DIRTT 2.0
EUROPEAN TRAIL BUILDER SECTOR SURVEY

Dr. Tom Campbell
Associate Professor, Edinburgh Napier University
Mountain Bike Centre of Scotland

July 2024

CONTENTS

Photo: Paul Arthur Lockhart

1. LIST OF FIGURES

2. LIST OF TABLES

3. EXECUTIVE SUMMARY

This report details the findings of the mountain bike trail sector stakeholder survey, which forms part of the European Commission Funded DIRTT 2.0 project. The main aims of the survey were: to better understand the current trail building sector across europe; to identify and prioritise core competencies across the areas of: trail planning, construction, maintenance and management, according to role and degree of autonomy; to understand more about existing knowledge and training needs regarding sustainable and inclusive mountain bike trails; and to identify attitudes towards certification processes. Data was collected by means of an online survey, delivered in English language using Qualtrics software. In total 152 respondents completed the survey. The key findings were that; 1. the trail building sector is largely comprised of relatively small organisations although size appears to grow with increased duration of involvement in the sector. 2. Current roles within the sector are varied and multiplicitous with the vast majority of respondents involved in multiple aspects of trail planning, construction, maintenance, management and administration. 3. There was strong support for the inclusion of nearly all proposed competencies across the different phases of the trail building process. However, due to the wide variety and multiplicity of reported roles in the sector, it was not possible to explore competencies at the self-reported role level but, when categorised according to self-reported autonomy, some differences in the importance of competencies were observed. 4. There is currently a reasonable level of perceived knowledge in the sector regarding sustainable trail design and the majority of respondents believe there is potential for trail developments to support regeneration. 5. Most organisations do not currently apply inclusive thinking routinely when developing new trails and there is a need for training in relation to understanding and applying the principles of adapted trail guidelines. 6. A substantial majority of respondents indicated a preference for time-bound certification with a desire for re-certification every 3-5 years being the most prevalent. Most respondents favour a certification model which involves national assessors, with nearly half favouring European coordination.

4. METHODS

The survey was designed and distributed using Qualtrics software and was open between January and February 2024. The inclusion criteria required respondents to be actively involved in the mountain bike trail sector and ordinarily resident within a European country. Participants were initially presented with an information sheet and were required to provide informed consent by ticking a check box before accessing the survey.

The survey, which was only available in English language, comprised 5 sections: organisational structure and characteristics, trail building activity, perceived importance of trail-related competencies, knowledge and practice relating to sustainability, and knowledge and practice relating to inclusive mountain bike trails. The survey comprised 52 questions in total with skip and display logic being applied to filter the questions presented at the individual level.

Data analysis: Survey data were exported from Qualtrics as a CSV file and descriptive analysis completed within Microsoft Excel: no inferential statistical analysis was performed.

5. RESPONDENTS

In total, 152 respondents, from twenty one European countries, completed the survey providing a good level of geographical coverage (Fig 1). The UK, Norway, Switzerland, Spain and Denmark were the most heavily represented.
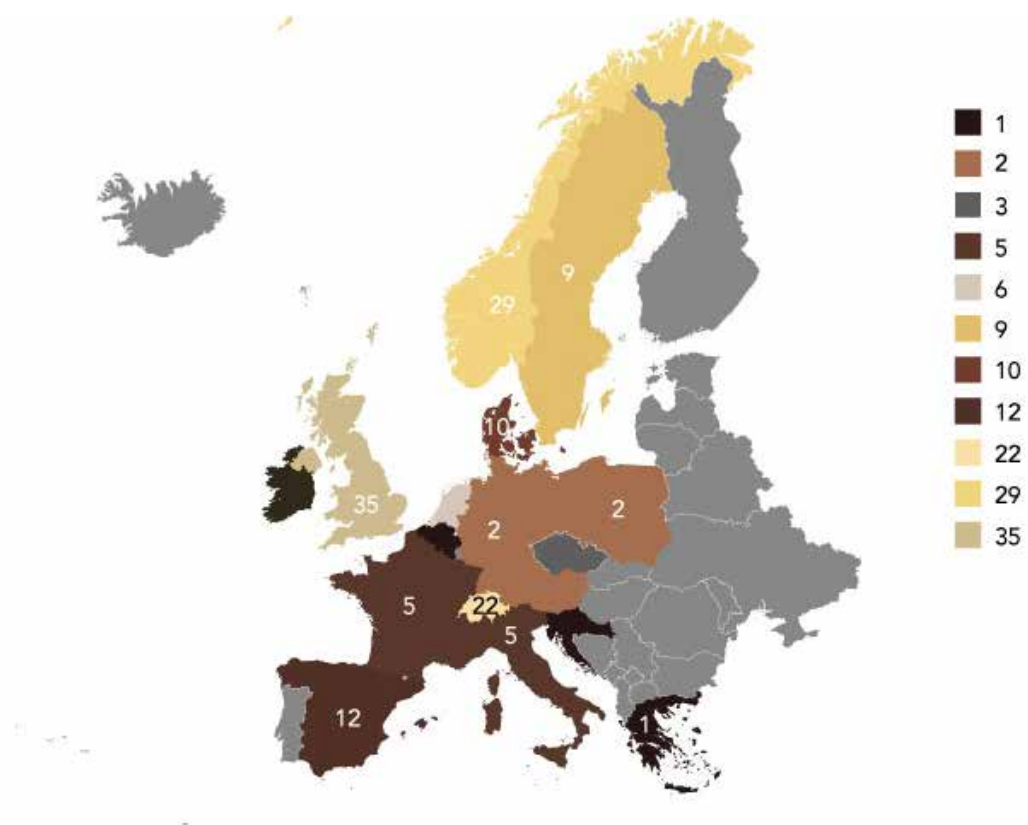
Fig 1. Geographical location of respondents/organisations

Over three quarters of respondents were the owner/co-owner, managing director of their organisation, or had some form of similar leadership or decision-making role within the organisation (Fig 2.).

Leadership/decision making role
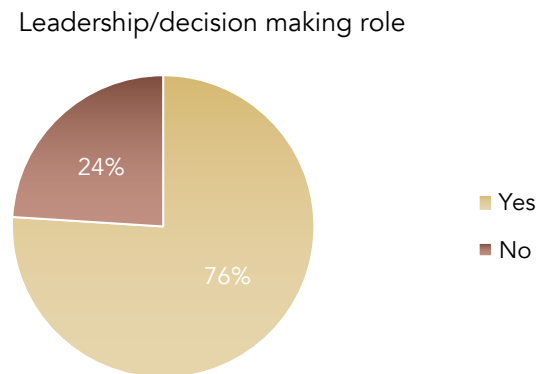
Fig 2. Level of decision making

6. SECTOR INVOLVEMENT, STRUCTURE AND ROLES

Almost half (45%) of all respondents had over a decade of experience within the trail sector while less than a third had been involved for five years or less (Fig. 3), suggesting that the mountain bike trail sector is largely comprised of relatively experienced organisations.

Length of involvement in sector
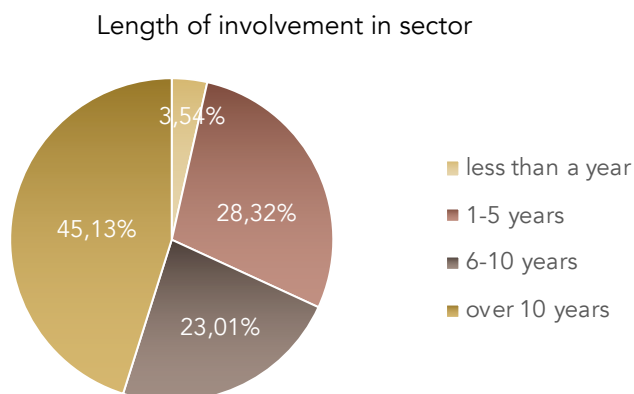
Fig 3. Length of sector involvement

The most common organisational size was between one and three employees (44%) followed by organisations with four to six employees (20%). Larger organisations, i.e. those with over 15 employees, represented only 13% of the sample.

Staffing numbers
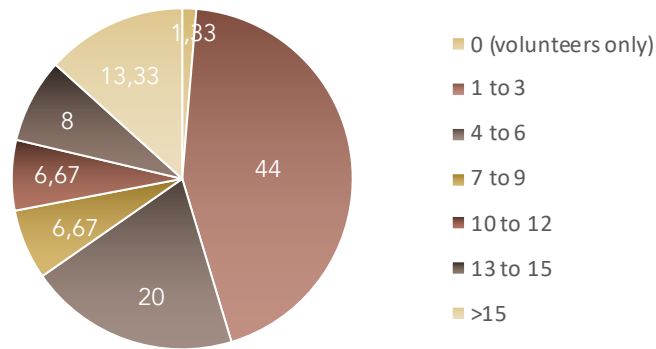
Fig 4. Staffing Numbers

Irrespective of length of involvement in the sector, organisations containing between one and three employees were the most prevalent (between 40 and 50% of responses). No organisations with less than six years involvement in the sector comprised more than 12 employees, while approximately 5% of organisations with 6-10 years' experience had over 15 employees and over 25% of organisations with over 10 years involvement in the sector comprised more than 15 employees (Fig. 5).

No. of employees by duration of operation
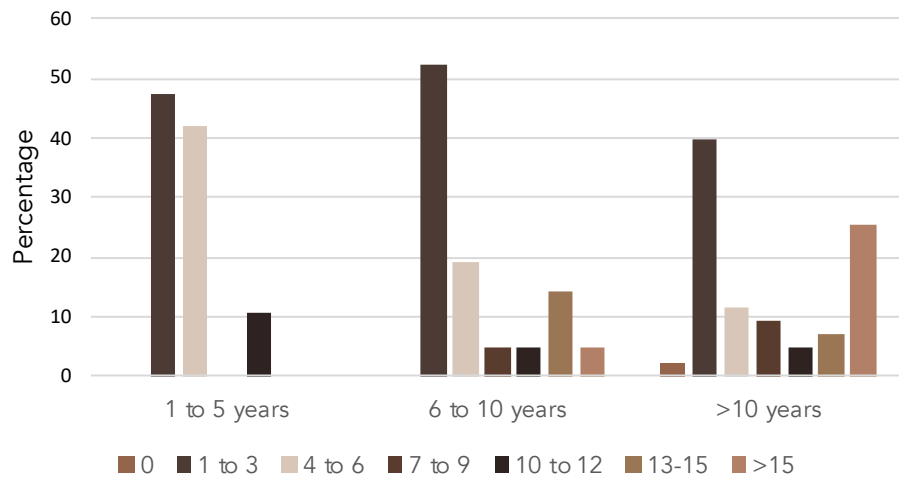
Fig 5. Staffing numbers by age of organisation

A range of operating structures were reported, although organisatons exlusively using paid employees were most widely represented (33%) with the inclusion of those who used both paid employees and volunteers bringing this up to ~50% of all respondents (Fig. 6)

Organisational Structure

18,59

33,33

21,15

26,95

- paid employees
- volunteers
- combination of both
- I am self-employed
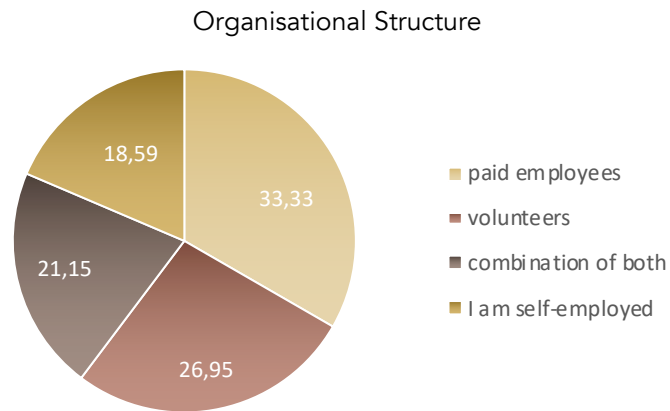
Fig 6. Organisational Structure

On average, field-based staff made up two thirds of the staff within organisations operating in the MTB trail sector (Fig. 7).

