# Better and safer off-road cycling tourism through an International Trail Rating System

*ITRS – International Trail Rating System*

Study done by:

SWISS BIKE PARK OBERRIED

input Consulting

IMBA INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION ITALIA

IMBA INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION EUROPE

Created in collaboration with:

DAVOS KLOSTERS

Trail Therapy

# The ITRS Team

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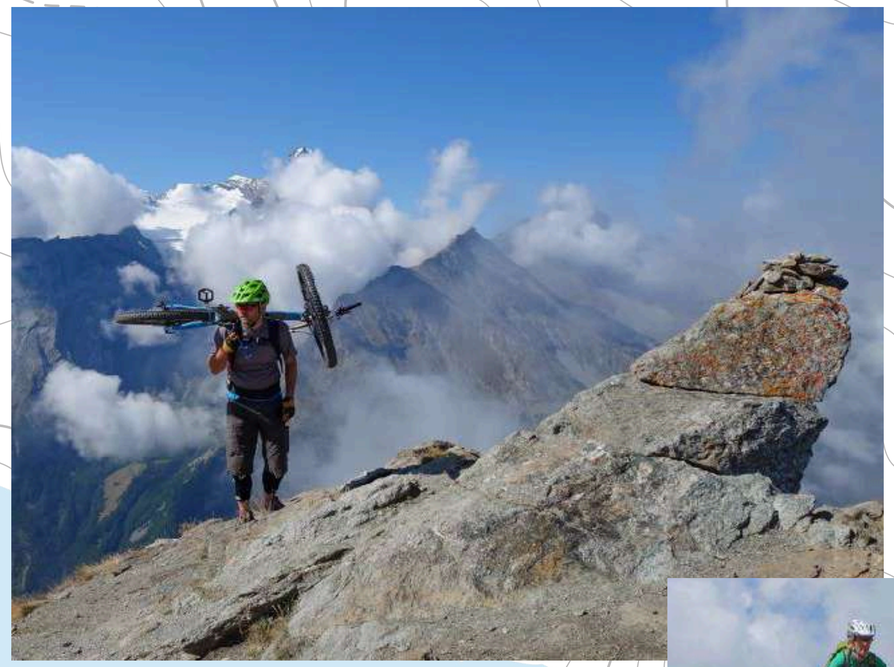
# The ITRS Team



# IMBA

The International Mountain Bicycling Association (IMBA) is the worldwide leader in mountain bike advocacy and trail development since 1988 when IMBA was founded in the USA.

In 2012, IMBA Europe was founded as a collective of European MTB advocacy groups, trail associations, trail builders, MTB regions and bicycle industry partners, spread over more than 20 countries.

INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION

# IMBA Europe

**Vision**

**Get more people on bikes** through sustainable mountain biking.

**Mission**

**Improve people's lives** with better health, climate and economics through mountain biking.

Advocate **easy access to great sustainable mountain bike trails**, from close-to-home rides to iconic, backcountry experiences.

Work for **Europe as a mountain bike friendly place**, grow the diversity of cycling and quality of mountain bike communities.

IMBA
INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION
EUROPE

# What we do

Knowledge sharing

Training & Education

Trail Building Schools

Advocacy

Networking

IMBA Europe Summit

# How the project started

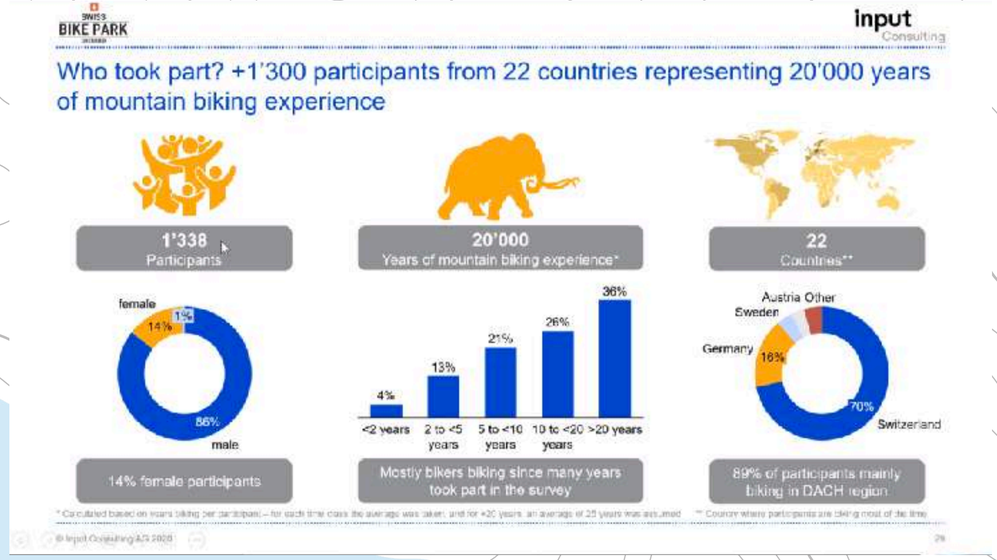
We started analysing existing trail difficulty rating systems to find pros, cons and the common denominators between the different systems/standards.

