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# Ecology of Dual Careers Work Package 3 Report

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## Executive Summary

This report provides a summary of work package 3 which covers aim 3 of the Ecology of Dual Career ERASMUS+ project - To develop and test a DCDE monitoring tool (DCDEM) aimed at assisting stakeholders when checking the current status of their DCDE in relation to their structure, dual career arrangements, organizational culture, and the role of dual career service providers and helping them develop strategies to optimize their environments. The DCDEM was developed from the 10 shared success factors of DCDEs, that were identified through a cross cases analysis of environments in WP2. Questionnaire items were developed by the project team. Data was then collected in participating countries, from DC service providers and DC athletes. This data were then analysed to validate the questionnaire. The final version of the questionnaire along with recommendations for how to use it are included in this report.

## Introduction and Background

Over the past 30 years, there has been an increase in the focus of research which has looked to understand the development pathway for athletes. This literature (e.g., Henriksen, Stambulova, & Roessler, 2011; Morris, Tod, & Eubank, 2016; Torregrosa, Ramis, Pallarés, Azocar & Selva, 2015) has identified that in order to become successful, elite athletes need to spend a significant amount of time investing in their sport, potentially making sacrifices in other spheres of their lives. While there are benefits to making some sacrifices (e.g., potential elite performance), research has also identified that there are a number of pitfalls to this. For example, previous literature (e.g., Park, Lavalley, & Tod, 2013) has identified that athletes may suffer from identity foreclosure (i.e., commitment to an identity before exploring other options, such as career exploration, talent development, or joining social clubs or interest groups), deterioration of relationships with family members, burnout, and difficulties planning ones future when preparing for retirement from sport (Cecić Erpič, Wylleman, & Zupančič, 2004; Sorkkila, Aunola & Ryba, 2017). Athletes may suffer negative consequences as a result of these challenges, such as poor mental health, difficult adjustment to life outside of their sport, and potential negative behaviors (e.g., drug and alcohol abuse). In order to try and prevent such difficulties and support athletic and personal development, a number of initiatives have been implemented, including facilitation and development of support programs for dual career athletes. According to the recent ‘Dual Career Development and Transitions’ special issue in *Psychology of Sport and Exercise* and the papers contained within (e.g., Debois, Ledon & Wylleman, 2015; Tekavc, Wylleman, & Cecić Erpič, 2015) and guidelines on dual career provision (e.g., EU Guidelines on Dual Careers of Athletes; European Commission, 2012) athletes who take part in a dual career (i.e., combining elite sport competition with education or work) may receive many benefits of doing so, including a more balanced lifestyle, enhanced employment prospects, and better career/retirement planning.

Research (e.g., Stambulova & Ryba, 2013; Wylleman & Reints, 2010), however, has also indicated that this combination of high-level sport and education or work is one of the main challenges facing talented and elite athletes in the Member States in Europe because it involves athletes balancing a number of domains of their life and needing to give appropriate attention to each of these areas to be successful. To conceptualize further, Wylleman, Reints and De

Knop (2013) indicated that the dual career ‘education and sport’ pathway is not uniform and consistent, but actually consists of a series of different stages and transitions (see Figure 1). Within each developmental stage and transition, athletes will experience several demands and challenges that may hinder athletic and personal development (Morris, Tod, & Oliver, 2016). From a holistic perspective, research has indicated that dual career athletes may not only be faced with challenges at academic and athletic level, but throughout their dual career, including at psychological, psychosocial, and financial levels (Wylleman et al., 2013).

Considering these potential challenges of undertaking a dual career, greater academic focus on understanding this process has aimed at helping to facilitate and develop better dual career provision for high-level athletes who are combining their career with education or a vocation (e.g., Baron-Thiene & Alfermann, 2015; Sorkkila et al., 2017). Over the past 10 years there has also been a significant focus by the European Union on supporting and developing athletes who are considered to be undertaking a dual career. This has been emphasized by the development and implementation of European Union (EU) Guidelines on Dual Careers of Athletes (European Commission, 2012), which highlighted the need for cross collaboration and an inter-ministerial approach to supporting talented dual career athletes across Europe. In addition, there have been a number of ERASMUS+ projects (e.g., Gold in Education and Elite Sport, Study on Minimum Quality Requirements for Dual Career Services, and Be a Winner in Elite Sport and Employment Before and After Athletic Retirement) which have focused on understanding dual career athletes’ experiences of combining their sport with their academic / vocational pursuits.

Although providing a solid basis to study dual careers, previous and current ERASMUS projects and current research in the area of dual career athletes has primarily focused on understanding, promoting, and developing the key individual competencies (i.e., knowledge, skills, experience, and attitudes) required by dual career athletes to succeed in both their education / vocation and (post-)athletic career. It has been suggested, via the holistic ecological approach (HEA) to talent development (Henriksen & Stambulova, 2017; Henriksen et al., 2011), that the environment athletes are in can also have an effect on their development. The links and dialogue taking place within these environments can be fundamental to athletic

development (Henriksen et al., 2011). Research (e.g., Henriksen et al., 2011) has also suggests that some talent development environments are better than others in helping the athletes negotiate the demands of an athletic career and manage the transitions they encounter, providing appropriate cultures, social support, and facilities to aid athletes as they develop. This research indicates that, independent of athletes having the pre-requisite key competencies to be successful, they may encounter challenges with the environment which they cannot control. Indeed, it has been highlighted that coaches and practitioners working with elite athletes need to be sensitive to and analyze the overall strategies they use to develop talent, and not just focus on individual athletes and the development of their key skills (Larsen, Alfermann, Henriksen, & Christensen, 2013). As a result, to advance current knowledge and supplement the work which has already been carried out, the mission of the current Ecology of Dual Career project is to (1) develop a comprehensive understanding of the DCDEs across Europe, and (2) provide guidelines for the development and optimization of DCDEs supporting talented and elite athletes' in their pursuit of sporting and academic excellence.

To achieve the Project mission, there are four aims:

1. To identify and classify different types of DCDEs across Europe and define criteria of their effectiveness and efficiency.
2. To identify factors contributing to the effectiveness and efficiency of DCDEs through exploration of selected DCDEs in participating countries by exploration of their structure, dual career arrangements, organizational culture, and the role of dual career service providers.
3. To develop and test a DCDE monitoring tool (DCDEM) aimed at assisting stakeholders when checking the current status of their DCDE in relation to their structure, dual career arrangements, organizational culture, and the role of dual career service providers and helping them develop strategies to optimize their environments.
4. To disseminate the project findings and provide implementation guidelines to national governing bodies, DCDE stakeholders, dual career service providers, and dual career researchers on the development and optimization of the DCDEs.

This report provides a summary of work package 3 which covers aim 3 of the Ecology of Dual Career ERASMUS+ project - To develop and test a DCDE monitoring tool (DCDEM) aimed at assisting stakeholders when checking the current status of their DCDE in relation to their structure, dual career arrangements, organizational culture, and the role of dual career service providers and helping them develop strategies to optimize their environments. The report provides a summary of the aims of the work package, outlines the approach taken to data collection and analysis, and highlights the key findings to emerge from the data. For the purpose of the project, a DCDE was defined as - a purposefully developed system that aims to facilitate athletes' investment in combining their competitive sporting career with education or work.

## **Dual Career Development Environment Monitoring Tool Development and Validation**

### **Method**

The aim of Work Package (WP) 3 was to develop and test a DCDE monitoring tool (DCDEM) aimed at assisting stakeholders when checking the current status of their DCDE in relation to their structure, dual career arrangements, organizational culture, and the role of dual career service providers and helping them develop strategies to optimize their environments.

For this purpose, six experts (2 representants from UK and Spain, 1 from Belgium and Denmark) with experience in Dual career research and scale development gathered in Barcelona in July 2019 for a 2-days seminar. The recommendations of Boateng et al. (2018) for best practices for developing and validating scales were used as a framework for the DCDE scale development process. The steps are as follows:

Step 1: Identification of Domain and Item Generation: Selecting Which Items to Ask

Step 2: Content Validity: Assessing if the Items Adequately Measure the Domain of Interest

Step 3: Pre-testing Questions: Ensuring the Questions and Answers Are Meaningful

Step 4: Survey Administration and Sample Size: Gathering Enough Data from the Right People

Step 5: Item Reduction: Ensuring Your Scale Is Parsimonious

Step 6: Extraction of factors

Step 7-9 are related to the scale evaluation process which was not the focus of the current project.