Staff roles

4,85

28,11

67,03

- Office / admin staff
- Field-based staff
- Other
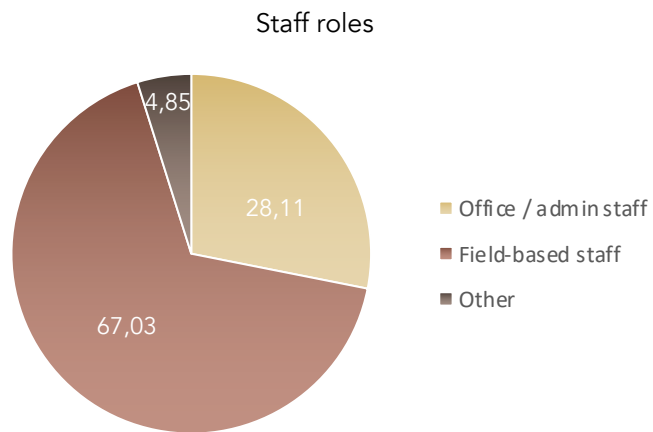
Fig 7. Staff roles

A substantial proportion of respondents with responsibility for recruitment found it to be relatively difficult (42%) or very difficult (15%) to recruit employees with the appropriate competencies (Fig. 8).

Ease of recruitment (appropriate competencies)

- relatively difficult
- Neither easy nor difficult
- very difficult
- relatively easy
- very easy

42,42%
28,79%
15,15%
12,12%
1,52%
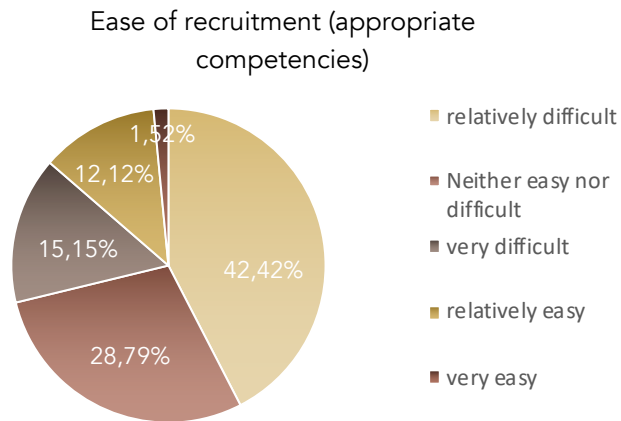
Fig. 8. Ease of recruiting staff with appropriate competencies.

Photo: DIRTT.eu

6.1. TRAIL BUILDING ACTIVITY

Trail building was reported as being seasonal for almost 30% of respondents and a year-round activity for around a fifth (Fig.9). Perhaps unsurprisingly, given the variation is climate across Europe, there were country specific differences, with all respondents from the UK, Portugal, Greece, and Poland building trails all year round (Fig. 10).
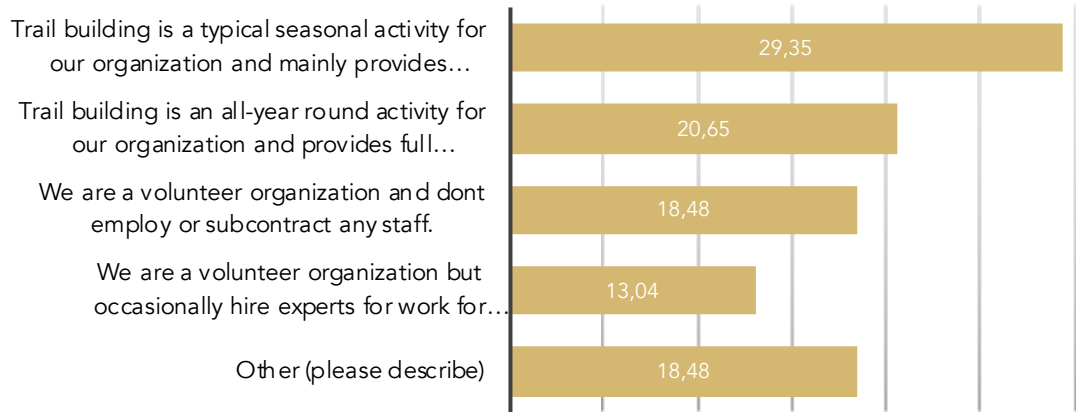
Fig 9. Trail Construction and Seasonal Variations
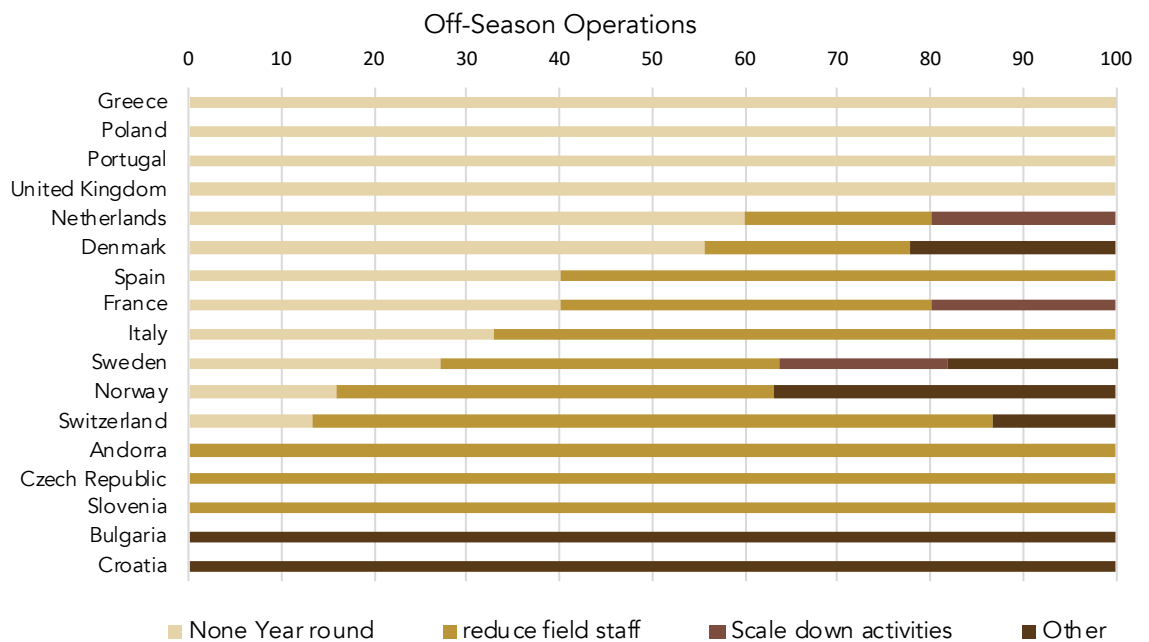
Fig. 10. Proportion of respondents reporting mitigations to bridge the off-season according to location.

As only 15 "other" responses were provided these are detailed verbatim in Table 1. Many of these comments point to the fact that organisations tend to use the off-season for planning and preparation.

Table 1. Free text responses to "other" option regarding seasonal operations

Using overtime hours for the shorter winter season
At the scale we operate we can continue to work through the quieter periods.
We plan in winter and build in Sommer
But we still have "weaker" months in wintertime
For now, we're working part time in the industry but in other areas in mountain bike Industry
Management and organizing/preparing next season.
Because we are volunteers, we don't take specific measures.
All the ground staff are season employees mainly working winter season in the local ski patrol and park crew.
We are working in different sectors (IT mainly).
Planning and preparing mountain bike events and competitions
We stop working for the winter.
Little bit of scouting and speaking with landowners.
Collaboration with Snowpark
Planning and discussion with the municipality.
We try to guide all year round with guiding in other countries during the off-season in Norway.

In terms of trail related activity, flow trails were the most likely to have been constructed over the previous two years, with four out of five respondents having constructed this type of trail within that timeframe (Fig. 11). Two thirds of respondents had constructed an XC trail/loop, while downhill tracks and pump tracks had been built by approximately half of all respondents. Urban bike parks, dirt jumps, and adapted trails had only been built by around a quarter of all respondents. There are understandably differences at the country level, however, and these are presented within Appendix 1.

Trail types contructed
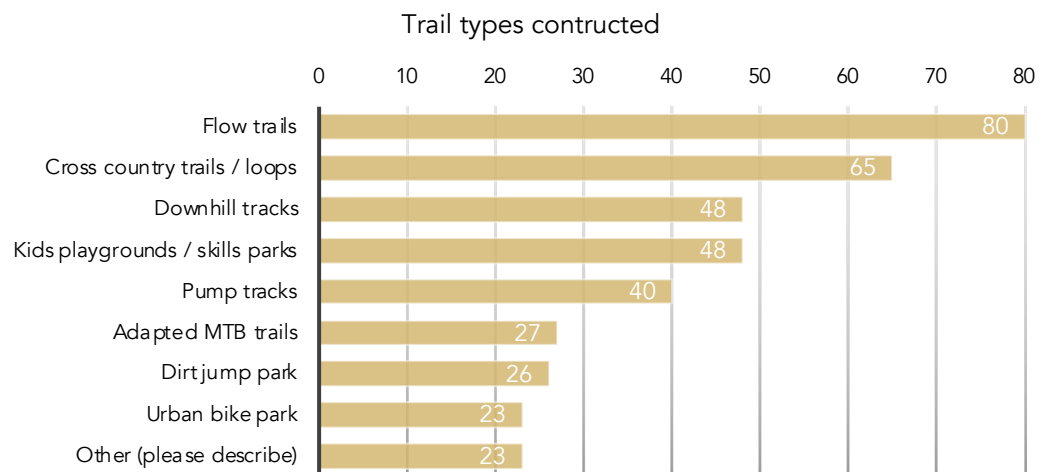
Fig. 11 Percentage of respondents reporting that they had constructed certain trail types within the past two years.