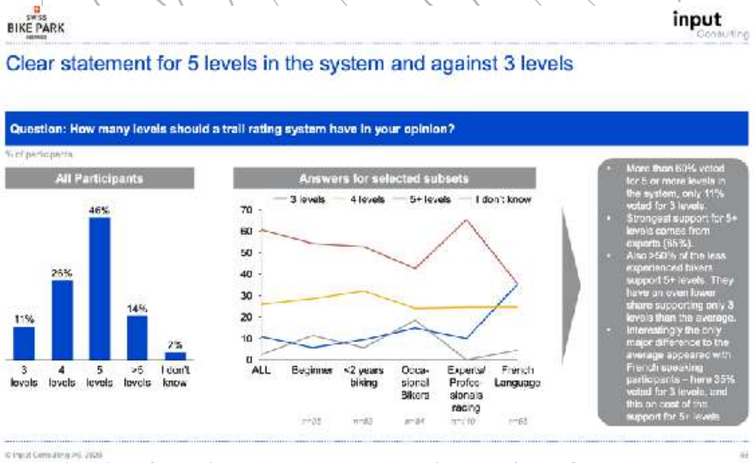
In addition to this a survey has been done to ask riders what they want from a rating system.

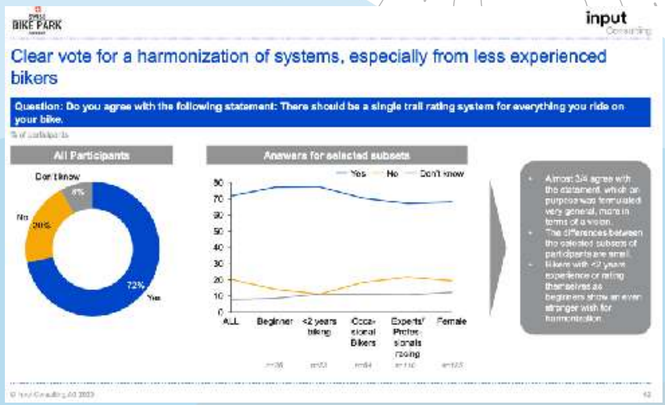
Having shared guidelines for trail rating would increase rider's safety, limit land manager's liability and boost tourists satisfaction.

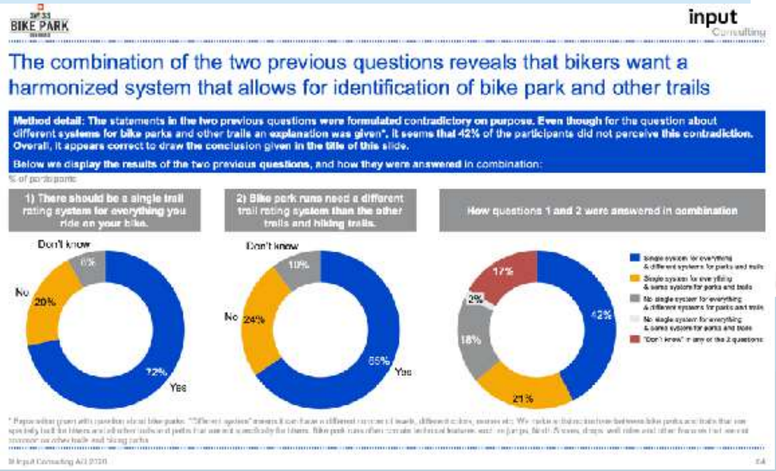
On top of the trail and route rating system we are working on guidelines for trail signage as well (drops, jumps etc).