Based on the findings of the cross-case analyses from WP2 that identified 10 characteristics (i.e. Dedicated Dual Career Support Team; Integration of Efforts Across the Whole Environment; A Clear Understanding of DC Issues and Support; Role Models and Mentorship; Access to Expert Support; A Whole Person Approach; An Empowerment Approach; Flexible Dual Career Solutions; Care of DC Athletes' Mental Health and Wellbeing; An Open and Proactive Approach to the Development of the Environment) of successful Dual Career Development Environments, the expert group generated a large pool of items (Step 1) for each of the 10 features. Both the descriptors and the opposite poles of the features from WP2 were used to develop the items. After discussing the initial pool of items in depth, the group agreed



on 10 statements/items that were representative for each feature. Eight statements were positively formulated (e.g. “the roles and responsibility of the dual career support team are clear for all”) and two represented the opposite pole of the feature (e.g., “there is uncertainty for dual career athletes about who to approach when assistance is required”). The initial pool of the 100 items were sent to all consortium members in a survey version to rate their importance (from 1-10) and to comment on the wording (Step 2). Partners from all seven countries involved provided feedback and rated the items. Based on these ratings, the four most important positive items and one negative item per feature were included in the final DCDEM containing a total of 50 items representing all 10 features.

### **Structure of the DCDEM monitoring tool**

*Introduction* to the instrument including definitions of key terms and information about ethical issues

*Part 1:* Background information (age, gender, educational level, role in DCDE, name of DCDE, sport discipline and level, time spent in DCDE)

*Part 2:* Fifty items (statements) that were answered on a 7-point Likert scale from 1 = *very strongly disagree* to 7 = *very strongly agree*. The items were randomized in their order in the online version.

The final English version of the DCDEM was consequently sent to all project partners. The partners translated the instrument to their local languages (Catalan, Danish, Dutch, Finnish, Slovenian, Spanish, and Swedish) and pre-tested the questionnaire in their cultural context (Step 3). All versions were then programmed in SurveyMonkey for the online data collection process. The link with the respective language was provided to all project partner who were responsible for the data collection and the distribution of the link to relevant DC stakeholders and athletes in their countries (Step 4). It was expected that the questionnaire takes approximately 10-15 minutes to complete.

A total of 616 participants from Belgium (N = 118), Denmark (N = 216), Finland (N = 91), Slovenia (N = 5), Spain (N= 83), Sweden (N=46) and the UK (N= 57) completed the questionnaire. The report outlines the response and descriptive data for each partner country



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and an overall European summary. Followed by the results of a confirmatory factor analysis of the DCDEM tool.



## Dual Career Development Environment Monitoring Tool (DCDEM)

### Recommendations for use:

The DCDE monitoring tool (DCDEM), was developed based upon research conducted by ERASMUS+ project, Ecology of Dual Career – Exploring Dual Career Development Environments across Europe ([www.dualcareers.eu](http://www.dualcareers.eu)).

The questionnaire will take approximately 10-15 minutes to complete. The DCDEM can be used by researchers, practitioners, or dual career athlete to evaluate a dual career environment.

**Guidelines for researchers:** The DCDEM can be used to conduct research in the effectiveness of DCDEs, including educational environments, sports clubs, national sporting organisations and dual career programs. It is important that the participants you use have an in depth understanding of the environment you wish to evaluate. To gain a broad understanding of the environments success, it is recommended to distribute the DCDEM to practitioners, service providers, stakeholders who you work with, and dual career athletes (e.g., coaches, parents, or support staff). These results can be compared between these groups. Note, for some dual career athletes, they might be a part of more than one dual career initiative (e.g., a university sports scholarship and a sports club). In this case, it is encouraged to focus on one program, or complete the DCDEM twice for each initiative. If you are conducting research, please seek ethical approve and include your own participant information sheet.

**Guidelines for dual career stakeholders:** To use the DCDEM, you need an in depth understanding of the environment you are evaluating. Therefore, it is best used to evaluate the environment(s) in which you are based or have significant experience working with. To gain a broad understanding of the environments success, it is recommended to distribute the DCDEM to practitioners, service providers, stakeholders who you work with, and dual career athletes (e.g., coaches, parents, or support staff). These results can be compared between these groups. Note, for some dual career athletes, they might be a part of more than one dual career initiative (e.g., a university sports scholarship and a sports club). In this case, it is encouraged to focus on one program, or complete the DCDEM twice for each initiative. You may or may not need to include the research consent section and a participant information sheet, please refer to your organisations policy.

**Guidelines for dual career athletes:** As a dual career athlete, you can use the DCDEM to evaluate the success of your DCDE, including educational environments, sports clubs, national sporting organisations and dual career programs. It is important you use have an in depth understanding of the environment you wish to evaluate. For some dual career athletes, you might be a part of more than one dual career initiative (e.g., a university sports scholarship and a sports club). In this case, it is encouraged to focus on one program, or complete the DCDEM twice for each initiative. If you are using the DCDEM for your own use, you don't need to fill in the research consent or participant information sections.

### Questionnaire Structure

The Questionnaire is split into ten key features, see Table 1. Each feature has 5 questions.

**Table 1. Features of of Successful Dual Career Development Environments**

Features of Successful DCDEs	Descriptors	Opposite Poles
<b>Dedicated DC support team</b>	<ul style="list-style-type: none"> <li>Designated team (or person) responsible for coordinating sport and study domains with specific the specific function of ensuring facilitation of (successful) sport and study. The team provide one central entry point so that the DC athletes know where to go for support.</li> <li>Helping DC athletes manage their dual careers is everybody's business (coaches, teachers, and others should all make an effort to make dual career as easy as possible) but the responsibility to coordinate and integrate should lie with a few designated people - the dedicated DC support team.</li> </ul>	<ul style="list-style-type: none"> <li>Multiple contact points leave DC athletes uncertain about who to approach when they need assistance with DC issues. DC athletes are sent to multiple people in the system and feel no one has overall responsibility and can really help.</li> </ul>
<b>Integration of efforts across the whole environment</b>	<ul style="list-style-type: none"> <li>Coordination and communication across the sport and study domains. Representatives of the domains (e.g., coaches, teachers, DC support team) have on-going communication about solutions to DC athletes' challenges. Micro- and macro- levels are linked through formal or informal networks.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of communication. Conflicting interests. DC athletes experience contradicting priorities in daily life - for example, when coaches advise athletes to primarily focus on their</li> </ul>

	<ul style="list-style-type: none"> <li>• DC athletes experience concordance and synergy in daily life.</li> </ul>	<p>sport and teachers on their studies.</p>
<p><b>A clear understanding of DC issues and support from across the environment</b></p>	<ul style="list-style-type: none"> <li>• The environment provides opportunities for DC athletes to focus on the sport and study at different time points depending upon key priorities at that time. People around the athlete acknowledge and accept the DC athletes' dedication to combining sport and study.</li> <li>• Recognition, understanding and support from family, coaches, teachers, peers and others to facilitate this.</li> </ul>	<ul style="list-style-type: none"> <li>• The wider environment shows lack of understanding of the demands involved in pursuing a dual career. Academic staff express that sport is a barrier for education, and sport staff and teammates consider studies as a barrier to sport performance.</li> </ul>
<p><b>Role models and mentorship</b></p>	<ul style="list-style-type: none"> <li>• The presence of appropriate persons who DC athletes can be guided by. This guidance may be direct support (mentorship) or a person they look up to and try to emulate (observational learning).</li> <li>• Opportunities to learn from other DC athletes who are willing to pass on their knowledge. DC support team passes on inspirational narratives about experiences of other DC athletes.</li> </ul>	<ul style="list-style-type: none"> <li>• Impermeable boundaries between DC athletes at different levels of sport and or education. Athletes regard other athletes as rivals and are unwilling to share. Successful solutions to DC issues are not used for inspiration.</li> </ul>
<p><b>Access to expert support</b></p>	<ul style="list-style-type: none"> <li>• Access to experts and services, such as nutrition, physiotherapy, sport psychology, and medical services, and appropriate teaching support. This access can be through the sport or study domains. DC support team knows how to help the DC athletes get access when needed.</li> </ul>	<ul style="list-style-type: none"> <li>• No access to experts. DC athletes who need expert support do not know how to get this help.</li> </ul>
<p><b>A whole person approach</b></p>	<ul style="list-style-type: none"> <li>• An acknowledgement of the influence of the different domains influencing DC athletes' lives, with a focus on developing the DC athletes holistically in whatever pathway they select.</li> <li>• People from one domain take an interest in the athletes' experiences,</li> </ul>	<ul style="list-style-type: none"> <li>• People in the sport domain focus solely on sport, people in the study domain solely on education etc.</li> </ul>

challenges, and learning in the other domains.