The reasons underlying non-construction of different types of trail would appear to indicate that lack of competence or difficulty recruiting staff are not generally dominant factors (Fig. 12). Indeed, lack of demand was the most common explanation for organisations having not built DH tracks (56%), urban bike parks (51%), XC trails (50%) and adapted MTB trails (48%) in the previous two years. The reasons for not building dirt jump, flow trails, skills parks and pump tracks were generally less clear with most respondents citing a reason other than lack of demand, lack of knowledge or competence, or a difficulty recruiting staff. Pump tracks were associated with the greatest lack of knowledge or competence (28%), followed by dirt jump trails (13%), adapted MTB trails (12%) and skills parks (11%).
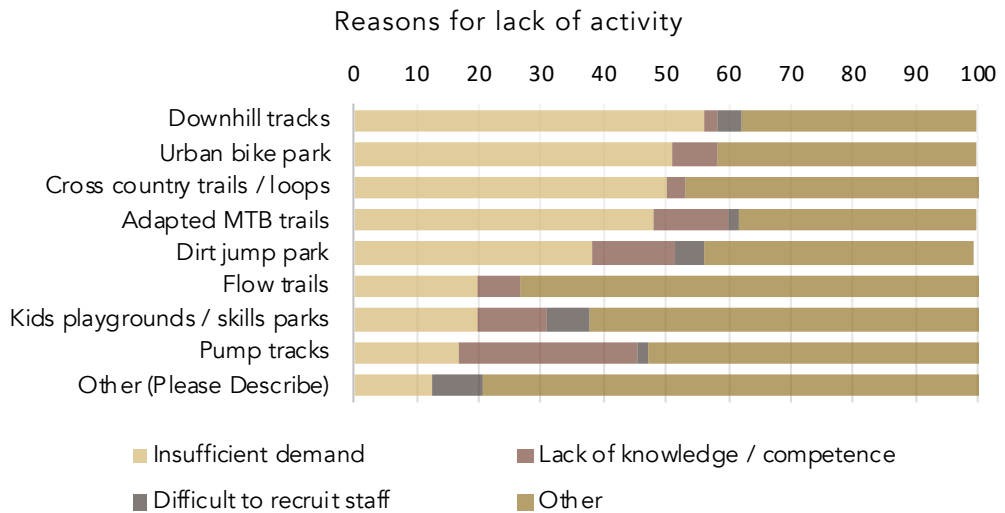
Fig 12. Reasons provided where respondents had not constructed a particular type of trail within the previous two years.

7. ROLE PROFILES

In terms of daily work, the highest proportion of respondents were involved in project planning and design, followed by construction, and then trail management. The fewest respondents were involved in programme administration and leadership, but this still represented a part of daily work for over one third of respondents (Fig. 13).

Aspects of daily work

Aspect	Value
Project planning & design	61,00
Construction	57,00
Trail Management (incl. inspection &…	50,00
Project preparation	47,00
Crew management	42,00
Program administration & leadership	34,00
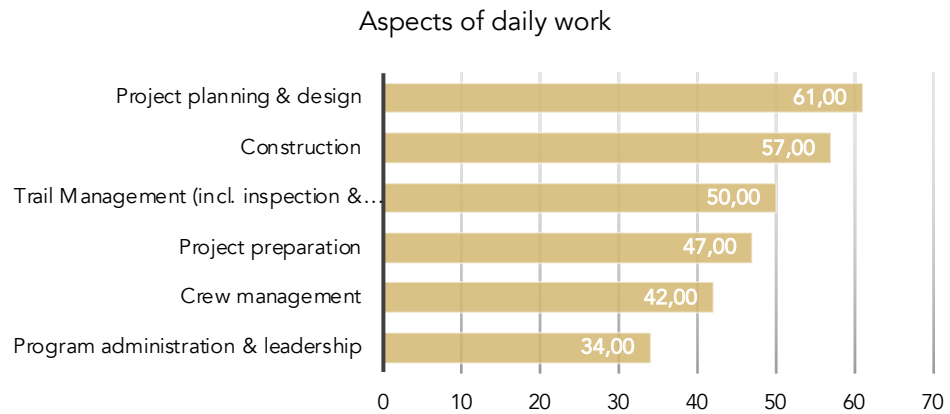
Fig. 13 Aspects of trail-related daily work.

The vast majority (90%) of respondents reported that they were involved in multiples aspects of daily work, with 40% being involved in four or more different aspects (Fig 14). Considering the large number of organisations comprising less than four employees, this is perhaps not entirely unexpected but does provide a useful insight into the operational approach of trail building organisations.

Involvement in daily aspects of work

Category	Percentage
1	10 %
2	20 %
3	30 %
4	40 %
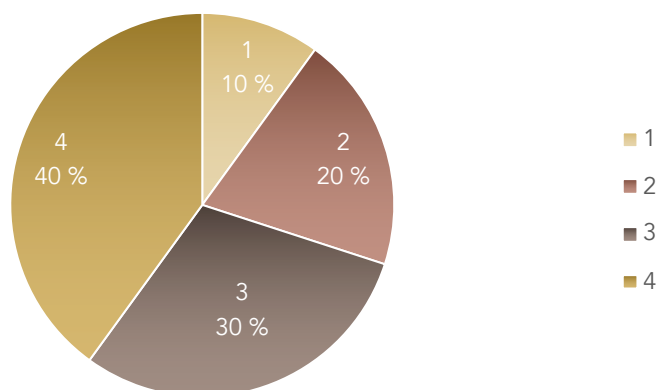
*Fig 14. No of different aspects of daily work respondents were involved in. *4 was the maximum permissible response option from the available 6.*

7.1. ROLE TITLES

A wide variety of terminology was used to describe job titles and approximately one third of respondents reported multiple roles. To gain a clearer understanding of the breadth of roles represented, a data cleaning process was developed. Duplicate role titles were identified through a process of automated searching (Excel, duplicates function) and a subsequent manual filtering. Where variations in terminology were deemed to describe the same role, these were combined into a single role title. This resulted in a total of 54 distinct individual titles (Table 2). All original responses are provided in Appendix 2.

Table 2. Unique Role Titles within the sector

Administrator	Maintenance Worker	Team Leader
Bike Patrol	Manager	Trail Association Leader
Bike Park Manager	MTB Guide & Instructor	Trail Builder
Board member	MTB Manager	Trail Building Advocate
Builder	Office Manager	Trail Building Consultant
Business Unit Manager	Owner / Co-owner	Trail Coordinator
CEO	Partner	Trail Crew Manager
Chairman	Planner	Trail Designer
Civil Engineer	President	Trail Development Coordinator
Committee Member	Project Coordinator	Trail Inspector
Construction Worker	Project Leader	Trail Network Technical Director
Director	Project Manager	Trail Officer
Engineer	Recreation Ranger	Trail Program Manager
Foreman	Secretary	Treasurer
Head of Bike Patrol	Senior Project Manager	Volunteer Director
Head of Planning	Shaper	Volunteer Leader
Leader	Supervisor	Trail Association Chairman
Machine Operator	Teacher	Volunteer Trail Builder

Again, this appears to reflect the variation in job roles and may be indicative of the stage of development of the sector, where consistent and clearly defined roles may not always exist across the industry, and of the small size of organisations. The broad range of roles in the data precludes the analysis of data according to self-reported role (Appendix 2).

7.2. ROLE AUTONOMY / RESPONSIBILITY

A range of role autonomy and responsibility was reported, with the greatest proportion of respondents self-reporting a high level of autonomy/ responsibility (36%) while only 4.5% reported the lowest level of autonomy and "worked under supervision with only some autonomy" (Fig. 15).
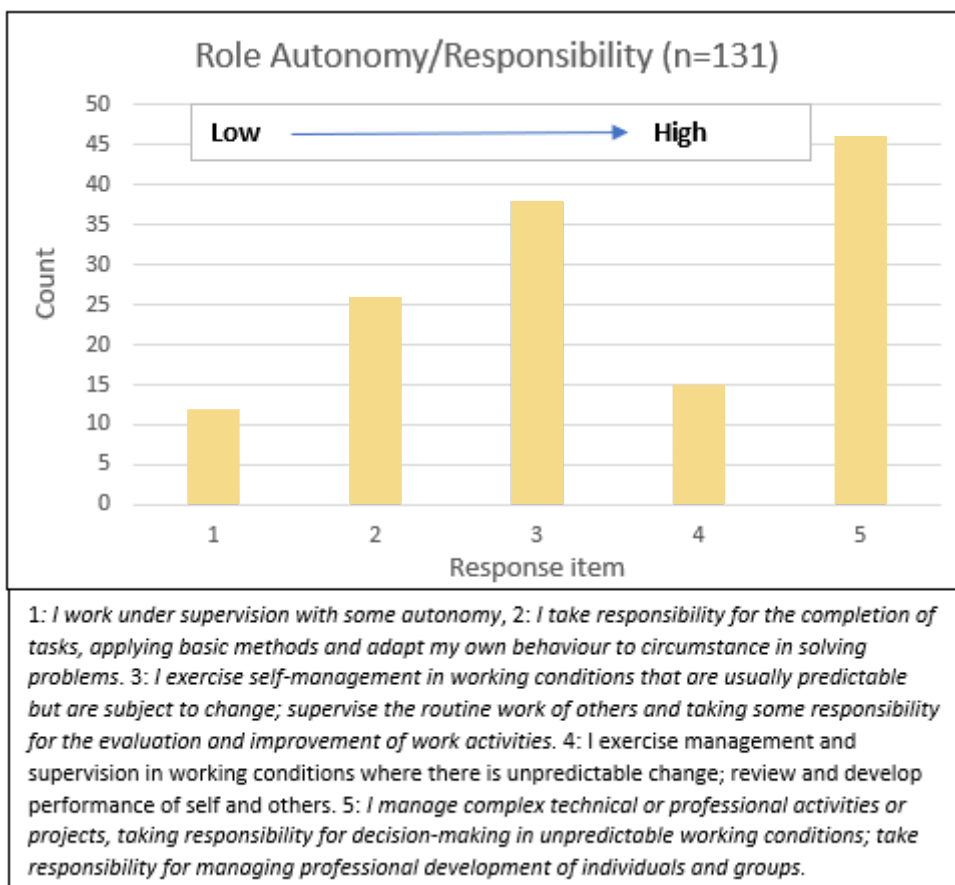
Fig. 15. Self-reported autonomy/responsibility.

Some differences were found in daily work according to self-reported degree of autonomy/ responsibility (Fig. 16). Perhaps most notably, crew management did not form part of daily work for anyone in the role with the least responsibility. Amongst those with the highest level of responsibility, trail management was the most likely to form part of daily work, followed by crew management, project planning and design and project preparation (which received equal responses). Interestingly this group reported that programme admin and leadership was least likely to form part of their daily work.
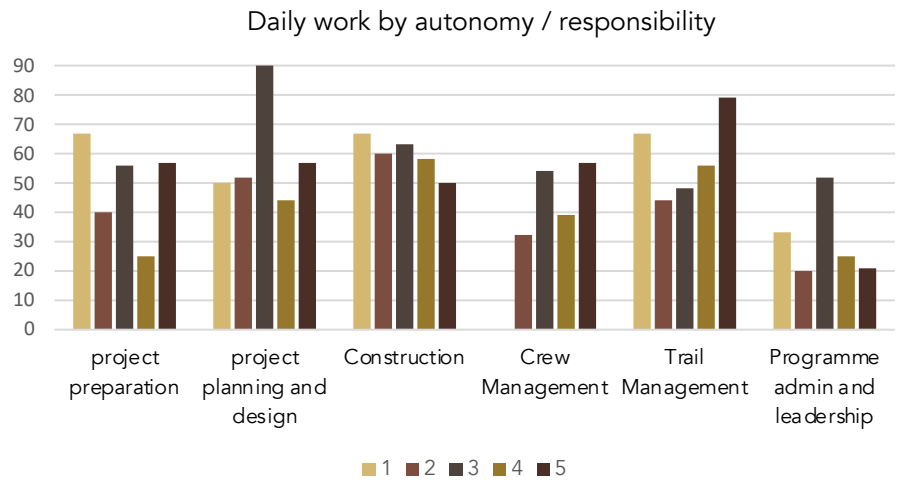
Fig. 16. Self-reported elements of daily work according to "role".

Photo: Magnus Grönberg / DIRTT.eu

7.3. EDUCATION AND ROLE

While the most widely reported educational level was at higher vocational or technical college level (28%), exactly half of the sample reported having a university degree at bachelors or master's level (50%). Less than 4% of stakeholders operating in the mountain bike trail sector held a doctorate (Fig. 17).