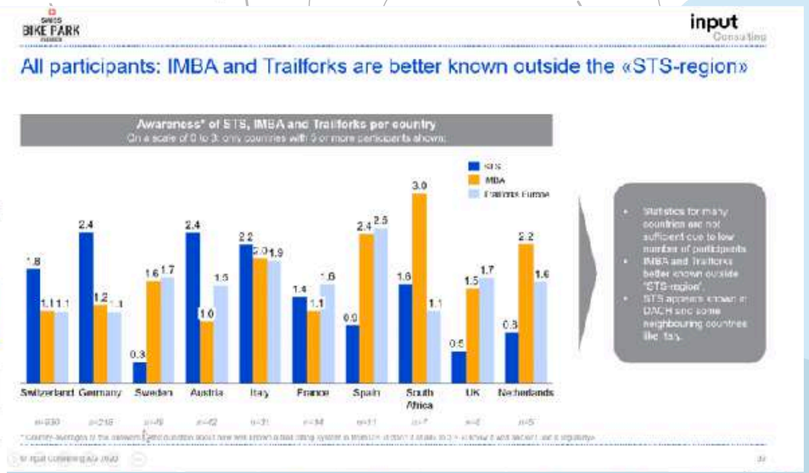
# Survey


BIKE PARK
input Consulting
Who took part? +1'300 participants from 22 countries representing 20'000 years of mountain biking experience
1'338 Participants
20'000 Years of mountain biking experience*
22 Countries**
female
1%
14%
86%
male
4%
13%
21%
28%
36%
<2 years
2 to <5 years
5 to <10 years
10 to <20 years
>20 years
Austria
Other
Sweden
Germany
16%
70%
Switzerland
14% female participants
Mostly bikers biking since many years took part in the survey
89% of participants mainly biking in DACH region