<b>An empowerment approach</b>	<ul style="list-style-type: none"> <li>• Providing opportunities for DC athletes to develop competencies and resources to manage their own dual career and become autonomous. Focus on personal development. An on-going development system with increasing empowerment of the athletes.</li> </ul>	<ul style="list-style-type: none"> <li>• Focus only on sport and study specific skills and not on DC competencies. Excessive control. No active involvement of DC athletes in key decisions regarding their own DCs.</li> </ul>
<b>Flexible DC solutions</b>	<ul style="list-style-type: none"> <li>• Recognition that DC athletes are different people and will require different solutions to support their DC. This may include sport and / or academic flexibility, and flexibility with, for example, education assessments.</li> <li>• Education based DCDEs allow for an extra focus on sport when needed, and sport based DCDEs allow for an extra focus on education when needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Dual career initiatives and services are not individualized but fixed. Support services are not appropriately contextualized to the different sport and to the needs of individual athletes.</li> <li>• Academic and sport staff compete for the limited time DC athletes have.</li> </ul>
<b>Care of DC athlete's mental health and wellbeing</b>	<ul style="list-style-type: none"> <li>• Dual careers are managed in a socially responsible manner. People in the DCDE recognize their responsibility, not only for the athletes' sport and academic achievements, but also for their wellbeing and mental health.</li> <li>• Ethical conduct guidelines for the protection of athletes and support systems (e.g., referral systems) are embedded in the policy of the environment.</li> </ul>	<ul style="list-style-type: none"> <li>• No recognition from the environment of responsibility for DC athletes' overall balance and mental health. Gladiator philosophy that sport is hard, and athletes should toughen up. DC athletes hide vulnerabilities. Sport and academic staff do not speak up when they learn of practices that are not appropriate. No policies in place.</li> </ul>
<b>An open and proactive approach to the development of the environment</b>	<ul style="list-style-type: none"> <li>• Dual career support providers engage in on-going development of their environment and their own competencies. Examples include: further education, reading of new scientific literature, on-going</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of time for on-going professional development and evaluation. There may be knowledge sharing within the team but no expansion of</li> </ul>

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evaluation of services, visits to other DCDEs, and involvement in research projects.

horizons via further education, reading of new scientific literature, on-going evaluation of services, visits to other DCDEs, and involvement in research projects. Seeing other DCDEs as rivals.

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### Questionnaire Scoring

Once completed, the results can be analysed to identify strengths of the environment and areas for optimisation.

**Step 1. Score questions.** Number the responses 1 for Very Strongly Disagree, 2 for Strongly Disagree, 3 for Disagree, 4 for Neither Agree nor Disagree, 5 for Agree, 6 for Strongly Agree and 7 for Very Strongly Agree. Responses that provided Not Applicable / Not Available need to be removed or recognized as a non-response.

**Step 2. Reverse scored items.** Questions 12, 18, 22, 29, 33, 36, 43, 49, 50, and 57. These items need to be scored as follows: 7 for Very Strongly Disagree, 6 for Strongly Disagree, 5 for Disagree, 4 for Neither Agree nor Disagree, 3 for Agree, 2 for Strongly Agree and 1 for Very Strongly Agree.

**Step 3. Calculate a score for each feature.** Take an average of the 5 questions in each of the ten features.

**Step 4. Compare feature scores.** High scores on a feature suggest it is a strength of the environment, whereas low scores suggest it is an area to improve practice within the environment(s).



## **Research Consent**

By completing the questionnaire, you are confirming the following - "I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided".

### **Part 1 – Background Information**

1. Age:
2. Gender:
3. Name of the dual career environment (Elite Sport School/Club/University):
4. Which of the following categories best describes your role within the dual career environment?
  - Coach
  - Parent
  - Teacher / Educator
  - Tutor
  - Dual career coordinator
  - Volunteer
  - Dual career athlete
  - Other (please specify) \_\_\_\_\_
5. If employed, is this employment –
  - Full-Time Employment
  - Part-Time Employment
6. What is the highest level of education you have completed?
  - Primary school (ISCED\* level 2 or less)
  - Secondary / high school degree or equivalent (e.g., GED; ISCED level 3)
  - Post-secondary non-tertiary education or short-cycle tertiary education (e.g., college degrees; ISCED level 4 or 5).





- Tertiary / higher education (e.g., Bachelor's degree; ISCED level 6)
- Graduate degree (e.g., Master's degree; ISCED level 7 or higher)

\*For information on International Standard Classification of Education (ISCED) levels across Europe, please refer to European Commission/EACEA/Eurydice (2016). *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union

7. Please identify the sports you compete in or support:

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8. Please, mark the highest level of competition you / your athletes participate:

- Local (e.g., district, regional competitions)
- National (e.g., national competitions)
- International (e.g., international competitions)

9. How long ago did you start to compete in or support athletes in this dual career development environment?

- Less than 6 months ago
- Between 6 and 12 months ago
- Between 1 and 2 years ago
- More than 2 years ago

## **Part 2 – Dual Career Development Environment Philosophy, Structure, and Key Priorities**

### **Dual Career Structure**

Below, 50 statements about DCDEs are displayed. On a scale of Very Strongly Disagree to Very Strongly Agree, please identify to what extent you feel the following statements represent your environment.

By dual career, we refer to when athletes combine their competitive sporting career with education or work. Dual career support refers to key stakeholder support and services which are implemented to support athletes when they combine their competitive sporting career with education or work. Dual career development environments are purposefully developed system that aims to facilitate athletes' investment in combining their competitive sporting career with education or work.

#### **Dedicated Dual Career Support Team**

In our environment -

<p>10...there is a designated team or person(s) responsible for dual career services</p>	<p style="text-align: center;">Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>11...there is a central point of contact so that dual career athletes know where to go for support</p>	<p style="text-align: center;">Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree</p>

	<p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
<p>12...there is uncertainty for dual career athletes about who to approach when assistance is required</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
<p>13...the roles and responsibility of the dual career support team are clear for all</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
<p>14...it is clear who to approach for specific dual career services</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>

### Integration of Efforts Across the Whole Environment

In our environment -

<p>15...all stakeholders work in a coordinated manner to facilitate dual career development</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>16...there is adequate communication between people in sport and study or work domains</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>17...there is on-going communication between appropriate people to find suitable solutions when dual career athletes experience difficulties</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>18...people in the environment want different outcomes from a dual career</p>	<p>Very Strongly Disagree Strongly Disagree</p>

	<p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
19...people in the environment work towards specific shared outcomes	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>

### A Clear Understanding of DC Issues and Support

In our environment -

20...coaches support dual career athletes in combining sport and education or work	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
21...teachers or employers support dual career athletes in combining sport and education or work	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p>

	<p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
<p>22...some people in the environment show a lack of understanding of the demands involved in pursuing a dual career</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
<p>23...family support dual career athletes in combining sport and education or work</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
<p>24...dual career athletes are supported to prioritize sport or study/work at different time points (e.g., during exam periods, busy working periods, or competitions)</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p>

	Not Applicable / Not Available
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### Role Models and Mentorship

In our environment -

25...dual career athletes are willing to support and mentor each other	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
26...there are role models that dual career athletes can look up to try and follow	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
27...successful dual career athletes are encouraged to share their experiences within the environment	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>

<p>28...inspirational stories about the experiences of other successful dual career athletes are shared</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>29...there are a lack of role models and mentorship</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>

### Access to Expert Support

In our environment -

<p>30...there is access to relevant sport science and medical support personnel for dual career athletes</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
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<p>31...there is access to appropriate coaching for dual career athletes</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>32...there is access to appropriate academic or work support for dual career athletes</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>33...there is limited access to relevant expert support</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>34...there is access to expert career planning and performance lifestyle support for dual career athletes</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree</p>

	<p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
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### A Whole Person Approach

In our environment -

<p>35...people from one domain take an interest in athletes' other domains (e.g., sport experts have an interest in athletes' education or work)</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
<p>36...some people in the environment do not care what happens outside their domain (e.g., sport experts do not have an interest in athletes' education or work)</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
<p>37...there is a recognition that sport, study or work, and private lives are compatible</p>	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p>

	<p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
38...dual career athletes are valued beyond their athletic skills or performance	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
39...dual career athletes can develop a life outside of sport, including hobbies, education, and / or work	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>

### An Empowerment Approach

In our environment -

40...dual career athletes can make decisions about their own dual career	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p>
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	<p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
41...the development of dual career competencies (e.g. time management) are supported	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
42...the development of career planning competencies are supported	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
43...dual career athletes are ignored when key decisions are made regarding their own dual careers	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>

<p>44...dual career athletes are supported to develop independence</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
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### Flexible Dual Career Solutions