What is your highest level of education

Level	Value
Primary education	5,38
Secondary education	10,77
Higher vocational or technical college…	28,46
University bachelors degree	22,31
University masters degree	27,69
University doctorate	3,85
Prefer not to say	0,00
Other	1,54
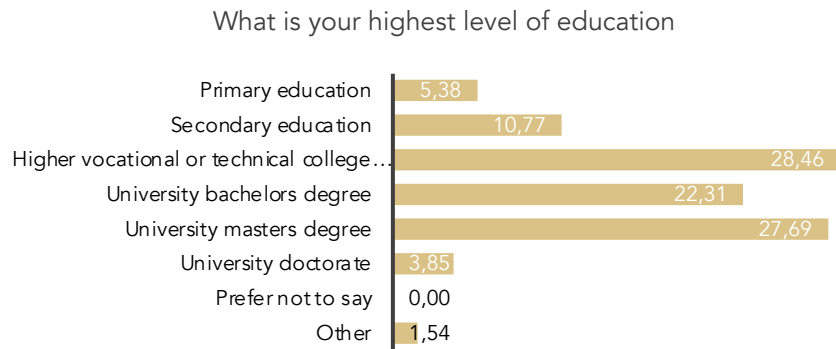
Fig. 17. Respondents highest educational level

Over half (53%) of respondents' highest educational qualification was not directly related to their current role within the trail sector. Only 3% of respondents' qualification was a role requirement while 41% reported their qualification to be related to their role but not an explicit requirement (Fig. 18).

Relevance of qualification

- Yes - it is a role requirement: 3
- Completely related but not required: 9
- Somewhat related: 32
- No: 53
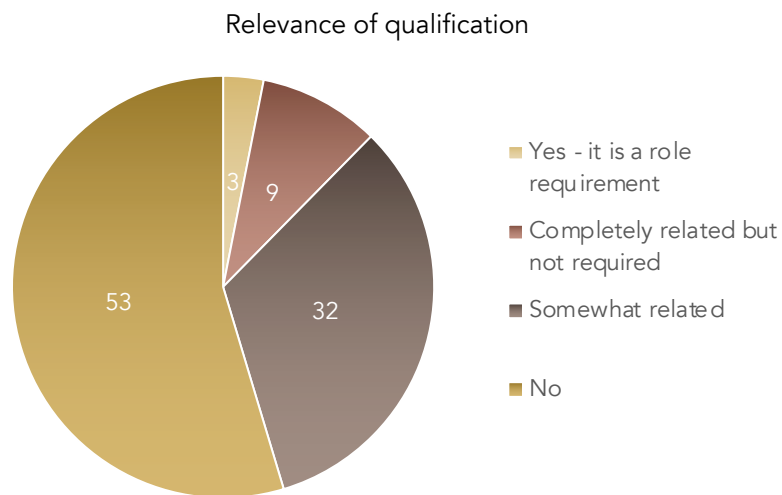
Fig. 18. Relevance of qualification to current role.

The proportion of respondents reporting primary education as their highest level is substantially greater for roles with the lowest level of autonomy and responsibility, and this proportion decreases as autonomy / responsibility increases (Fig.19). There is also a trend for the proportion of respondents holding postgraduate level qualifications to increase along with levels of autonomy and responsibility.

Education According to autonomy/responsibility
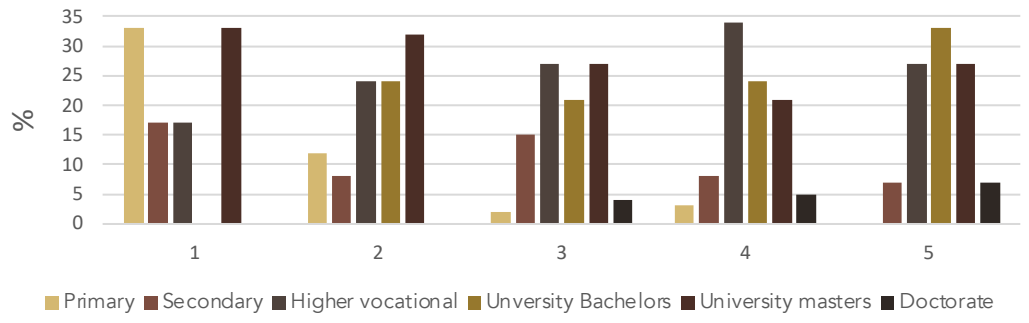
Fig. 19. Highest level of education according to degree of autonomy / responsibility.

8. TRAIL SECTOR COMPETENCIES

Respondents who indicated an involvement in specific aspects of daily work subsequently provided a rating of importance for competencies involved in these elements. In total, ratings were provided for 46 separate competencies. The greatest proportion of respondents rated 28 of these competencies as being "essential", while a further 15 competencies attracted most responses stating them to be "very important". Only three competencies were rated as "somewhat important" by the largest proportion of respondents and there were none rated as "not required" by most respondents. Competencies have been displayed in order of priority (according to the proportion believing them to be essential) for all phases of trail planning, construction, maintenance, and management in Tables 3 to 8 below.

Table 3 Importance of competencies within the preparation phase

	Essential	Very important	Somewhat important	Not required
Land Use Plan Alignment.	64.86*	29.73	5.41	0.00
Define Purpose and Need of Project.	62.16*	32.43	5.41	0.00
Corridor Planning.	56.76*	35.14	8.11	0.00
Stakeholder Engagement.	51.35*	37.84	10.81	0.00
Justice, Equity, Diversity, and Inclusion Principles.	24.32	56.76*	16.22	2.70

Denotes largest proportion of responses across specific competency

Four of the five competencies were rated as "essential" for the preparation phase with the remaining competency being deemed "very important" (Table 3). Land use plan alignment was the biggest priority with justice, equality, diversity, and inclusion principles being the lowest priority although less than 3% felt there was no requirement for this competency.

Table 4 Importance of competencies within the planning phase

	Essential	Very important	Somewhat important	Not required
Permitting.	68.42*	22.81	7.02	1.75
Design.	61.40*	36.84	1.75	0.00
Project Cost Estimation.	57.8*	29.82	10.53	1.75
Trail Specifications.	50.00*	44.64	5.36	0.00
Implementation Plan.	40.35	42.11*	12.28	5.26
Trail Plans.	32.73	41.82*	20.00	5.45
Interpretation.	26.79	26.79	39.29*	7.14

Denotes largest proportion of responses across specific competency

In the planning phase, permitting is the greatest priority followed by design, project cost estimation and trail specifications all of which were deemed essential by at least 50% of respondents (Table 4). The implementation and trail plans were considered very important while interpretation was only somewhat important.

Table 5 Importance of competencies within the Construction Phase

	Essential	Very important	Somewhat important	Not required
Water Management/ Drainage Features.	91.30*	6.52	2.17	0.00
Water Crossing Structures.	65.22*	23.91	6.52	4.35
Trail Finish work.	63.04*	28.26	6.52	2.17
Construction Specifications.	60.87*	32.61	6.52	0.00
Hand-Built Trail Construction.	52.17*	32.61	15.22	0.00
Mechanised Trail Construction.	52.17*	30.43	10.87	6.52
Corridor Clearing.	50.00*	43.48	6.52	0.00
Retaining Walls.	47.83*	30.43	17.39	4.35
Tread Hardening.	46.67*	35.56	13.33	4.44
Trailside Structures.	17.78	42.22*	20.00	20.00
Decommissioning Trails.	15.56	33.33	37.78*	13.33

Denotes largest proportion of responses across specific competency

Nine of the possible eleven construction related competencies were deemed to be essential by the greatest proportion of respondents with only trailside structures considered very important and decommissioning trails being somewhat important (Table 5). Over 90% of respondents felt that water management was an essential competency and almost two thirds felt the same about water crossing structures.

Table 6 Importance of competencies within the Crew Management Phase

	Essential	very important	somewhat important	not required
Jobsite Safety.	60.53*	36.84	2.63	0.00
Jobsite Risk Management.	55.26*	36.84%	7.89	0.00
Crew Management.	50.00*	47.37%	2.63	0.00
Field-based Resource Protection.	35.14	37.84*	18.92	8.11
Crew Recruitment.	26.32	44.74*	23.68	5.26
Performance Management.	21.62	45.95*	32.43	0.00
Monitoring.	16.22	32.43	45.95*	5.41
Visitor Use Management and Monitoring.	10.81	51.35*	29.73	8.11

*Denotes largest proportion of responses across specific competency

Jobsite safety, jobsite risk management and *crew management* were all deemed essential by at least half of all respondents (Table 6). Monitoring was only somewhat important while the remaining four competencies were rated as very important.

Table 7 Importance of competencies within the Trail Management Phase

	Essential	very important	somewhat important	not required
Drainage Features/Water Management.	76.74*	13.95	6.98	2.33
Inspection & Assessment.	62.22*	35.56	2.22	0.00
Maintenance Specifications.	60.00*	35.56	4.44	0.00
Re-routing	43.18*	43.18*	13.64	0.00
Corridor Clearing	35.56	40.00*	20.00	4.44
Corridor clearing	35.56	44.44*	17.78	2.22
Tread Maintenance -Hand tools.	35.56	53.33*	11.11	0.00
Tread Maintenance - Mechanised Equipment.	20.00	44.44*	20.00	15.56

*Denotes largest proportion of responses across specific competency

Drainage features, inspection and assessment and maintenance specifications were all deemed to be essential competencies within the trail management phase (Table 7). Re-routing was rated as essential or very important by an equal number of respondents while all remaining competencies were considered very important.

Table 8 Importance of competencies within the Admin & Leadership Phase

	Essential	very important	somewhat important	not required
Policy/Directives/Law.	58.33*	27.78	11.11	2.78
Communications.	52.78*	44.44	2.78	0.00
Agreement Development.	48.57*	40.00	5.71	5.71
Contract Administration.	47.22*	36.11	16.67	0.00
Funding/Grants.	30.56	47.22*	11.11	11.11
Education and Public Outreach.	25.00	44.44*	25.00	5.56

Denotes largest proportion of responses across specific competency

Policy/directives/law, communications, agreement development and contract administration were all deemed essential competencies within the administration and leadership phase (Table 8) while funding grants and education and public outreach were reported to be very important.

8.1. ROLE-SPECIFIC COMPETENCIES

In view of the wide variety of self-reported role titles (see section 7.1), it was deemed impractical to attempt to segment responses according to role. Instead, variation in perceived "essential" competencies was explored using self-reported role autonomy/responsibility as the group variable. Responses were segmented by all five levels of autonomy/responsibility and additionally by a dichotomous variable created to represent the distinction between the lowest two levels of autonomy (technician) and the three highest (managerial).
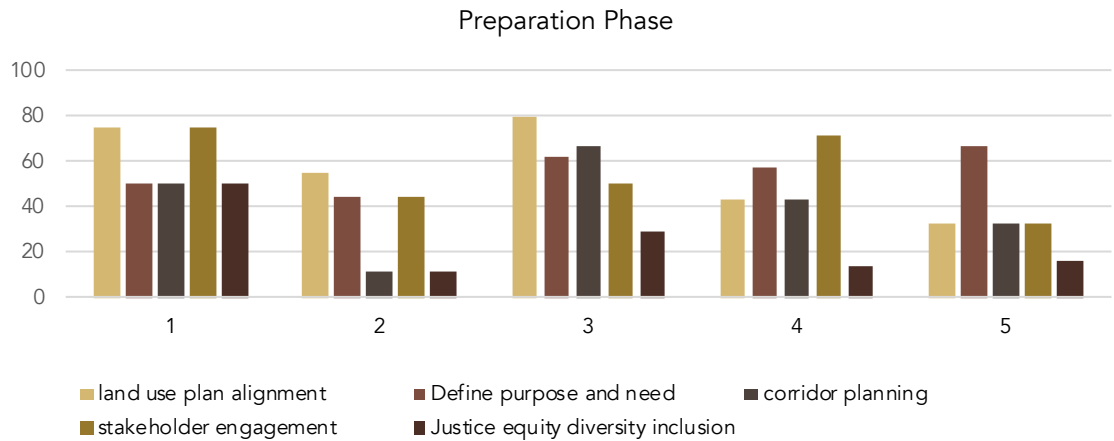
*Fig. 20. Essential competencies during the preparation phase by autonomy. * Data from proportion of "essential" responses.*

In the preparation phase, land use plan alignment received the most "essential" responses across the first three levels of autonomy. Defining purpose and need and stakeholder engagement received the most essential responses at the higher two levels of autonomy (Fig. 20).