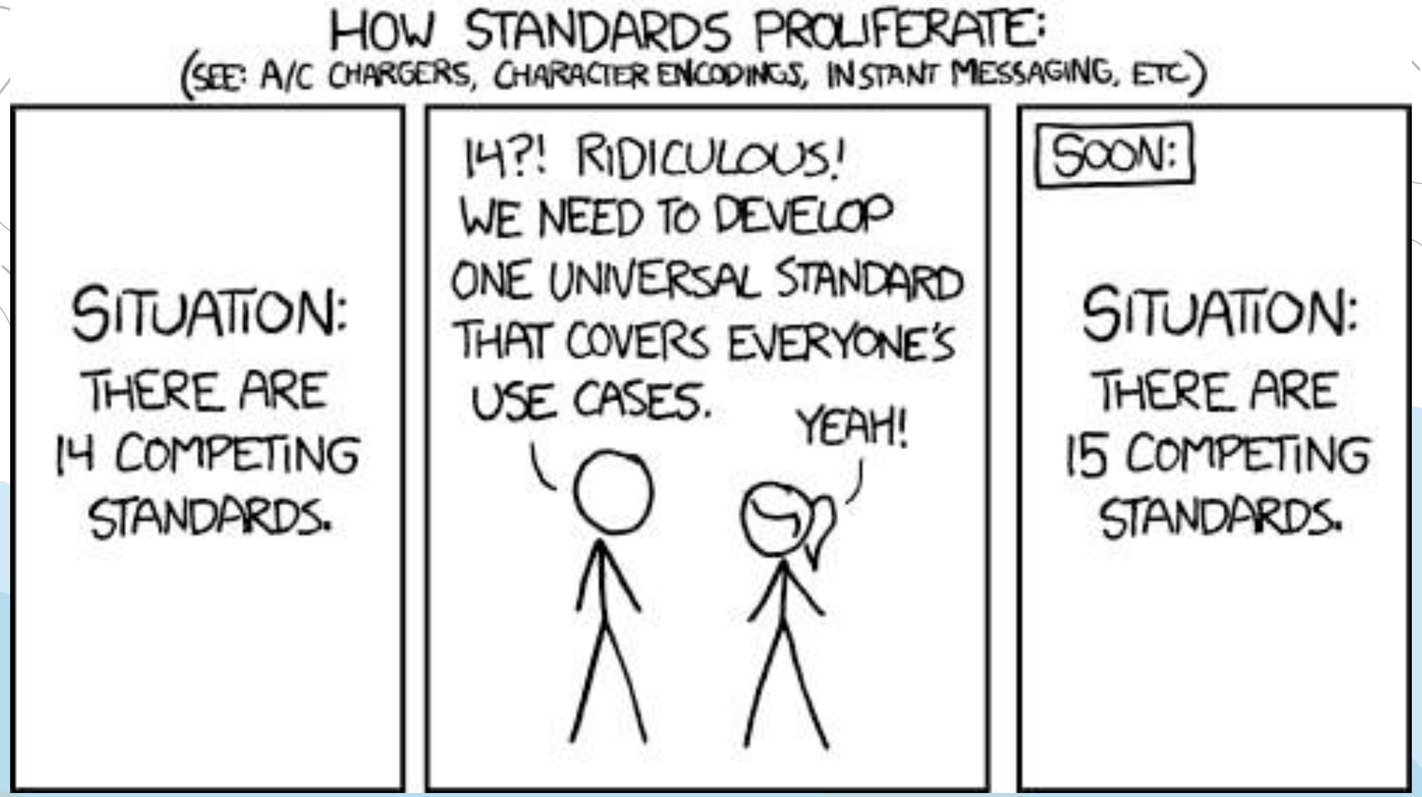

BIKE PARK
input Consulting
Clear statement for 5 levels in the system and against 3 levels
Question: How many levels should a trail rating system have in your opinion?
All Participants
Answers for selected subsets
3 levels
4 levels
5+ levels
I don't know
1%
25%
46%
14%
3%
3 levels
4 levels
5 levels
>5 levels
I don't know
ALL
Beginner
<2 years biking
Occasional Bikers
Experts/ Professionals racing
French Language
More than 60% voted for 5 or more levels in the system, only 11% voted for 3 levels.
Strongest support for 5+ levels comes from experts (86%).
Also 250% of the less experienced bikers support 5+ levels. They have an even lower share supporting only 3 levels than the average.
Interestingly the only major difference to the average appeared with French speaking participants – here 35% voted for 3 levels, and this on cost of the support for 5+ levels.


BIKE PARK
input Consulting
Clear vote for a harmonization of systems, especially from less experienced bikers
Question: Do you agree with the following statement: There should be a single trail rating system for everything you ride on your bike.
All Participants
Answers for selected subsets
Don't know
4%
No
28%
72%
Yes
Yes
No
Don't know
ALL
Beginner
<2 years biking
Occasional Bikers
Experts/ Professionals racing
Female
Almost 3/4 agree with the statement, which on purpose was formulated very general, more in terms of a vision.
The differences between the selected subsets of participants are small. Bikers with <2 years experience or rating themselves as beginners show an even stronger wish for harmonization.


BIKE PARK
input Consulting
The combination of the two previous questions reveals that bikers want a harmonized system that allows for identification of bike park and other trails
Method detail: The statements in the two previous questions were formulated contradictory on purpose. Even though for the question about different systems for bike parks and other trails an explanation was given", it seems that 42% of the participants did not perceive this contradiction. Overall, it appears correct to draw the conclusion given in the title of this slide.
Below we display the results of the two previous questions, and how they were answered in combination:
1) There should be a single trail rating system for everything you ride on your bike.
2) Bike park runs need a different trail rating system than the other trails and hiking trails.
How questions 1 and 2 were answered in combination
Don't know
8%
No
20%
72%
Yes
Don't know
10%
No
24%
66%
Yes
17%
42%
21%
18%
2%
Single system for everything & different systems for parks and trails
Single system for everything & same system for parks and trails
No single system for everything & different systems for parks and trails
No single system for everything & same system for parks and trails
"Don't know" in any of the 2 questions

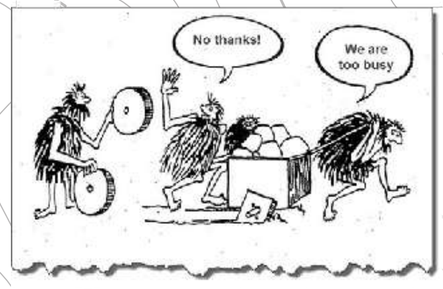

BIKE PARK
input Consulting
All participants: IMBA and Trailforks are better known outside the «STS-region»
Awareness* of STS, IMBA and Trailforks per country
On a scale of 0 to 3; only countries with 5 or more participants shown.
STS
IMBA
Trailforks Europe
1.8
1.1
1.1
2.4
1.2
1
0.3
1.6
1.7
2.4
1.0
1.5
2.2
2.0
1.9
1.4
1.1
1.6
2.4
2.5
3.0
1.6
1.1
0.5
1.5
1.7
0.3
2.2
1.6
Switzerland
Germany
Sweden
Austria
Italy
France
Spain
South Africa
UK
Netherlands
Statistics for many countries are not sufficient due to low number of participants
IMBA and Trailforks better known outside "STS-region".
STS appears known in DACH and some neighbouring countries like Italy.

