Agency and Transport Safety Agency. Ramboll has worked with FRSC already in several transport safety projects. The Ministry and the Agencies would be the ones to launch the process which would lead to the new label.

8.4 Rider training and ITS

Ramboll has launched an extensive cooperation scheme between the major stakeholders relevant to motorcycle safety, advanced motorcycle rider training and application of ITS on PTW. The stakeholders include a.o. the major PTW manufacturers, the major European and domestic motorcyclists' representative entities, advanced rider training pro-

viders, academia and research institutes, equipment and component suppliers, riding gear manufacturers and road operator entities. Ramboll's preliminary surveys and investigations would reveal key short comings in Finnish motorcycle training quality on a national level, which would encourage corrective measures.

9 THE EUROPEAN APPROACH – A MID TO LONG TERM SOLUTION

9.1 Horizon 2020 and PTW community

In accordance with the Horizon 2020 Program, project proposals with PTW-instructors' harmonized accreditation would perform well in evaluation since rider training is one of the aspects identified in the Horizon 2020 Work Programme 2015. Training has been seen to affect traffic safety, so a clear path to lowered PTW fatalities and injuries can be seen. This approach has been introduced also to the Vulnerable Road User Working Group (VRU WG) of iMobility Forum that was initiated jointly by European Commission's Directorate General Communications Networks, Content and Technology (DG Connect)⁶ and Directorate General Mobility and Transport (DG MOVE)⁷.

However, as this sector of the PTW-scene is relatively small compared to others, the issue of PTW-instructor requirements should be correctly included in some other proposal having to do with PTW safety in some shape or form. Not many projects are ongoing in this respect, so originality might be guaranteed. Domestic projects with cities or ministries are also an option for good business.

9.2 The European Edge

As practically all responsibility to improve and update the knowledge of motorcycle instructors rests in the hands of volunteer associations, the situation in Finland is one of a kind. Based on my findings, government organizations and large professional groups abroad are involved in developing PTW-training schemes in their respective countries, whereas Finns leave that job largely to volunteers and their free time occupations.

Additionally, political bodies within the European Commission and the European Union are also affiliated with taking steps to develop existing training schemes for PTW-riders and instructors. This means that a fruitful cooperation with foreign operators, or applying existing foreign training schemes to domestic solutions, requires extensive and vali-

⁶ The previous name was DG Information Society and Media (DG INFSO).

⁷ The previous name was DG Transport and Energy (DG MOVE).

dated know-how on EU-scale operations and good, healthy contacts. This is where Ramboll has a clear competitive edge.

For years Ramboll has been in key roles regarding PTWs and ITS solutions in large scale EU projects, such as TEAM (in the Seventh Framework Programme for Research and Technical Development of EU, FP7), DESERVE (in the ARTEMIS Programme of EU), HeERO (in the Competition and Innovation Programme of EU, CIP), and more. Existing personnel at Ramboll are highly experienced in EU operations, as evaluators to project proposals and reviewers of projects, or as project coordinators and participants. I assert, that these traits will prove to be immensely beneficial, when initiating Finland-wide harmonization of PTW-instructors' skill requirements.

9.3 Need for Strength in Numbers

As mentioned above, the responsibility to develop the area of PTW-instructor training rests mainly on volunteer associations and individuals, who also have their own lives and jobs to consider. The volunteer associations' effect on domestic political bodies has also turned out to be obscure, as witnessed during my seven-year involvement in the field.

This obviously means that governmental bodies and political operators in Finland are at the moment left out of the picture regarding PTW-instructor accreditation. This, in turn, means that in case of nationwide harmonization maneuver, many minds must be convinced and comforted to the idea of increased quality control in the field. And with no political body or nationwide organization to truly spear-head this process of change, the execution of the harmonization might fail.

This is what takes us to Ramboll and abroad. Being able to show a list of esteemed professionals already working on this subject abroad, with relative success, might turn the heads of Finnish decision makers as well, and they might be more willing to part-take in the harmonization process.

Ramboll is an impartial and independent entity in the field of rider training. Ramboll have the connections and tools and know-how to gather a group of professionals togeth-

er, in order to fruitfully introduce the harmonization process to domestic operators. Only then, can a successful domestic harmonization be envisioned.