Table 9. Prioritisation of competencies in the preparation phase by dichotomised autonomy.

Technician		Management	
land use plan alignment	62	land use plan alignment	65
Stakeholder Engagement	54	Define Purpose and Need of Project	62
Define Purpose and Need of Project	46	Corridor Planning	57
Corridor Planning	23	Stakeholder Engagement	51
Justice, Equity, Diversity, and Inclusion Principles	23	Justice, Equity, Diversity, and Inclusion Principles	24

* Data from proportion of "essential" responses

When grouped by dichotomous role variable, land use alignment remained the highest priority for both roles and justice, equality, diversity, and inclusion principles the lowest but the order of other competencies varied (Table 9).
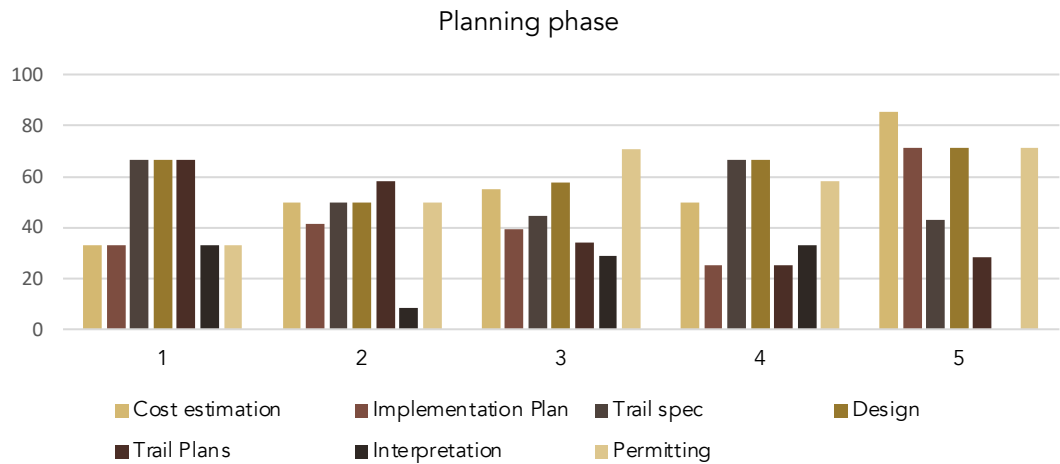

Fig. 21 Essential competencies during the planning phase by autonomy

In the planning phase, interpretation was deemed one of the lowest priorities across all levels of autonomy. Permitting assumes a greater priority as autonomy increases while cost estimation is the highest priority for those at the highest level of autonomy (Fig. 21).

Table 10. Prioritisation of competencies in the planning phase by dichotomised autonomy.

Technician		Management	
Trail Plans	60	Permitting	68
Trail Specification	53	Design	61
Design	53	Cost estimation	58
Cost estimation	47	Trail Specification	49
Permitting	47	Implementation Plan	40
Implementation Plan	40	Trail Plans	32
Interpretation	13	Interpretation	26

* Data from proportion of "essential" responses

The prioritisation of competencies varies substantially by dichotomised role during the planning phase (Table 10). Technicians deem trail plans and then trail specifications to be the most important competencies while at the management level, permitting, design and then cost estimation are the priorities. Interpretation remains the lowest priority irrespective of role.
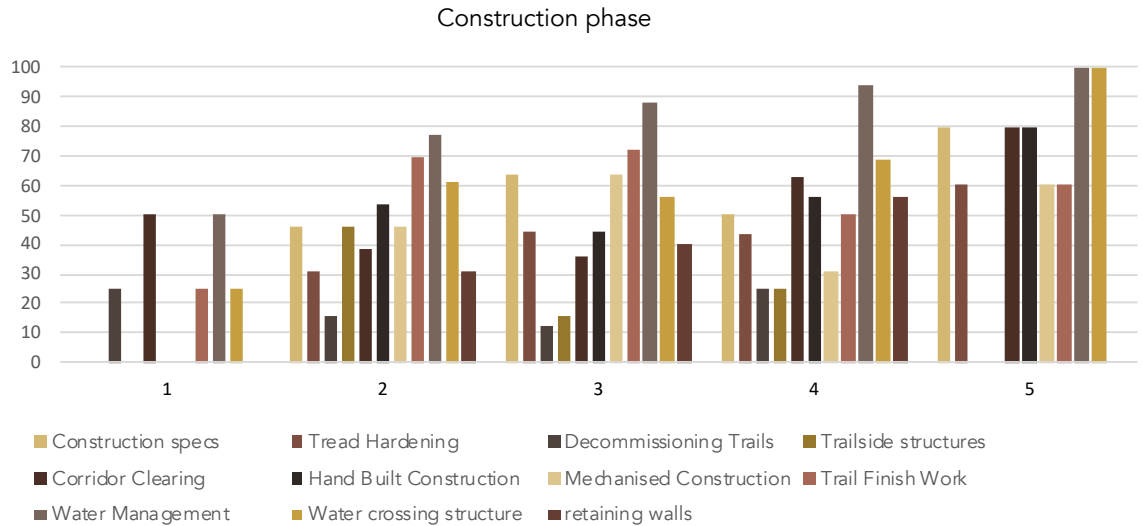
Construction phase

Fig. 22 Essential competencies during the construction phase by autonomy

Water management was reported as being the most important competence across all levels of autonomy with the relative importance increasing with greater autonomy. Decomissioning Trails was considered the lowest priority across all levels of autonomy (Fig. 22).

Table 11. Prioritisation of competencies in the construction phase by dichotomised autonomy

Technician		Management	
Water Management	71	Water Management	91
Trail Finish Work	59	Water crossing structure	65
Water crossing structure	53	Trail Finish Work	63
Corridor Clearing	41	Construction specs	61
Hand Built Construction	41	Hand Built Construction	52
Construction specs	35	Mechanised Construction	52
Trailside structures	35	Corridor Clearing	50
Mechanised Construction	35	Tread Hardening	46
Tread Hardening	24	retaining walls	41
retaining walls	24	Trailside structures	17
Decommissioning Trails	18	Decommissioning Trails	15

* Data from proportion of "essential" responses

Irrespective of role type, water management was the highest priority competency followed by trail finish work and water crossing structures (Table 11). Decommissioning trails was deemed the least important competency during the construction phase.
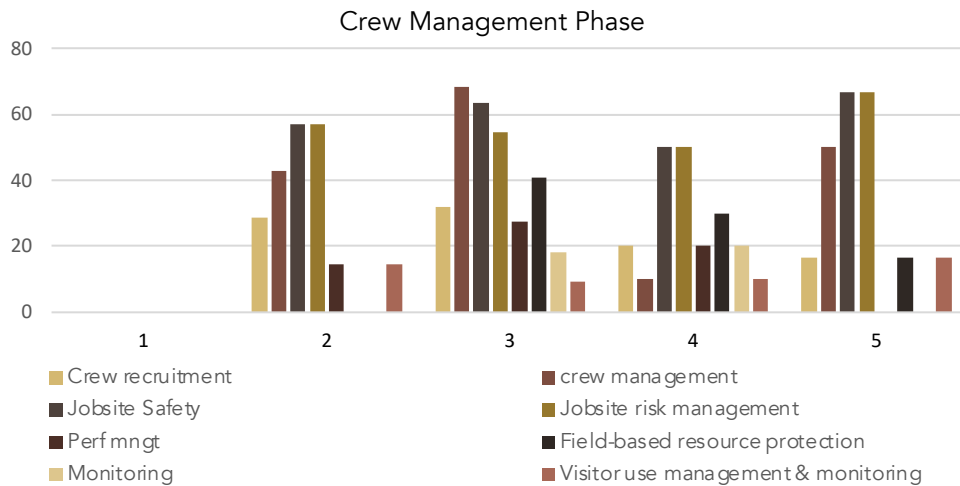
Fig. 23 Essential competencies during the crew management phase by autonomy

In the crew management phase, jobsite safety and jobsite risk management were identified as priority competencies across almost all levels of role autonomy. Visitor use management and monitoring were the lowest priority competencies (Fig.23).

Table 12. Prioritisation of competencies in the crew management phase by dichotomised autonomy

Technician		Management	
Jobsite Safety	57	Jobsite Safety	61
Jobsite risk management	57	Jobsite risk management	55
crew management	43	crew management	50
Crew recruitment	29	Field-based resource protection	34
Performance management	14	Crew recruitment	26
Visitor use management & monitoring	14	Performance management	21
Field-based resource protection	0	Monitoring	16
Monitoring	0	Visitor use management & monitoring	11

* Data from proportion of "essential" responses

The top three priority competencies were the same irrespective of dichotomised role autonomy: jobsite safety, jobsite risk management and crew management (Table 12). No respondents at the "technician" level felt that field-based resource protection or monitoring were essential competencies whereas 34% and 16% of respondents with a management role deemed these essential.
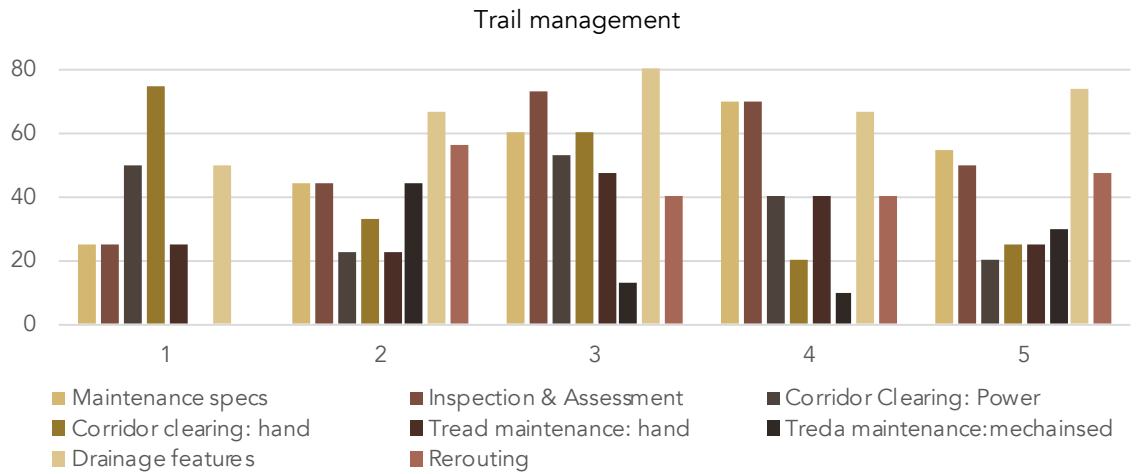
Trail management

Legend:
- Maintenance specs
- Inspection & Assessment
- Corridor Clearing: Power
- Corridor clearing: hand
- Tread maintenance: hand
- Treda maintenance:mechainsed
- Drainage features
- Rerouting

Fig. 24 Essential competencies during the trail management phase by autonomy

Corridor clearing was found to be the greatest priority for those with the lowest level of autonomy only and of much lower importance amongst those with roles with greater autonomy. Drainage features were considered a high priority across all other role levels with maintenance specs and inspection/assessment also being deemed important (Fig.24).