In our environment -

<p>45...there is recognition that different dual career athletes will require different solutions to support their dual career</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>46...there is recognition that dual career athletes require flexible solutions to develop their career</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>

<p>47...there is an understanding that different domains in athletes' lives will require priority at different times</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>48...stakeholders in the environment allow for an extra focus on sport or education / work when needed</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>49...there are only standard solutions in place for dual careers</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>

## Care of DC Athletes' Mental Health and Wellbeing

In our environment -

<p>50...no policies or processes are in place to manage mental health issues</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>51...there is acknowledgement of the importance of mental health and wellbeing</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>52...everyone in the environment is aware of their duty of care to protect athletes</p>	<p>Very Strongly Disagree Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree Very Strongly Agree Not Applicable / Not Available</p>
<p>53...everyone in the environment supports dual career athletes' mental health and wellbeing</p>	<p>Very Strongly Disagree Strongly Disagree</p>

	<p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
54...a key value is to protect dual career athletes' mental health and wellbeing	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>

### An Open and Proactive Approach to the Development of the Environment

In our environment -

55...there is a focus on the continued improvement of dual career services	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
56...there is a focus on continuous improvement of dual career policies	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p>



	<p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
57...there is limited opportunity for stakeholders to engage in continuing professional development	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
58...stakeholders in the environment are encouraged to engage in continuous professional development	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>
59...there are opportunities to engage with and implement research	<p>Very Strongly Disagree</p> <p>Strongly Disagree</p> <p>Disagree</p> <p>Neither Agree nor Disagree</p> <p>Agree</p> <p>Strongly Agree</p> <p>Very Strongly Agree</p> <p>Not Applicable / Not Available</p>

### Confirmatory Factor Analysis of DCDEM

A CFA was conducted including data from 6 countries (Denmark, Belgium, United Kingdom, Finland, Sweden and Spain). Participants were 616 Dual Career Agents from diverse DC Environments across Europe.

The factor structure of the DCDEM Questionnaire was tested including 10 dimensions with 4 items per dimension. The CFA showed an adequate fit for the regular fit indexes. However, Chi-Square Test was significant:

CFI	0.921
TLI	0.914
RMSEA	0.055
Chi-Square	28178.875* (df = 1225)

Items weighted on their intended factors showing weights among .50 and .80 in most of the cases. However, reversed items showed a systematic pattern with lower negative weights on their factors. Factors of the DCDEM Questionnaire and factor loadings are listed below:

Factor	Item	Factor Loading
Dedicated Dual Career Support Team	Q10	0.677**
	Q11	0.827**
	RQ12	-0.560**
	Q13	0.800**
	Q14	0.772**
Integration of Efforts Across the Whole Environment	Q15	0.774**
	Q16	0.696**
	Q17	0.796**
	RQ18	-0.086*
	Q19	0.722**
Clear Understanding of DC Issues	Q20	0.651**
	Q21	0.644**
	RQ22	-0.458**
	Q23	0.434**
	Q24	0.704**
Role Models and Mentorship	Q25	0.492**
	Q26	0.684**
	Q27	0.737**
	Q28	0.586**
	RQ29	-0.559**
Access to Experts Support	Q30	0.565**

	Q31	0.663**
	Q32	0.622**
	RQ33	-0.387**
	Q34	0.727**
Whole Person Approach	Q35	0.641**
	RQ36	-0.468**
	Q37	0.801**
	Q38	0.619**
	Q39	0.568**
Empowerment Approach	Q40	0.629**
	Q41	0.729**
	Q42	0.722**
	RQ43	-0.495**
	Q44	0.697**
Flexible DC Solutions	Q45	0.665**
	Q46	0.739**
	Q47	0.715**
	Q48	0.747**
	RQ49	-0.458**
Mental Health and Wellbeing	RQ50	0.477**
	Q51	-0.788**
	Q52	-0.783**
	Q53	-0.776**
	Q54	-0.664**
Approach to Development of the Environment	Q55	0.850**
	Q56	0.801**
	RQ57	-0.274**
	Q58	0.679**
	Q59	0.490**

N.B. R indicates a reverse scored item.

Further analysis will be conducted to establish the psychometric properties of the instrument.

## Dual Career Development Environment Monitoring Tool Results – Belgium

### Data collection

The link to the Flemish DCDEM was sent via email by the DC department of Sport Vlaanderen to 110 DC support providers and 45 dual career athletes:

- Technical Directors Elite Sport; n = 31
- Directors Elite Sport School; n = 8
- Directors Boarding School; n = 7
- Coordinators Elite Sport School; n = 6
- Contact persons elite sport and study (higher education); n = 20
- Dual Career counselors of Sport Vlaanderen; n = 3
- Dual Career counselors in sport federations; n = 2
- Elite student-athletes (those for whom an application for the Topsportstudentenproject was submitted for academic year 2019-20); n = 45
- Parents of elite student-athletes; n = 33

Participants were not limited to those 155 persons outlined above. We asked those supporting athletes (excl. parents; n = 77) to complete the questionnaire and forward it within their DCDE to (a) those closely involved in DC support, and (b) at least two (experienced) dual career athletes. Responses were collected between October 16 and November 5, 2019.

### Participants

A total of 132 responded to the DCDEM, 118 of whom fully completed it (completion rate = 81%). Participants included 80 DC support providers (61%) and 52 elite student-athletes (39%) of Flemish DCDEs. Participants' characteristics are displayed in Table 1. Participants spent on average 13'44" to complete the entire survey. Table 2 displays the division of roles of DC support staff within the DCDE.

### Main findings:

- Gender was almost equally divided in both groups (DC support staff and athletes)
- DC support staff from DCDEs in secondary education were more present in the sample (49%) in comparison with higher education and those overarching DCDEs (i.e. supporting both secondary and higher education, e.g. federations)

- DC athletes in higher education were more present in the sample (student-athletes; 73%) than those combining elite sport and secondary education (pupil-athletes; 27%)
- The majority of DC support staff and DC athletes were more than two years in the DCDE
- The big majority of athletes (supported) were active at the international level
- Athletes in individual sports were more present in the sample (73%)
- Top 3 sports in the sample: gymnastics, volleyball and athletics
- The DCDEs supported one specific sport (66%) or different sports (34%)
- The sample includes DC support staff with different roles in the environment, including DC coordinators, staff with supporting roles in sport (e.g. trainers, coaches, medics and paramedics), education (e.g. teachers) or private life (e.g. parents, educators), and staff with managerial roles in sport (e.g. technical directors) and private life (e.g. director of boarding school).
- Most of the DC support staff (67%) worked full-time in the DCDE.

**Table 1.** Characteristics of the Flemish sample divided for DC support staff and DC athletes.

		DC Support Staff		DC Athletes	
		Count	Column %	Count	Column %
Total		80	100,0%	52	100,0%
Gender	Male	41	51,3%	27	51,9%
	Female	37	46,3%	25	48,1%
Age		43 (mean)	10 (SD)	20 (mean)	3 (SD)
Type of DCDE	Secondary Education	38	48,7%	14	26,9%
	Higher Education	25	32,1%	38	73,1%
	Overarching (e.g. federation)	15	19,2%	0	0,0%
Sport(s)	One individual sport	29	39,7%	38	73,1%
	One team sport	19	26,0%	14	26,9%
	Multi-sport	25	34,2%	0	0,0%
Highest athletic level DCDE supports	National	6	7,7%	5	9,6%
	International	72	92,3%	47	90,4%
Time in the DCDE	< 6 months	4	5,1%	2	3,8%
	6 - 12 months	1	1,3%	4	7,7%
	1 - 2 years	7	9,0%	9	17,3%
	> 2 years	66	84,6%	37	71,2%

**Table 2.** Division of roles of DC support staff within the DCDE.

		N	Column N %
Total DC support staff		80	100,0%
Role within the DCDE	Dual Career Coordinator	17	21,3%
	Teacher / Educator	15	18,8%
	Technical Director Elite Sport	14	17,5%

	Parent	12	15,0%
	Trainer / Coach	9	11,3%
	Student counselor	5	6,3%
	(Administrative) Collaborator	3	3,8%
	Medical & paramedical staff	2	2,5%
	Director Boarding School	2	2,5%
	Sports service (sportdienst)	1	1,3%
Roles recoded	Support role in sport	14	10,6
	Support role for personal life	17	12,9
	Support role for education	15	11,4
	Managerial role in sport	14	10,6
	Managerial role for personal life	2	1,5
	Dual Career coordinator	17	12,9
Employment within DCDE	Full-time	39	67,2%
	Part-time	19	32,8%