9.4 Basic Process of European Project Calls – Case Horizon2020

9.4.1 Horizon2020 in Brief

Horizon2020 consists of annual work programmes, which include several aspects to European development, defined by the European Commission. On their website, the specific work programme announces project calls on subjects included in the scope of the overall programme as agreed with European Parliament, Council of Ministers and EU Member States. These calls can be answered by any and all consortia of entities that have put together a project proposal. Proposers may find additional calls in the European Union's Official Journal, which is the official source of all EU documents.

9.4.2 The Application Process

A project proposal must be submitted for the appropriate project call before the given deadline. All proposals are submitted online.

The minimum size of the project proposal's consortium is three independent partners from three countries. These partners can either be found using the partner search option, or by independently gathering a group of professionals oneself.

Once the deadline has passed, an independent panel of specialists evaluates all proposals. A specific list of criteria is used to find the most promising proposals that are worth funding.

Once the five month evaluation period has passed, the results of the evaluation process are communicated to the proposers. A grant agreement is then drawn up with the successful proposers. Within the grant agreement there is a confirmation of the peculiarities of the approved project proposal, such as the project duration, budget, the EC's contribution, obligations, and more. Generally there is a three month time window for signing the grant agreement.

9.5 Peculiarities of Writing a European Project Proposal

Because participating in European Union (EU) project calls is a form of art of its own, I found it relevant to include a brief introduction into the world of EU project proposals. Due to the demanding characteristics of EU project proposals, a clear competitive advantage is in the hands of those who have experienced it before. This is why Ramboll clearly has the edge in this, and this is why it is introduced here to the reader. Towards the end, a brief interview was conducted with the Ramboll's experts with specific Q&A. Below are the results of this consultation.

The introduction below consists of aspects characteristic to *research and innovation projects*.

9.6 Proposal for Success

9.6.1 To tackle a European problem you need to act in European level

As described within this consultation, a European wide project is among the most effective ways to improve an existing situation on a large scale. An EU project traditionally gathers a wide range of multidisciplinary partners together to tackle a given research issue.

The procedure has been further streamlined by the European heads of state and EU Directorate Generals, to create a common strategic framework for all EU research and innovation project funding instruments, the Horizon 2020 framework programme.

Being the largest EU Research and Innovation programme ever, with nearly €80 billion funding available through 2014-2020, the H2020 is envisioned to promise more breakthroughs, discoveries and cutting edge technological solutions directly from the lab to the market.

9.6.2 Project Calls and responses

Within the H2020 programme, a topic must be open for a project proposal, and only project that are directed to a specific topic are processed. This helps ensure the implementation of the EU strategic framework. Quotation from Q&A: *“When a suitable task has been identified it is imperative to understand the actual content of the task in question. In case the proposal doesn’t address sufficiently the topic EC will declare the proposal ineligible and remove the proposal from the evaluation process.”*

Also, the project coordinator, who is charge of everything related to the specific project proposal and in the future the project itself, has to make sure the project proposal answers to as many aspects of the project topic as possible. This helps to make sure the proposal goes through to implementation. To fully address all relevant aspects of the call topic, the coordinator most often gathers a consortium of experts and professionals to strengthen the proposal and the project itself. The partners that are planned to contribute the most to the project should also have proven merits from previous EC endeavors to further strengthen the proposal. The supporting organizations may then be small and medium sized enterprises (SMEs), first-timers or less known entities to fill the gaps in needed expertise.

The project coordinator has to assign each partner in lead of smaller sub-topics within the project, i.e. work packages. The proposal must also clearly specify what aspects of the call topic will be addressed.

Additionally, dividing the total budget among the partners is a delicate issue. As a rule, the budget division should be equal to the contributions of the partners. Excluding free-riders from the project further ensure the proposal evaluators that this particular consortium is the best to spear head this area of research.

All in all, the partners, their respective expertise and experience, the proposal work plan, the anticipated impact and the overall consortium must all be of high standard in order to be accepted as an EU project.