Table 13. Prioritisation of competencies in the trail management phase by dichotomised autonomy

Technician		Management	
Drainage features	58	Drainage features	76
Corridor Clearing: hand	54	Inspection & Assessment	64
Corridor Clearing: Power	36	Maintenance specs	62
Maintenance specs	35	Rerouting	42
Inspection & Assessment	35	Corridor Clearing: Power	38
Rerouting	28	Tread maintenance: hand	37
Tread maintenance: hand	24	Corridor Clearing: hand	35
Tread maintenance: mechanised	22	Tread maintenance: mechanised	18

* Data from proportion of "essential" responses

When dichotomised by role autonomy, drainage features remained the highest priority although a greater proportion of those in "management" roles reported this as being essential when compared with "technicians". Corridor clearing was a greater priority for technicians when compared to management roles (Table 13).
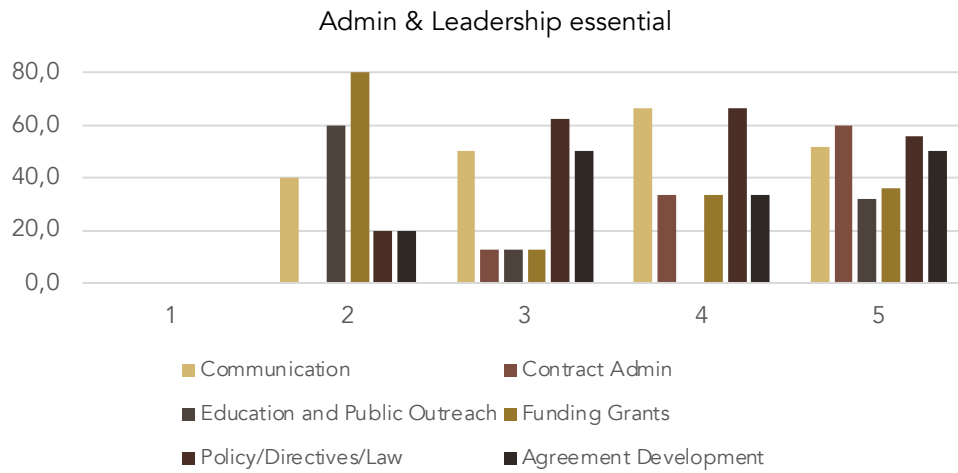
Admin & Leadership essential

Fig. 25. Essential competencies during the administration and leadership phase by autonomy

In the admin and leadership phase, the prioritisation of competencies varied markedly with differing levels of role autonomy. Funding grants were a high priority amongst individuals with lower levels of autonomy while the importance of communication largely increased with greater levels of autonomy.

Table 14. Prioritisation of competencies in the administration and leadership phase by dichotomised autonomy

Technician		Management	
Funding Grants	80	Policy/Directives/Law	62
Education and Public Outreach	60	Communication	56
Communication	40	Agreement Development	44
Policy/Directives/Law	20	Contract Admin	35
Agreement Development	20	Funding Grants	27
Contract Admin	0	Education and Public Outreach	15

* Data from proportion of "essential" responses

There were notable differences in the prioritisation of competencies during the admin and leadership phase according to the dichotomised role (Table 14). Technician roles reported funding grants as being the most important, followed by education and public outreach. Management roles believed policy/directives/law to be the priority competencies, followed by communication.

9. SUSTAINABILITY

Almost half (48%) of respondents believed their knowledge of sustainable trails to be good, or extremely good, while less than a fifth (20%) felt their knowledge was poor or extremely poor (Fig 26).
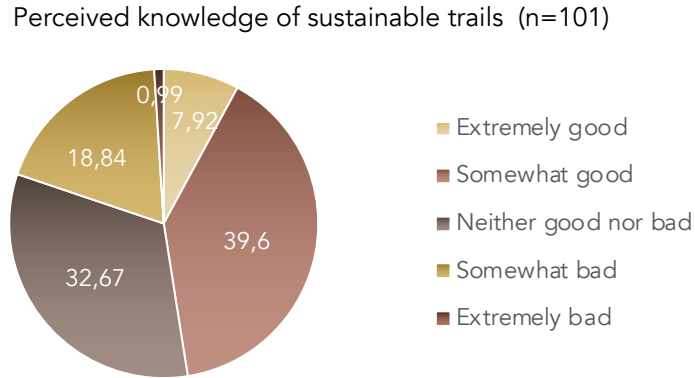
Perceived knowledge of sustainable trails (n=101)

Fig. 26. Self-rated knowledge of sustainable trails.

A substantial majority of respondents reported that all possible response options were somewhat, or very much, related to sustainable trail infrastructure (Fig. 27). Safe and predictable trails were deemed to be the single most important element while accessible trailhead amenities were considered the least related to inclusive infrastructure.
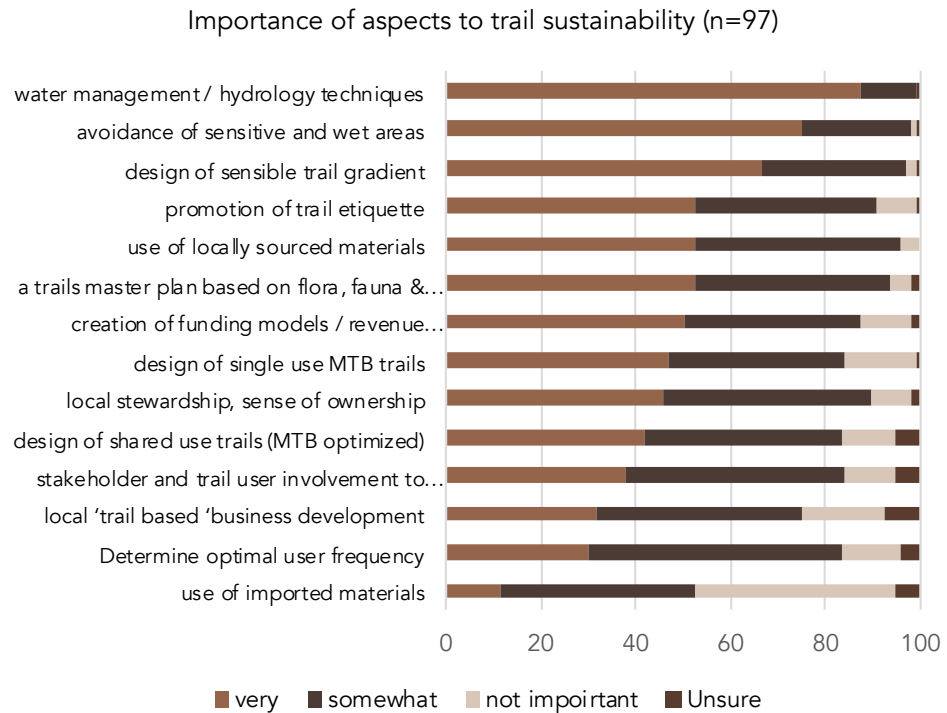
Importance of aspects to trail sustainability (n=97)

Fig 27. Importance of aspects of trail sustainability.

Almost two thirds of respondents believe that new trail developments could go beyond reducing damage to actively support the restoration of the natural environment (Fig. 28)
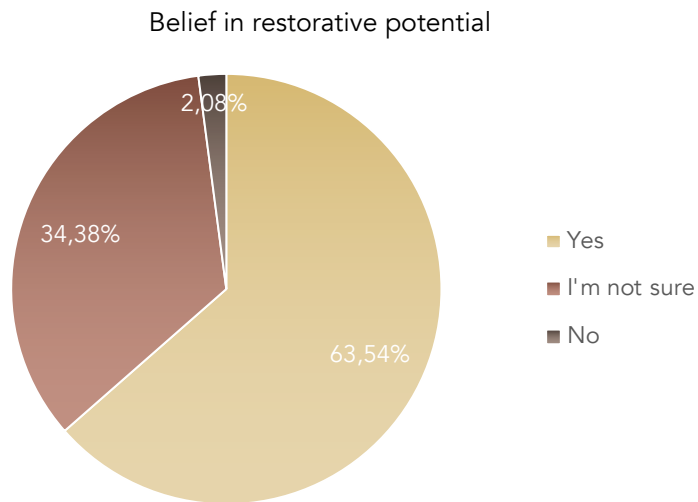

Fig 28. Belief in restorative trail construction.

Similarly, most respondents believe that some "less sustainable" or short-lived (e.g. fall line) trails might be developed but only where it helps to improve the overall health of a wider trail system, local economy or helps to embrace all riding styles (Fig 29). Only one in five respondents believe that there is never a place for building a "less sustainable" trail.
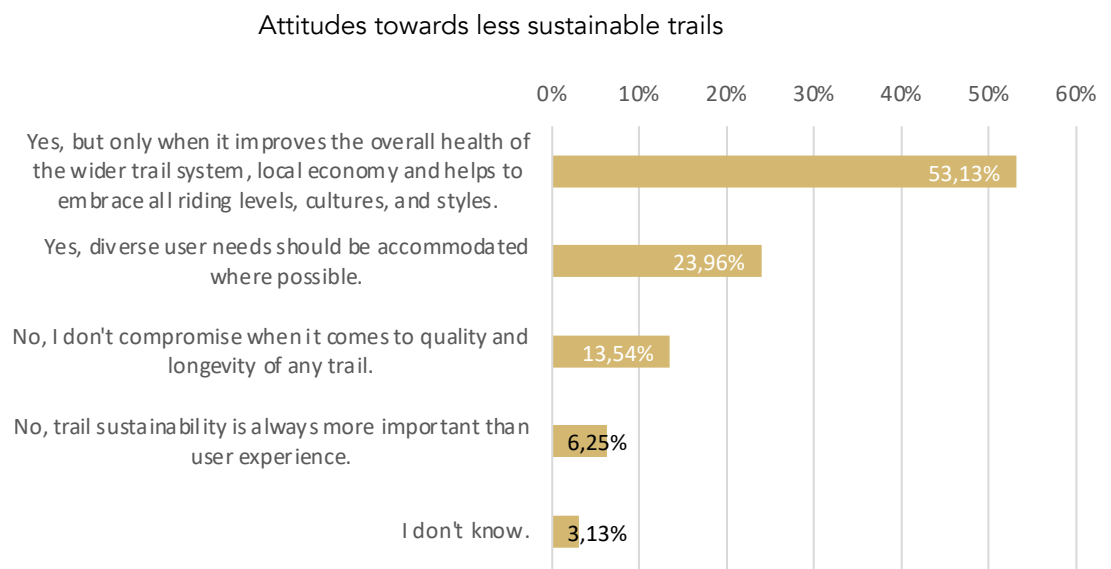

Fig. 29. Self-reported attitudes towards "less sustainable" trails

10. INCLUSION

Most respondents believed that all possible elements of inclusivity were very much, or somewhat, associated with inclusive MTB Trails. The single most important element was deemed to be trails which are safe and predictable for beginners, while accessible trailhead amenities were reported as being the least important (Fig. 30).