## Results of the DCDEM

### Item level: Rate 50 statements about your DCDE on a 7-point scale

The 50 items of the DCDEM and its means are displayed in Table 2, ranked from high (agree) to low (disagree). The scores of the negatively worded items are reversed (i.e. 8 minus original score). Overall, participants reported the highest scores with the following four items (read: perceived those as the strongest features of their DCDE):

#### *In our DCDE:*

1. Family support dual career athletes in combining sport and education or work
2. Dual career athletes are supported to prioritize sport or study/work at different time points (e.g., during exam periods, busy working periods, or competitions)
3. There is access to appropriate coaching for dual career athletes
4. There is access to appropriate academic or work support for dual career athletes

### Participants perceived the following four items as the weakest features of their DCDE:

#### *In our DCDE:*

1. People in the environment want different outcomes from a dual career
2. Some people in the environment do not care what happens outside their domain (e.g., sport experts do not have an interest in athletes' education or work)
3. Some people in the environment show a lack of understanding of the demands involved in pursuing a dual career
4. There are a lack of role models and mentorship

We should note that those perceived weakest features include four negatively worded items (see the red items in Table 2). When we only include the positively worded items, participants disagree the most with the following four features:

*In our DCDE:*

1. Dual career athletes can develop a life outside of sport, including hobbies, education, and/or work
2. Successful dual career athletes are encouraged to share their experiences within the environment
3. Inspirational stories about the experiences of other successful dual career athletes are shared
4. There is adequate communication between people in sport and study or work domains

In terms of further analysis, we should note that:

1. The score of the last item (i.e., people in the environment want different outcomes from a dual career) is much lower than the penultimate item (3,62 vs. 4,14);
2. One negatively worded item is much higher in the ranking than the other negative items (i.e. ‘dual career athletes are ignored when key decisions are made regarding their own dual careers’).
3. These findings might strongly influence the results on a factorial level.

**Table 2.** Averages for the 50 statements of the DCDEM, ranked from high to low. The following 7-point scale was used (1 – completely disagree; 7 – completely agree).

IN OUR DC ENVIRONMENT...	SCALE (1-7)
...family support dual career athletes in combining sport and education or work	5,74
...dual career athletes are supported to prioritize sport or study/work at different time points (e.g., during exam periods, busy working periods, or competitions)	5,64
...there is access to appropriate coaching for dual career athletes	5,57
...there is access to appropriate academic or work support for dual career athletes	5,57
...there is recognition that dual career athletes require flexible solutions to develop their career	5,54
...there is a central point of contact so that dual career athletes know where to go for support	5,49
...there is recognition that different dual career athletes will require different solutions to support their dual career	5,48
...stakeholders in the environment allow for an extra focus on sport or education / work when needed	5,47
...a key value is to protect dual career athletes’ mental health and wellbeing	5,46
...there is a designated team or person(s) responsible for dual career services	5,42
...dual career athletes are ignored when key decisions are made regarding their own dual careers	5,40
...dual career athletes can make decisions about their own dual career	5,36
...there is an understanding that different domains in athletes’ lives will require priority at different times	5,34

...it is clear who to approach for specific dual career services	5,31
...coaches support dual career athletes in combining sport and education or work	5,29
...dual career athletes are supported to develop independence	5,29
...there is on-going communication between appropriate people to find suitable solutions when dual career athletes experience difficulties	5,23
...there is acknowledgement of the importance of mental health and wellbeing	5,21
...teachers or employers support dual career athletes in combining sport and education or work	5,16
...stakeholders in the environment are encouraged to engage in continuous professional development	5,13
...people in the environment work towards specific shared outcomes	5,12
...dual career athletes are valued beyond their athletic skills or performance	5,10
...the development of dual career competencies (e.g. time management) are supported	5,08
...there is access to expert career planning and performance lifestyle support for dual career athletes	5,05
...everyone in the environment is aware of their duty of care to protect athletes	5,04
...dual career athletes are willing to support and mentor each other	5,04
...there is a recognition that sport, study or work, and private lives are compatible	4,98
...everyone in the environment supports dual career athletes' mental health and wellbeing	4,97
...all stakeholders work in a coordinated manner to facilitate dual career development	4,94
...there is access to relevant sport science and medical support personnel for dual career athletes	4,94
...the development of career planning competencies are supported	4,93
...there is a focus on the continued improvement of dual career services	4,90
...the roles and responsibility of the dual career support team are clear for all	4,89
...there is a focus on continuous improvement of dual career policies	4,88
...there is uncertainty for dual career athletes about who to approach when assistance is required	4,85
...people from one domain take an interest in athletes' other domains (e.g., sport experts have an interest in athletes' education or work)	4,81
...there are role models that dual career athletes can look up to try and follow	4,78
...there are opportunities to engage with and implement research	4,67
...there is adequate communication between people in sport and study or work domains	4,57
...no policies or processes are in place to manage mental health issues	4,53
...inspirational stories about the experiences of other successful dual career athletes are shared	4,53
...successful dual career athletes are encouraged to share their experiences within the environment	4,49
...there is limited opportunity for stakeholders to engage in continuing professional development	4,49
...there is limited access to relevant expert support	4,42
...there are only standard solutions in place for dual careers	4,42
...dual career athletes can develop a life outside of sport, including hobbies, education, and / or work	4,28
...there are a lack of role models and mentorship	4,23
...some people in the environment show a lack of understanding of the demands involved in pursuing a dual career	4,19
...some people in the environment do not care what happens outside their domain (e.g., sport experts do not have an interest in athletes' education or work)	4,14
...people in the environment want different outcomes from a dual career	3,62

### Factorial level: the 10 essential features of a DCDE

The average scores for the 10 features (i.e. factors) are displayed in Table 3 and Figure 1.

The following three features were perceived their strongest features by Flemish DC environments:



- Flexible dual career solutions
- An empowerment approach
- A clear understanding of DC issues and support

The following three features were perceived as their weakest features by Flemish DC environments:

- Role models and mentorship
- A whole person approach
- Integration of efforts across the whole environment

A detailed understanding of (the scores for) these features for the Flemish sample can be inferred from Table 4, which displays the scores for the ten features and corresponding items of the DCDEM.

Table 5 shows us the differences in perceptions of the ten features of the DCDEM for role within the DCDE (support staff vs. athlete) and type of DCDE.

Main findings for athletes vs. support staff:

- In general, athletes' and support staff' perceptions about the order of the features are similar, i.e. they perceive the same features as stronger/weaker.
- For all features, support staff report higher scores than athletes. The differences are significant for 'A clear understanding of DC issues and support', 'Role models and mentorship', 'An empowerment approach', and 'Care of DC athletes' mental health and wellbeing'.
- The largest difference between the perceptions of athletes and support staff is found for 'Care of DC Athletes' Mental Health and Wellbeing', with athletes reporting significantly lower scores (4,64 vs. 5,28; Cohen's  $d = 0.68$ ).

Main findings for type of DCDE (i.e. secondary vs. higher vs. overarching):

- In general, DCDEs in secondary education, higher education and overarching DCDEs have similar perceptions about the features, i.e. they perceive the same features as stronger/weaker.
- For all features, DCDEs in higher education report lower scores.



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- 'Role models and Mentorship' is particularly low for DCDEs in higher education and overarching DCDEs (lowest score) in comparison with DCDEs in secondary education (fourth lowest score).
- Perceptions of 'Care of DC Athletes' Mental Health and Wellbeing' differ significantly; with those in higher education reporting significantly lower scores. Those in overarching DCDEs report it to be their strongest feature, while it is the fifth lowest score for DCDEs in higher education.