# What we didn't want




The ITRS is not an entirely new system, it is a consistent and clearly structured combination of the most relevant systems that existed in 2020, complemented with additional aspects, logics and graphics.

# The issue of too many “standards”




Waste of resources

Hard to understand for tourists and beginners

More liability

More accidents

# Scope & Goals

ITRS was created to be used on both legacy existing shared use trails and new purpose built bike trails.

With different levels of detail ITRS can be used by volunteers managing a small trail network as well as by professionals managing a bike park.

Bike type (regular vs E-Bike) and discipline (XC, AM, EN, DH) are intentionally left out of the equation: the rating is based on the trail characteristics.

# Goals & guiding principles of the ITRS 1/3

**More safety for bikers through:**

- **Linking the technical difficulty** of trails and routes with the necessary riding skills. This enables the content of riding skills courses to be specifically adapted to the technical difficulty levels. Misjudgements of the necessary riding skills and thus the risk of accidents are reduced.

- **International dissemination** of a uniform and target group-oriented trail rating system. This alone will reduce the risk of accidents as well.

# Goals & guiding principles of the ITRS 2/3

**Increased attractiveness and quality of touristic offers for bikers through:**

- A new logic and **innovative graphic** implementation of the rating of entire routes or tours, which illustrates their complex reality in an intuitively understandable way. It makes it easier for bikers to find the right offers for them and to have positive experiences on their bikes.

- Introduction of a **certification system** for the classification of trails according to ITRS in order to achieve a correct and consistent application of the ratings. Destinations will be able to demonstrate that their trails are rated according to the standards and that the trails are professionally maintained.

- **Greater consistency of newly built trails**, as the ITRS also serves as an additional guideline for trail builders to consistently build mountain bike trails according to specific difficulty levels.

# Goals & guiding principles of the ITRS 3/3

**Maintaining the adventure vibe, because:**

Mountain biking thrives on the variability and unpredictability of trails and routes. The ITRS strives for a balance that leaves mountain biking with this fascination, but at the same time can contribute to more safety and a positive experience.

# ITRS details

Which aspects characterise a trail and a tour and can be rated?

**Technical Difficulty**
Defined according to the riding skill level that you need to master the technical features of a trail

**Endurance**
The combined effect of length, uphill and downhill of a route

**Wilderness**
The amount of planning required to account for mobile phone reception, rescue options, water supply and dangerous wildlife

**Exposure**
Defined by the consequences of a fall

Existing systems sometimes mix these elements in various combinations, especially the first three.

# ITRS details

The ITRS describes both trails and complete routes or tours

**Trails**

- For a trail the technical difficulty and exposure are rated.

- That is done for each trail segment to account for the fact that trails not purposely built for mountain biking can be inhomogeneos in their difficulty.
- Both, shared use and Bike-Only trails, are rated with the same criteria.

**Routes/Tours**

- For a route also the endurance requirements and the wilderness are rated, in addition to technical difficulty and exposure of the trails on this route.

- The ratings according to the four aspects are combined in the «ITRS route pie» to describe the requirements of the route, e.g.

# ITRS details

Short description of the 5 levels of technical difficulty for bikers to characterise each level in a very short and concise manner.

*Beginner (green)*

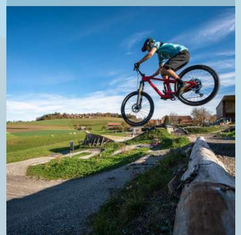
Green is suitable for families with kids that are safely able to ride a bicycle.

*Intermediate (blue)*

If you have taken a beginners course or have equivalent bike experience you should be able to try blue trails.

*Advanced (red)*

You should have finished an advanced riding skills course or equivalent bike experience before trying out red trails.