Elements associated with inclusivity
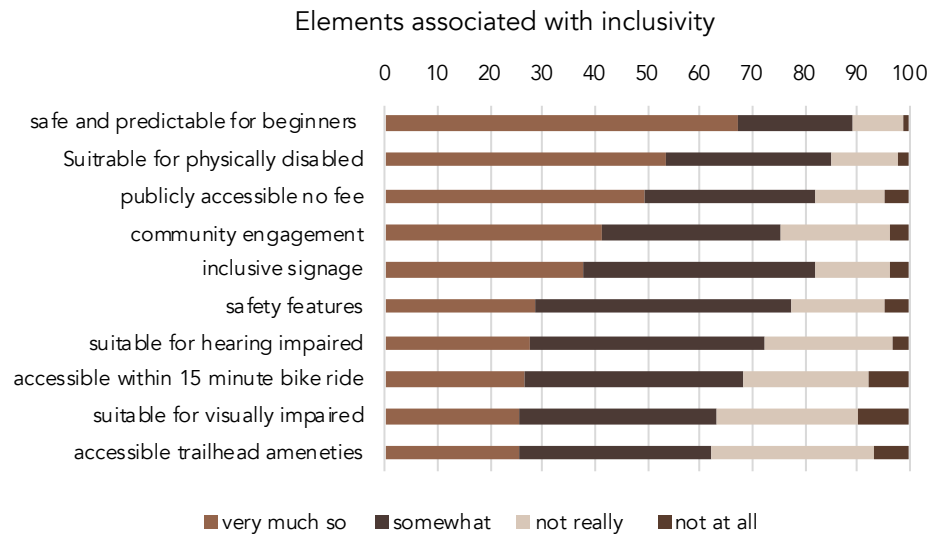
Fig 30. Perceived associations between trail elements and inclusive MTB trails.

Only 10% of respondents believed that their organisation "always" applied inclusive thinking when developing new trails although nearly a quarter felt that this applied "most of the time" (Fig 31).

Inclusive Practice (n=102)

Always
Most of the time
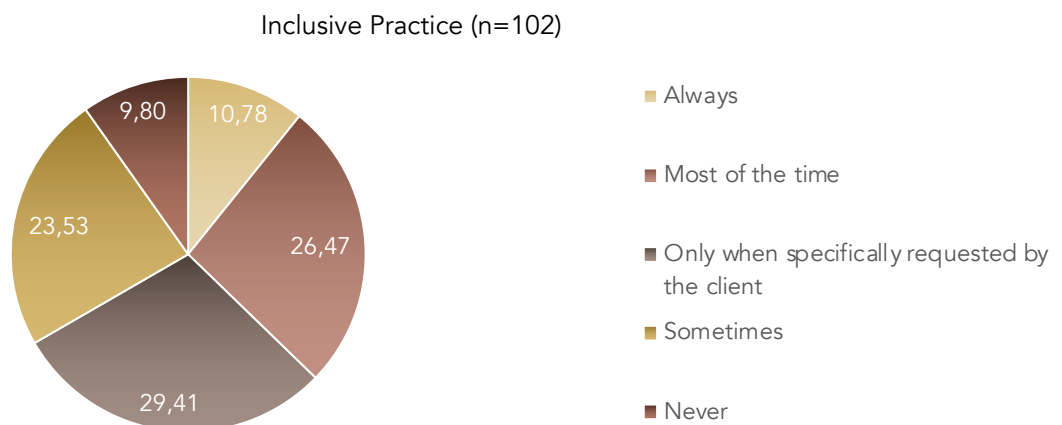Only when specifically requested by the client
Sometimes
Never

Fig. 31. Embedding of inclusive principles

The greatest training need for inclusive MTB trail planning, design or construction was reported as relating to understanding and applying the principles of adapted trail guidelines (Fig. 32). There is also a strong requirement for training on the needs and barriers to promote participation of different targets groups.

Training needs
(n=99)

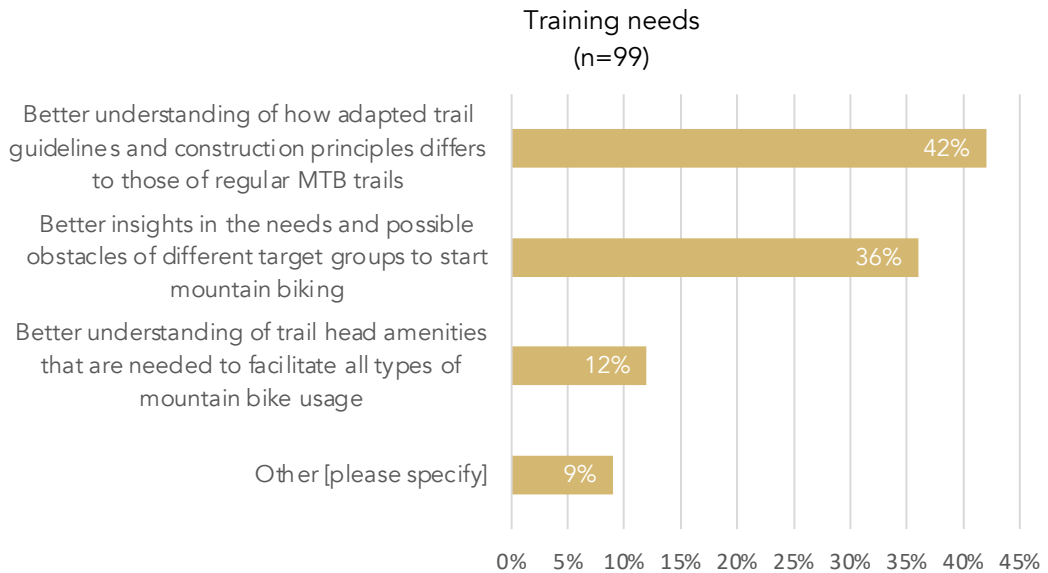| Category	Value
Better understanding of how adapted trail guidelines and construction principles differs to those of regular MTB trails	42%
Better insights in the needs and possible obstacles of different target groups to start mountain biking	36%
Better understanding of trail head amenities that are needed to facilitate all types of mountain bike usage	12%
Other [please specify]	9%

Fig 32. Priority training needs in relation to the planning, design or construction of inclusive MTB trails.

Photo: Raphael Surmont - Bike Plan

11. CERTIFICATION

With respect to the assessment methods to demonstrate and certify competence, almost half of all respondents would prefer this to be a combination of different methods while less than 8% would like this to be in the form of theoretical tests alone (Fig.33)
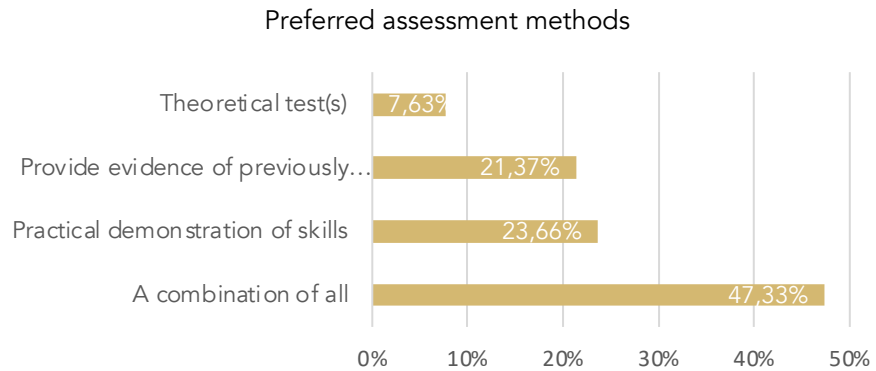
Preferred assessment methods

Method	Percentage
Theoretical test(s)	7,63%
Provide evidence of previously…	21,37%
Practical demonstration of skills	23,66%
A combination of all	47,33%

Fig. 33 Preference for different assessment methods

A range of preferences for support options were reported, with approximately a quarter of respondents favouring either: an intake with an assessor, an eLearning system, or a self-assessment tool (Fig. 34. Less than 15% favoured written documentation.
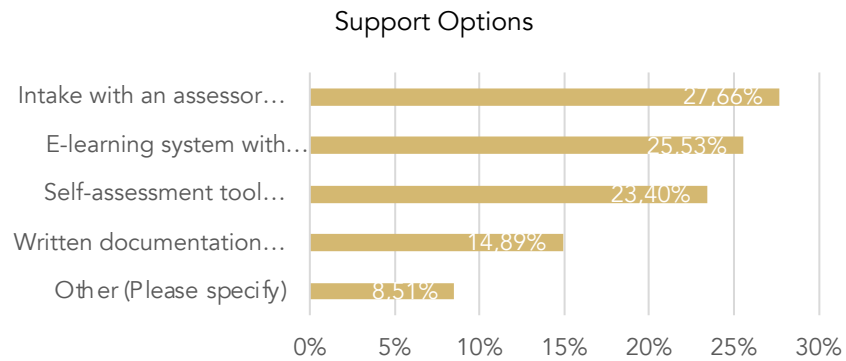
Support Options

Option	Percentage
Intake with an assessor…	27,66%
E-learning system with…	25,53%
Self-assessment tool…	23,40%
Written documentation…	14,89%
Other (Please specify)	8,51%

Fig. 34 Preference for different support options.

Respondents indicated a strong preference for a model which involves national assessors, with nearly half (45%) favouring European coordination with national assessors with the second most common model involving national level coordination and assessors (Fig. 35).
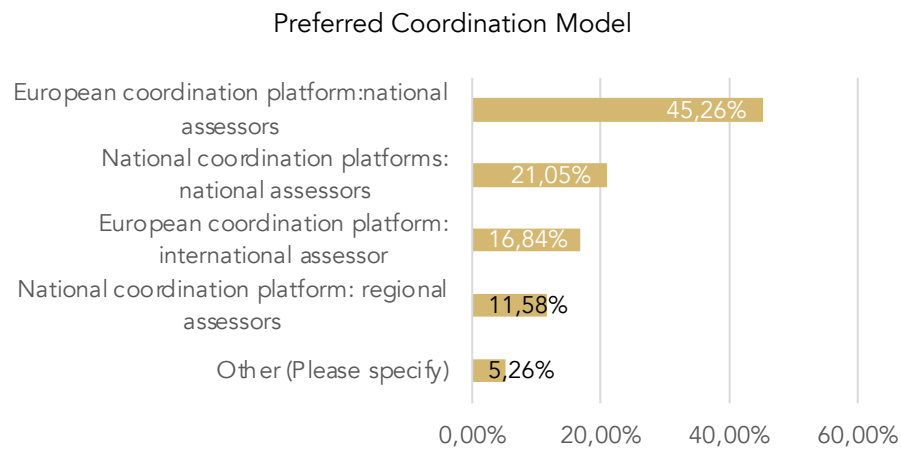
Preferred Coordination Model

Fig. 35. Preferred coordination model.