**Table 3.** Ten features of the DCDEM

Nr	Features	Mean	SD	N	
				Valid	Missing
F01	Dedicated Dual Career Support Team	5,19	0,86	118	14
F02	Integration of Efforts Across the Whole Environment	4,71	0,87	118	14
F03	A Clear Understanding of DC Issues and Support	5,22	0,82	118	14
F04	Role Models and Mentorship	4,59	0,96	118	14
F05	Access to Expert Support	5,10	0,88	118	14
F06	A Whole Person Approach	4,68	0,89	118	14
F07	An Empowerment Approach	5,22	0,78	118	14
F08	Flexible Dual Career Solutions	5,26	0,82	118	14
F09	Care of DC Athletes' Mental Health and Wellbeing	5,04	0,98	118	14
F10	An Open and Proactive Approach to the Development of the Environment	4,83	0,85	118	14

**Figure 1.** Visual presentation of the ten features of the DCDEM for Flemish DC environments.

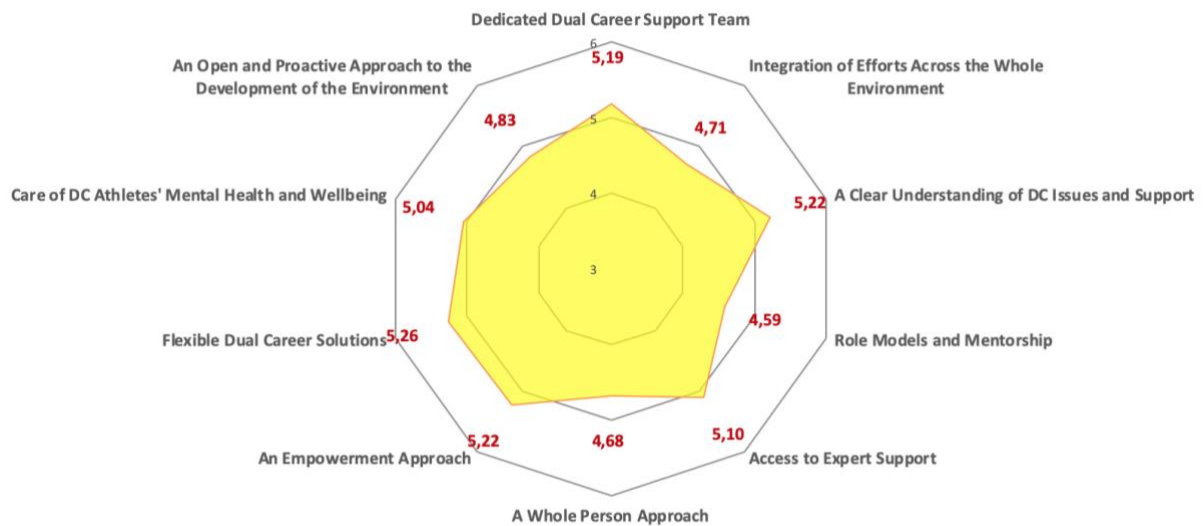


Table 5. Ten features and corresponding items of the DCDEM.

FEATURE	IN OUR DC ENVIRONMENT... (N = 118)	ITEM SCORE (REVERSED)	FEATURE SCORE (max = 7)
<b>Dedicated Dual Career Support Team</b>	...there is a designated team or person(s) responsible for dual career services	5,42	5,19
	...there is a central point of contact so that dual career athletes know where to go for support	5,49	
	...there is uncertainty for dual career athletes about who to approach when assistance is required	4,85	
	...the roles and responsibility of the dual career support team are clear for all	4,89	
	...it is clear who to approach for specific dual career services	5,31	
<b>Integration of Efforts Across the Whole Environment</b>	...all stakeholders work in a coordinated manner to facilitate dual career development	4,94	4,71
	...there is adequate communication between people in sport and study or work domains	4,57	
	...there is on-going communication between appropriate people to find suitable solutions when dual career athletes experience difficulties	5,23	
	...people in the environment want different outcomes from a dual career	3,62	
	...people in the environment work towards specific shared outcomes	5,12	
<b>A Clear Understanding of DC Issues and Support</b>	...coaches support dual career athletes in combining sport and education or work	5,29	5,22
	...teachers or employers support dual career athletes in combining sport and education or work	5,16	
	...some people in the environment show a lack of understanding of the demands involved in pursuing a dual career	4,19	
	...family support dual career athletes in combining sport and education or work	5,74	
	...dual career athletes are supported to prioritize sport or study/work at different time points (e.g., during exam periods, busy working periods, or competitions)	5,64	
<b>Role Models and Mentorship</b>	...dual career athletes are willing to support and mentor each other	5,04	4,59
	...there are role models that dual career athletes can look up to try and follow	4,78	
	...successful dual career athletes are encouraged to share their experiences within the environment	4,49	
	...inspirational stories about the experiences of other successful dual career athletes are shared	4,53	
	...there are a lack of role models and mentorship	4,23	
<b>Access to Expert Support</b>	...there is access to relevant sport science and medical support personnel for dual career athletes	4,94	5,10
	...there is access to appropriate coaching for dual career athletes	5,57	
	...there is access to appropriate academic or work support for dual career athletes	5,57	
	...there is limited access to relevant expert support	4,42	
	...there is access to expert career planning and performance lifestyle support for dual career athletes	5,05	
<b>A Whole Person Approach</b>	...people from one domain take an interest in athletes' other domains (e.g., sport experts have an interest in athletes' education or work)	4,81	4,68
	...some people in the environment do not care what happens outside their domain (e.g., sport experts do not have an interest in athletes' education or work)	4,14	
	...there is a recognition that sport, study or work, and private lives are compatible	4,98	
	...dual career athletes are valued beyond their athletic skills or performance	5,10	
	...dual career athletes can develop a life outside of sport, including hobbies, education, and / or work	4,28	

<b>An Empowerment Approach</b>	...dual career athletes can make decisions about their own dual career	5,36	5,22
	...the development of dual career competencies (e.g. time management) are supported	5,08	
	...the development of career planning competencies are supported	4,93	
	...dual career athletes are ignored when key decisions are made regarding their own dual careers	5,40	
	...dual career athletes are supported to develop independence	5,29	
<b>Flexible Dual Career Solutions</b>	...there is recognition that different dual career athletes will require different solutions to support their dual career	5,48	5,26
	...there is recognition that dual career athletes require flexible solutions to develop their career	5,54	
	...there is an understanding that different domains in athletes' lives will require priority at different times	5,34	
	...stakeholders in the environment allow for an extra focus on sport or education / work when needed	5,47	
	...there are only standard solutions in place for dual careers	4,42	
<b>Care of DC Athletes' Mental Health and Wellbeing</b>	...no policies or processes are in place to manage mental health issues	4,53	5,04
	...there is acknowledgement of the importance of mental health and wellbeing	5,21	
	...everyone in the environment is aware of their duty of care to protect athletes	5,04	
	...everyone in the environment supports dual career athletes' mental health and wellbeing	4,97	
	...a key value is to protect dual career athletes' mental health and wellbeing	5,46	
<b>An Open and Proactive Approach to the Development of the Environment</b>	...there is a focus on the continued improvement of dual career services	4,90	4,83
	...there is a focus on continuous improvement of dual career policies	4,88	
	...there is limited opportunity for stakeholders to engage in continuing professional development	4,49	
	...stakeholders in the environment are encouraged to engage in continuous professional development	5,13	
	...there are opportunities to engage with and implement research	4,67	

**Table 6.** Differences in perceptions of the 10 features of the DCDEM for role within the DCDE (support staff vs. athlete) and type of DCDE.

	SUPPORT vs. ATHLETE		TYPE DCDE		
	DC support	DC athlete	Secondary Education	Higher Education	Overarching
	N = 75	N = 43	N = 48	N = 56	N = 12
	Mean	Mean	Mean	Mean	Mean
F01 Dedicated Dual Career Support Team	5,30	5,00	5,18	5,16	5,38
F02 Integration of Efforts Across the Whole Environment	4,76	4,62	4,75	4,63	4,97
F03 A Clear Understanding of DC Issues and Support	5,35 <sup>a</sup>	5,00 <sup>b</sup>	5,34	5,09	5,43
F04 Role Models and Mentorship	4,73 <sup>a</sup>	4,34 <sup>b</sup>	4,99 <sup>a</sup>	4,24 <sup>b</sup>	4,45 <sup>b</sup>
F05 Access to Expert Support	5,18	4,96	5,34 <sup>a</sup>	4,82 <sup>b</sup>	5,52 <sup>a</sup>
F06 A Whole Person Approach	4,79	4,47	4,59	4,67	5,07
F07 An Empowerment Approach	5,33 <sup>a</sup>	5,03 <sup>b</sup>	5,20	5,17	5,52
F08 Flexible Dual Career Solutions	5,37	5,07	5,30	5,19	5,52
F09 Care of DC Athletes' Mental Health and Wellbeing	5,28 <sup>a</sup>	4,64 <sup>b</sup>	5,32 <sup>a</sup>	4,69 <sup>b</sup>	5,62 <sup>a</sup>
F10 An Open and Proactive Approach to the Development of the Environment	4,88	4,74	4,92	4,68	5,13

n,b: significant difference at  $p < .05$

## Dual Career Development Environment Monitoring Tool Results – Denmark

After translating from English and pilot-testing the Danish DCDEM, we sent the link out primarily to coordinators at Elitesport gymnasiums with the request to distribute the questionnaire to relevant persons within their environment. The link was further distributed among talent academies and Universities. Data was collected between October 25 and November 8, 2019.