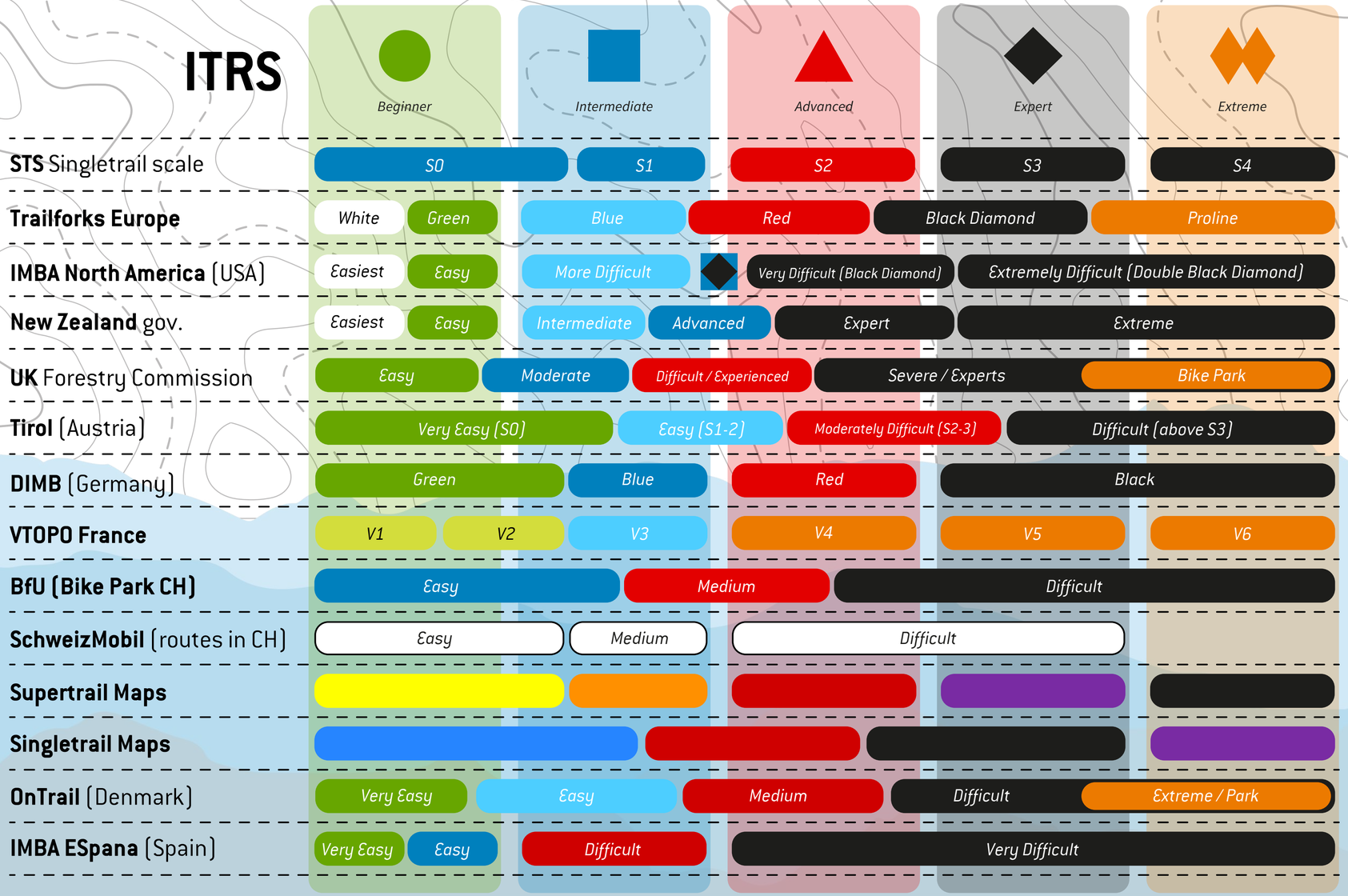
*Expert (black)*

One or more expert riding skills courses and/or a lot of experience are required to try riding a black trail.

*Extreme (orange)*

This level is for a few exceptional riders only and requires professional downhill, freeride, slope style and/or bike trial skills.

# Relative allocation of the ITRS in the existing systems



# Description of riding skills required for each level

*Beginner (green)*

No special skills are required other than being able to safely ride a bicycle.

*Intermediate (blue)*

Correct body position and actively adapting it to the trail is required, as well as braking techniques on unpaved surfaces.

Basic cornering skills, good line choice and visual focus (knowing where to focus when looking ahead) are helpful.

Basic jumping skills will increase the fun.

*Advanced (red)*

Ability to constantly adapt your body position and confident brake control in steeper terrain and on varying trail surfaces is required.

Corners can become so narrow that accurate line choice and visual focus is needed.

Advanced and confident jumping and dropping skills are required.

Lifting the front and/or rear wheel will be helpful to overcome obstacles.