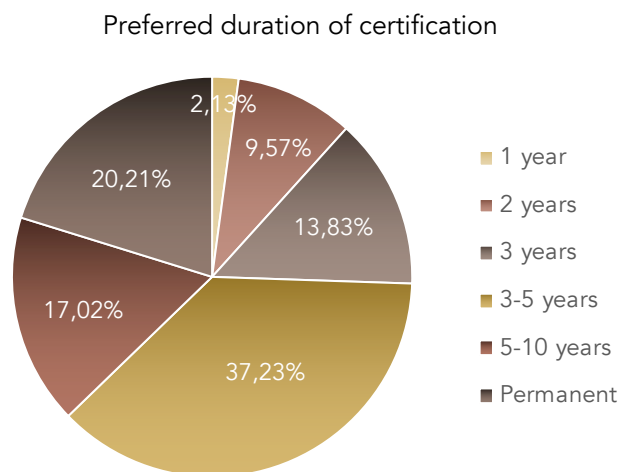Preferred duration of certification

Fig. 36 Preferred duration of certification

A substantial majority of respondents indicated a preference for time-bound certification with only one in five favouring a permanent certification (Fig. 36). This is likely to reflect a perceived importance of demonstrating an up-to-date competence although no data was collected on the reasons for the responses. The most popular certification period was found to be between 3-5 years (37%), followed by 5-10 years (17%). Only 2% of respondents would like an annual certification.
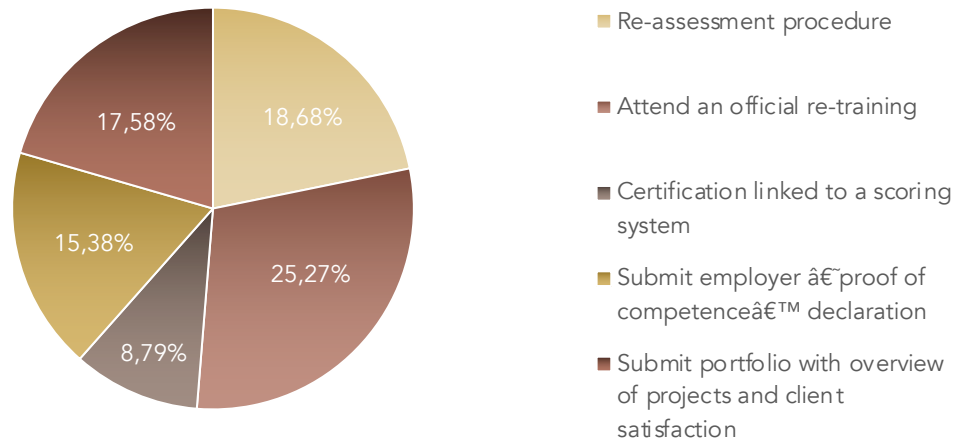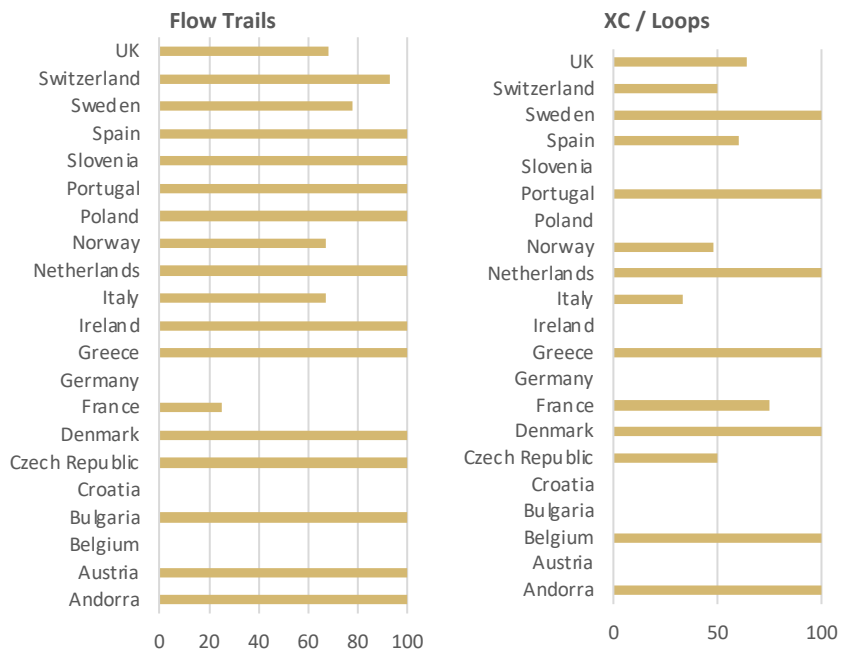
Preferred renewal process

- Re-assessment procedure
- Attend an official re-training
- Certification linked to a scoring system
- Submit employer 'proof of competence' declaration
- Submit portfolio with overview of projects and client satisfaction

Fig. 37 Preferred renewal process.

In terms of the process for renewing the certification, a broad spread of preferences were reported (Fig. 37).

12. APPENDICES

Appendix 1. Trail types constructed within past 2-years, by country.

DH

Kids playgrounds / skills parks
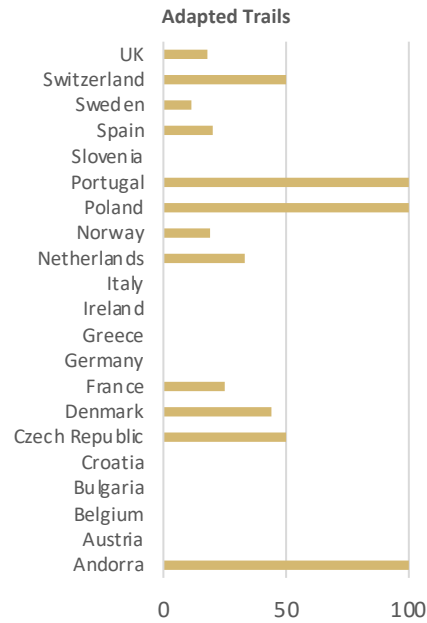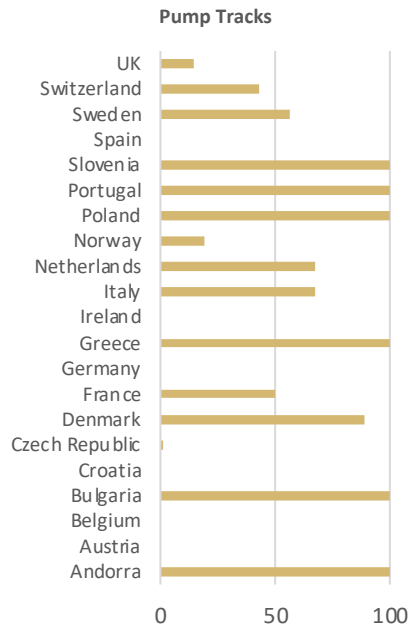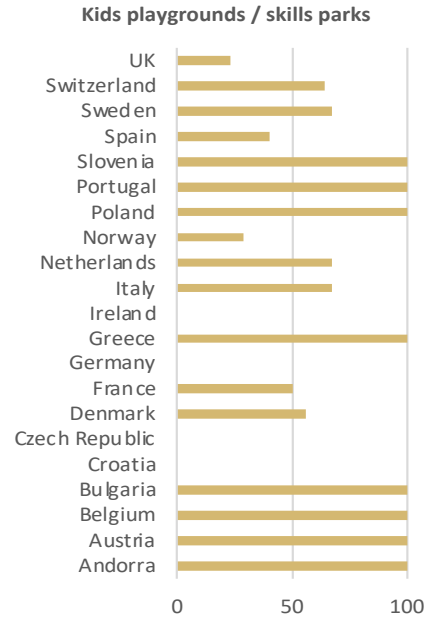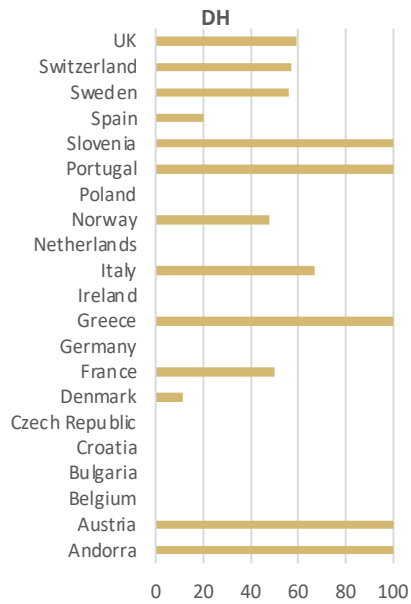
Pump Tracks

Adapted Trails

Dirt Jump

Urban Bike Park

1.	MTB manager 1st designer assistant	Volunteer Trail Builder/Shaper on local Trails	Co-Owner Project manager	Civil Engineering Graduate Apprentice (National) (Mainly work in recreation)
2.	Trail maintenance and mtb instructor. Teacher and volunteer Board member local trail team Trail builder Trail Officer	Director Project manager volunteer in our local association Volunteer director if a company limited by guarantee. Trail building advocate	Fundraising Lead - Committee Member Voluntary trail-maintainer Treasurer. in the board of our mtb club Board member	"Bike Patrol Volunteer shaper President of MTB coalition Shaper board member Manager and projects manager Planner & Chief Trail Builder
3.	Teacher Trail association leader qualified Trail building leader Leader Trail Coordinator worker for pedestrian path Team leader Chairman of volunteer MTB organization Trail builder	Recreation Head of the board (voluntarily) Secretary of the trail association Volunteer trail association chairman Trail designer, trail consultant Bike Park Manager Chairperson and Trail Coordinator Fireman, trail builder and bike patrol Volunteer trail builder and advocate	Bike Patrol Trail Association Lead Volunteer, Qualified Trail Inspector Trail builder/ shaper Trail builder Youth Worker Volunteer Chairman Trail group leader Director	Volunteer trail digger, Inc volunteer leadership Office manager, but also do some work outside. DIRTT Volunteer trail build leader/ Committee member of bike association. Project manager local chapter referent Consultant Chairman of MTB club trail builder" Trail builder /machinery operator
4.	Project manager/leader Trail builder, Project Manager, Excavator operator I am the President and director of the association	Board member FM and Stewardship Supervisor Polier Head of Bike patrol Trail builder & designer	Project Coordinator Owner designer Business Owner	documentation, maintenance Trail network technical director Project Manager (Trail assessment and Specialist consulting) "Volunteer role: NOTS, board member.
5.	Trail Designer and Manager Project manager Senior Project Manager Business Unit Manager trail builder Proprietor project coordinator Owner/principal Director, lead designer and lead supervisor/foreman Manager Owner Leader of the organization	CEO and Projects Manager CEO of the Company Trail Co-ordinator partner "Co-Owner Head of Planning" Trail builder Trail builder, Machine Operator, Supervisor, Co-Owner, Co-Owner, Co-CEO, Project Leader ENGINEER Recreation Civil Engineer	Trail crew Manager "Project Lead & trail builder" Bike shop owner, Founder / CEO Responsible for all MTB and Hiking trails in a big ski resort Owner and trail builder CEO CEO Owner and director. Trail Program Manager CEO	trail building Consultant. Trail Development Coordinator Potato, admin, planner and builder. Project Manager Trail building (planning, design, building) CEO General manager of my own company CEO CEO planner, designer, client's representative in for-tender contracted constructions Project Manager trail builder, photographer

Co-funded by
the European Union

Project Partners:

Fagskolen
i Viken
Higher Vocational College

IMBA
INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION

EUROPE

Edinburgh Napier
UNIVERSITY

DGI

ÁGUEDA
CÂMARA MUNICIPAL

Bikeplan
Consulting
Planning
Implementation

TrailTools.Eu

AEAS
agrupamento de escolas águeda

Opplysningskontoret
for Terrengsykling

Developing
Mountain Biking
in Scotland

DIRTT.eu