In total, we received 335 responses of which 34% had missing values on all the 50 DCDE items. The remaining 219 participants included in the analyses were composed of 174 DC athletes (80% of sample) and 42 DC stakeholders (e.g., DC coordinators, coaches, lecturer). Most of the DC athletes and stakeholders surveyed in Denmark came from a sport-friendly school (95%) (according to the typology of WP1).

The DC athletes (64% female DC athletes, 36% male DC athletes) were on average 17 years old ( $SD = 1,2$ ) and came from 29 different sports, with football (29%), handball (18%), and swimming (11%) as the sports with the most participants. Forty-five percent reported to participate in international competitions, 43% in national competitions, and the remaining 12% competed at the regional level. Concerning their DC experience, it has to be noted that one third of the athletes have just recently (less than half a year ago) become a part of their DCDE, meaning that they have just started in the Elitesport gymnasiums summer 2019.

The DC stakeholders were on average 33 years old ( $SD = 14,4$ ) and mostly of male gender (79%). Sixty percent of DC stakeholders had completed a bachelor or master's degree. Seventy-six percent of the DC stakeholders had been part of their DCDE for more than two years.

**Overview of the 10 DCDE features** (on a scale from 1-7, with 1 = completely disagree; 7 = completely agree)

A **Dedicated Dual Career Support Team (Feature 1)** was the highest rated item (5,37) among the DC stakeholders and the second highest rated item of the DC athletes (5,11). In general, the participants agreed that there is a central point of contact, so DC athletes know where to go for support and it is clear who to approach for specific DC issues.

**Integration of Efforts Across the Whole Environment (Feature 2)** was the lowest rated item from both the DC stakeholder (4,57) and the DC athletes (4,26). Especially the item about the

adequate communication between people in sport and study/work domain was rated low, indicating that the stakeholders from the sport domain and the educational domain do not communicate and interact on a sufficient level.

[A Clear Understanding of DC Issues and Support \(Feature 3\)](#) was the only feature where DC athletes (5,28) scored significantly higher than the DC stakeholders (4,77). Athletes especially rated family support (5,87) high for the combination of sport and education/work. Support from teachers and coaches for athletes' DC was rated equally high (5,47), hence emphasizing that there is generally a high understanding for DC both in the sport and educational domain in the Danish DCDEs on the gymnasium level.

[Role Models and Mentorship \(Feature 4\)](#) was rated lower by DC athletes (4,61) than stakeholders (4,80). There was an agreement that DC athletes are willing to support and mentor each other (5,24). However, participants agreed less with the statement that successful DC athletes are encouraged to share their experiences within the environment (4,62). This could be a potential area of improvement in the future.

[Access to Expert Support \(Feature 5\)](#) was rated equally important of both groups (4,76) with higher values for the items about appropriate academic support (5,42) and coaching for DC athletes (5,31) and lower values for the access to relevant sports science and medical personnel (4,59).

[A Whole Person Approach \(Feature 6\)](#) was rated as the third highest by the DC athletes (5,00) and fifth highest of DC stakeholders (4,93). Participants generally agreed (5,44) that there is a recognition that sport, study/work, and private lives are compatible. There was a general agreement that DC athletes can develop a life outside sport including hobbies etc. (5,29).

[An Empowerment Approach \(Feature 7\)](#) was rated as the third highest among DC stakeholders (5,30) and was also perceived to be present in the DCDE by DC athletes (4,97). There was a general agreement that DC athletes can make decisions about their own DC (5,41) and that DC athletes are supported to develop independence (5,25).

[Flexible Dual Career Solutions \(Feature 8\)](#) has previously been identified as a cornerstone of DC. Both DC stakeholders (5,32) and DC athletes (4,99) perceive that flexibility in their DCDE is in place (5,45) and there is an understanding that different life domains require priority at different times (5,38).



Care of DC Athletes' Mental Health and Wellbeing (Feature 9) was seen more present by DC stakeholders (5,11) than by DC athletes (4,76). Participants agreed that there is acknowledgement of the importance of mental health (5,29), but they also acknowledged that not everyone in the environment is aware of their duty of care to protect DC athletes (4,81).

An Open and Proactive Approach to the Development of the Environment (Feature 10) was considered less present in the Danish DCDEs. Especially the opportunity to engage with and implement research (4,12) was rated low, while a focus on continuous improvement of DC policies was rated higher (5,05).

### Conclusions

In general, we perceive that the data collected via DCDEM provides an adequate picture of the Dual Career environments on the gymnasium level (where most of the participants came from). Dual career policies and initiatives have been on the agenda for the last 30 years in Denmark, and this is reflected in the data. In general, there is a high agreement about the 10 DCDE features (which seem to be highly developed in Denmark) of athletes and stakeholders. Flexibility is in place, and there are dedicated persons employed in the DCDEs whose main task is to coordinate the efforts and support athletes' DC. However, the shift from the individual to the DC environment is a new agenda in Denmark, which is also reflected in the results. For example, sports friendly schools are a typical DCDE in Denmark, and the feature that scored lowest is integrated effort. There the challenge is that different cultures (school culture and sports culture) with different values and beliefs need to be integrated. Increased communication and mutual understanding among stakeholders from the different domains (sport, school, private) could stimulate improvement.

Since our sample mostly consisted of DC athletes and stakeholders from secondary educational level, further data collection is needed to cover higher educational DCDEs. Furthermore, we did not include persons from the private domain (parents, peers) in the survey. These persons might provide an additional (or contrasting) view on DCDE.

## Dual Career Development Environment Monitoring Tool Results – Finland

Out of 92 survey participants, 68 answered all questions. In this sample, 29 % were student-athletes and 71 % support staff, loosely defined. Most (31%) of the support staff respondents chose category “others”, including (a) 29 % school counselors; (b) 9.5 % physiotherapists; and (c) 14.3 % school principals. The majority (over 70%) of the participants had spent over two years in their respective environment.

With reference to the DCDE taxonomy (Morris et al., in press), we found that the respondents from elite sports schools and combined dual-career systems comprised 71 % of data. It needs to be noted that in Finland, sports academies function in cooperation with upper secondary schools, meaning that elite sports schools, sport friendly universities, and combined dual-career systems have overlapping functions. Thus, sports service providers are typically based in sports academies, whereas coaches and student-athletes can be included in both educational institutions and sports academies. For example, some of the student-athlete respondents from the same DC environment indicated that they represent an upper secondary school (elite sports school) while others indicated a sports academy (combined dual-career system) as their environment.

Figure 1 represents the shared features in the overall data. The highest scores (scale from 1 to 7) in overall data were 'flexible dual-career solutions' (5.13; Sd=0.97), 'an empowerment approach' (5.09; Sd=0.87) and 'dedicated DC support team' (5.05; Sd=1.37). The lowest scores were given to 'integration of efforts across the whole environment' (4.57; Sd=1.26) and 'a clear understanding of DC issues across the whole environment' (4.59; Sd=1.24).

The lowest scores—that is, integration of efforts and understanding of DC issues—may reflect the current system of DC provision in Finland, wherein sports academies and educational institutions cooperate as two independent service providers to facilitate dual careers of athletes. Sports academies are responsible for developing the sports domain as well as providing sport-related support for student-athletes, such as coaches, medical services, physiotherapists, sports science services, and sports psychologists. Educational institutions are responsible for providing education and school-related support (e.g., teachers, school counselors, etc.). In the elite sports schools, sport is a part of the school system in such a way that sporting practices are integrated into the school schedule and student-athletes receive credits for training and sport-related courses. On the tertiary level or in a sport friendly upper secondary schools these

two domains are more independent, and student-athletes are responsible for communicating with professors and school counselors to arrange their schedule to combine education with their sport.