*Expert (black)*

Constant and precise brake control are mandatory, as is the ability to quickly adapt your body position; excellent balance is a prerequisite.

Corners may be so tight that pivoting on the front wheel becomes necessary.

Jumps and drops can be much bigger and higher so expert skills and a very high level of confidence are required.

Obstacles may be so high that confident bunny hop and drop skills are helpful.

*Extreme (orange)*

Professional downhill, freeride, slope style and/or bike trial skills are absolutely necessary.

# Technical specification of the technical difficulty levels

**Guidelines for the threshold values for the technical difficulty levels**

| Technical element and/or trail feature | Specified indicator / criteria to measure | Beginner | Intermediate | Advanced | Expert | Extreme |
|---|---|---|---|---|---|---|
| **Trail width** | Minimum width of trail (specifically the tread width).<br>If the terrain next to the trail is flat and without obstacles (also referred to as trail bed), the trail width can be as small as of the next higher difficulty level.* | 100 cm | 60 cm | 35 cm<br>May include deep ruts/ditches/trenches but pedals easily fit through | 20 cm<br>May include deep ruts/ditches/trenches and pedals can hit the sides | 10 cm |
| **Trail surface** | Qualitatively (solid, loose, variability, ...) | Compacted or surfaced | Mostly consistent (variations in short sections) | "More than one surface type<br>May include loose rocks, gravel, debris" | "Widely variable<br>May include loose rocks, gravel, debris" | Widely variable and unpredictable |
| **Trail grade (avg)** | Average grade of trail segment | 0 - 5 % | 0 - 10 % | 0 - 20 % | 0 - 40 % | Can be above 40% |
| **Trail grade (max)** | Maximum grade (short distances of up to 30 m, also applied to rock-rolls) | Ideally not above 10 % | Ideally not above 15 % | Ideally not above 25 % | Ideally not above 50 % | Can be high above 40% |
| **Off-Camber (max)** | Maximum grade transversal to riding direction | Up to 5% (2.8°) off camber | Up to 10% (5.7°) off camber | Can be above 10% (5.7°) off camber | Can be above 10% (5.7°) off camber | Can be high above 10% (5.7°) off camber |
| **Corners** | - Radius (at middle line of the corner)<br>- Grade | Minimum 4 m radius<br>Same or less than trail grade | Minimum 3 m radius<br>Same or less than trail grade | Minimum 1.7 m radius<br>Could be steeper than trail grade | Minimum 0.8 m radius<br>Could be steeper than trail grade | No minimum radius<br>Could be steeper than trail grade<br>Space around corner often very restricted |
| **Steps and similar obstacles** (rocks, logs, etc.) | Heigth and avoidability<br>Steps in trails with a proper subsequent landing (so that you can drop the step) have to be rated like drops | No steps or other unavoidable obstacles | Unavoidable obstacles up to 15 cm high/deep<br>Avoidable obstacles may be present | Unavoidable obstacles up to 35 cm high/deep<br>Avoidable obstacles may be present | Unavoidable obstacles up to 70 cm high/deep (as a point of reference – should still be rollable without hitting the chainring with most bikes)<br>Avoidable obstacles may be present | Unavoidable obstacles higher/deeper than 70 cm (as a point of reference – normally not rollable anymore without hitting the chainring with most bikes) |
| **Technical Trail Features (TTFs)** Including drops, north shores and others | Heigth, width of features | No TTFs | TTF 50 cm high or less (about height of knee); at full height width of deck not smaller than 100 cm, but the lower the height, the narrower the deck can be | TTF 100 cm high or less (about height of hip) at full height width of deck not smaller than 60 cm, but the lower the height, the narrower the deck can be | TTF 180 cm high or less (about full body height); at full height width of deck not smaller than 30 cm, but the lower the height, the narrower the deck can be | TTF > 180 cm high; even at full height width of deck can be < 30 cm |
| **Jumps** | Rated based on rollability, predictability (including factors like kick, speed required and how well the landing area can be overseen from before the jump), and size (but without specific threshold values) | Non-mandatory jumps where the rider chooses to actively pick up the bike to get air time, rather than the trail forcing them to do so<br>Landing areas are visible from before the jump even for riders of the size of kid | Bigger non-mandatory jumps where the rider chooses to actively jump, rather than the trail forcing them to do so (all jumps are still rollable)<br>Landing areas are visible from before the jump even for riders of the size of an adult | Can include a wide variety of limited in size jumps, some could not be rollable over and not be predictable/overseeable | Can include a wide variety of big jumps, most could not be rollable over and be not predictable/overseeable | Wide variety of very large jumps not being predictable/overseeable can be present |

https://itrs.bike/downloads/

# Exposure, endurance, wilderness

For routes in addition to the technical level of the trails other parameters are evaluated.