9.6.3 To ensure European co-funded Proposal success

Succeeding in EU project calls takes experience. In order to fully succeed with one's proposal, immense knowledge is required on the state of the art of the technology or domain in question, both locally and globally. According to Q&A in formation exchange, it also takes "*...knowhow on how the European research and innovation activity needs to be planned and written in a credible way, wide perception of the European policies, various European initiatives, White Papers on the domain in question and the European Working Papers of the Commission and Parliament.*" Mastering all of these aspects takes years and patience.

9.6.4 Success Rate in EU co-funded Project Proposals

This is fully depending on the work programme, domains and tasks available – and of course on the number of proposals submitted. Transport and energy and Information and communication technology for Transport domains are relevant for the topic of this thesis since advanced driver/rider assistance systems and training as well as the enhanced ICT tools related to these are dealt with in these domains. In these domains there are usually a significant number of over-subscriptions compared to available EU funding. For this reason only the very best proposals will be funded.

"There is no reason what so ever just to try one's luck here with a proposal that is "rather good"". The attempt to get European funding must be taken absolutely seriously with sufficient time and resources available. When the coordinator and the consortium as a whole agree to attack the Call for proposals with a "winning proposal" and work accordingly there might possibly be a chance for a successful completion.

Some figures for success rates may be discussed here. In the Transport and energy domain the percentage for successful proposals is generally around 15-20% of submitted eligible proposals. In the ICT for Mobility domain the rate is quite similar being around 12-21%.

9.6.5 Time frame for Proposal preparation

As mentioned earlier sufficient time and resources are needed to write a winning proposal. Usually a Call for Proposals is open for four months. The Work Programme of the Call is in most cases available even earlier as a final draft subject to possible and undetermined changes. At latest as soon as the Final draft is available the preparations should commence. This would mean that there are four to five months for the writing process. This is extremely tight time window for all those five issues identified earlier.

“The suggested period for preparation is approximately 9-12 months. Usually the longest time will be spent on finding the most appropriate partners and expertise for the tasks at hand. The second phase requiring most time is the design and writing the work plan. However, in priority-wise the budget and share of resources should be addressed as soon as the consortium and the overall planning of the work have been agreed upon. Writing the work plan carefully will take several months, 4-6 months typically. This is because inputs are required from various entities that may or may not have experts available at the same pace as the coordinating partner. There are always delays that the coordinator and the main writer cannot avoid or prepare for.”

9.6.6 Convincing Partners to Join

“There are no universal tricks or means how to get those entities involved that the project coordinator and the core group would like to have – or in fact need. The leading idea is that the entity to be included in the consortium should have the expertise needed to be engaged, there should be suitable products, pre-products or prototypes that will be used in the project or their business strategy should include development of either of the afore mentioned. The most common way to gather a winning team of entities, being commercial organisations, industry, user representatives, academia, researchers, SMEs and/or public authorities/administrations/organisations is to contact those who the coordinator and/or the core partners know already. They should be known for their expertise, knowledge, commitment and/or capability to deliver what is required and in timely manner. Again, this issue highlights the issue that for a first timer it would be extremely challenging to know and to get the correct entities involved and to get them “working for you””.

10 IN CONCLUSION

I personally find it beneficial for all stakeholders, that operators in an area of business have their services authenticated by an expert organization. Having an organization in Finland to authenticate and enforce nationally applicable PTW-instructor requirements would be beneficial for instructors and the consumers of training services. All essential operators already exist in Finland, but their resources are being utilized inefficiently.

Getting rid of overlapping responsibilities and recognizing reality and existing resources, the situation in Finland could be dramatically improved. Combining the know-how of both SMOK and the Finnish Road Safety Council would be beneficial for all stakeholders, as consumers could better identify between potentially counter-beneficial training and authenticated and accredited professional training.

In short, the Finnish Road Safety Council and SMOK should begin cooperation to merge their operations and increase their visibility in their field and among their target demographic. Utilizing existing pieces would complete the current puzzle.

Finland would act as a secondary test site. Future European projects would base their applications on the Finnish or German models, thus enhancing PTW-instructors' abilities Europe-wide. ACEM's vision to harmonize instructor requirements EU-wide (Perlot, 2014) would gain critical information and best practice.

As Ramboll has excellent connections with international and domestic operators, it would be natural that Ramboll would be the one to head a PTW-instructor requirements harmonization project both in Finland, and in the future within the European Union.

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