*Normal injury risk (green)*

*High risk of serious injury (blue)*

*Life threatening consequences (red)*

*Fatal consequences (black)*

*Generally sportive (green)*

*Occasional training sufficient (blue)*

*Regular training required (red)*

*Frequent hard training necessary (black)*

*Civilized area (green)*

*Some planning necessary (blue)*

*Careful preparation required (red)*

*Professional planning is prerequisite (black)*

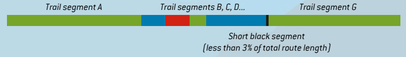
# Concept of route rating

**Overall Rating (for signage in terrain, optional for description)**

The most demanding of the 4 aspects is taken to describe the level of the whole route required to determine the color of signs for a route in the terrain.

Using this single value for the description of a route is not recommended but optional. For this purpose the ITRS-route-pie is preferred.

**Black Route** (Overall rating)






Based on formula results

Mobile reception
Evacuation/rescue options
Water supply
Wildlife

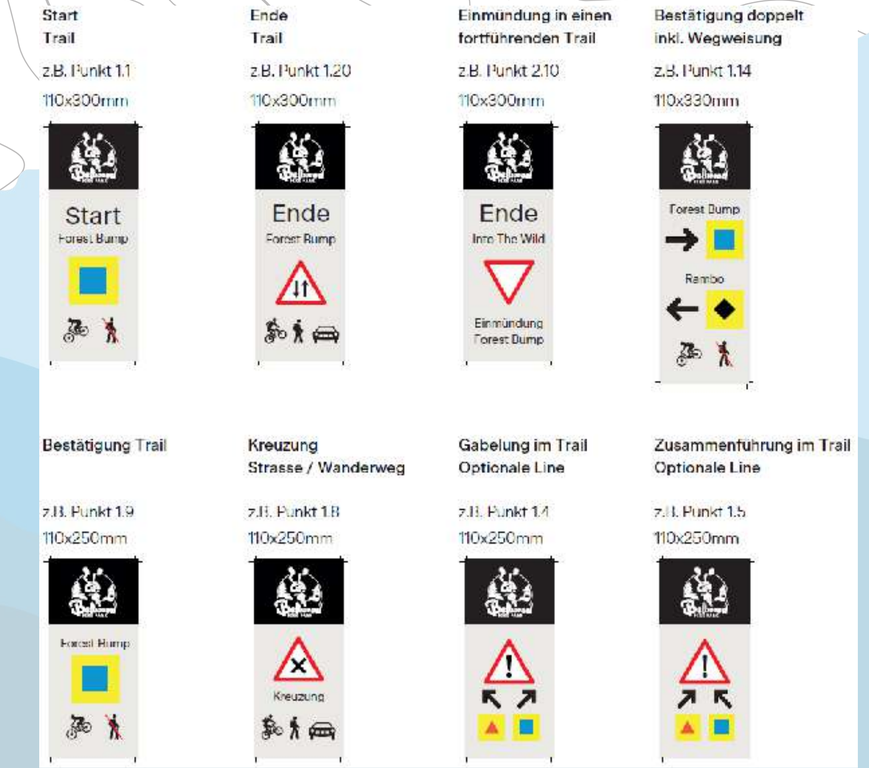
# Pilot projects

# Davos-Klosters Bike Map 2022

# Signage concept Bike Park Bellwald, Valais

**Use case for signalling trails in a bike park**

- Developed by Vast Trails for the patronage of the Bike Park Bellwald
- Only the technical difficulty of the ITRS is signaled here
- Combines the difficulty rating and corresponding graphics of the ITRS with safety-relevant recommendations of the Swiss bfu (e.g., crossings, sectors for rescue concept)
- Integrates the branding of the bike park
- Is also being discussed with Switzerland Mobile



# Test signage Lake Garda Region

**Use case for signage of complete routes in the terrain**

- This follows a concept for route signage developed by the third party signalization consulting company MAX2 employing the ITRS graphics
- Instead of using one overall route rating for the signage in the terrain, here it is tested to also use the ITRS route pie in the terrain.
- The region is currently collecting user feedback


# Q&A


# Thank you

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