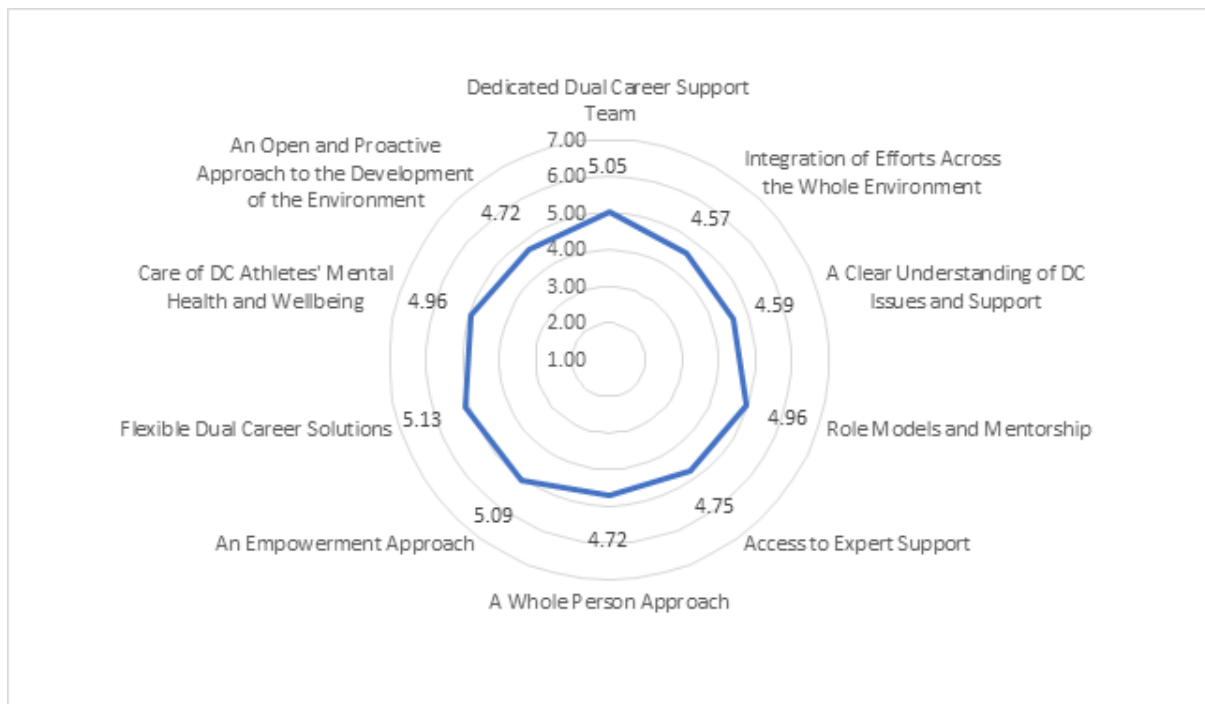
The highest scores in 'flexible dual-career solutions' would indicate that athletes in Finland have possibilities to assemble their dual career pathways in a flexible manner so that they feel comfortable to proceed with their studies. Moreover, they feel that they have the responsibility to be autonomous and are empowered by the process. A bit surprisingly, 'dedicated DC support team' was nominated as a strength of the environment although no pertaining job description seems to exist in the current system (i.e., someone with responsibilities to communicate and coordinate between various domains to support dual careers of athletes). Usually, both domains have a coordinator to manage domain related development and issues (e.g., managing sport domain to support student-athletes' athletic development).

When comparing the scores between support staff and student-athletes (see Figure 2), there were differences with the support staff scoring higher than the student-athletes on 'flexible dual-career solutions' ( $p=0.09$ ), 'care of DC athletes' mental health and well-being' ( $p=0.018$ ), 'an empowerment approach' ( $p=0.048$ ) and 'a whole person approach' ( $p=0.058$ ). Other features were equal between support staff and student-athletes, indicating that the support staff tends to evaluate their functions more positively than the student-athletes perceive them. It is especially essential to recognize that the care of athletes' mental health and well-being was evaluated lower by student-athletes, indicating that support staff might not be aware of all the issues in their environment.

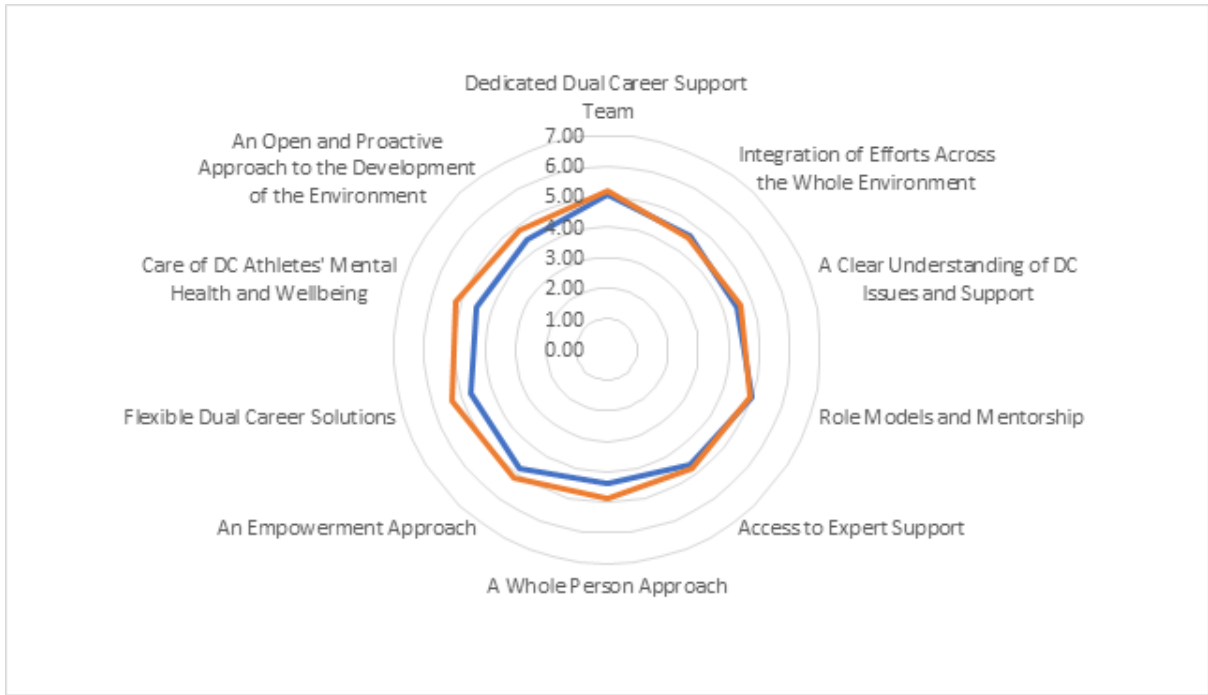
To take a more in-depth look at questions that covered the whole person approach theme, the student athletes scored significantly lower than the support staff on the following: 'student-athletes are valued more than athletes' ( $p<0.001$ ), 'they can develop on other domains of life' ( $p=0.005$ ), and 'the key value of the environment is to protect the mental health and well-being' ( $p<0.001$ ). Also, the student-athletes scored lower than the support staff on the questions concerning whether the environment allows extra time for sports ( $p=0.043$ ) and whether there is a possibility for the development of career planning ( $p=0.029$ ). However, it is possible that the student-athletes participating in the survey did not have a point of comparison for available flexibility or did not understand the Finnish educational system and its navigation well. They

may, for example, not be aware of the legal requirements (e.g., mandatory attendance, criteria to accomplish a course), for upper secondary school.

To sum up, the integration of efforts and understanding of DC issues across the environments need to be further investigated. Moreover, a larger sample is necessary for us to draw any definitive conclusions.



**Figure 1.** The features of the DCDEs based on overall data.



**Figure 2.** The distribution of scores between student-athletes (blue) and support staff (red).

## Dual Career Development Environment Monitoring Tool Results – Slovenia

First, DCDEM instrument was translated to Slovene and then pilot-tested. The pilot test showed that the instrument was understandable and that all items were clearly formulated. The link to the on-line survey was sent to dual career support providers (DCSP) or coordinators who work in gymnasiums in Slovenia. The link was sent with the request to distribute the questionnaire to relevant persons within their environment. The link was also sent to student-athletes from Faculty of Sport and to participants of work package 2. Data was collected between October 25 2019 and December 15, 2019.

In total, we received 38 responses of which 30% had missing values on all the 50 DCDE items. The remaining 26 participants included in the analyses were composed of 12 DC athletes (48% of sample), 20% of teachers (or pedagogues), 16% of coaches and 8% of DC coordinators. Among participants, 1 was parent of DC athlete and 1 volunteer. Most of the DC athletes and stakeholders surveyed in Slovenia came from a university (17%) (according to the typology of WP1).

The DC athletes (31% female DC athletes, 66% male DC athletes) were on average 21,77 years old ( $SD = 3,1$ ) and came from 10 different sports (volleyball, swimming, handball, football, judo, white water kayak, basketball, curling and snowboarding). Fifty-three percent reported to participate in international competitions, 38% in national competitions, and the remaining 8% competed at the regional level. Concerning their DC experience, vast majority of athletes (92%) become a part of their DCDE more than two years ago.

Other DC stakeholders were on average 37 years old ( $SD = 16,3$ ), five of them were female and 7 male. Majority of participants had been part of their DCDE environment for more than two years (92%). Forty-two percent of DC stakeholders had completed a bachelor or master's degree and thirty-three percent had completed doctoral degree.

**Overview of the 10 DCDE features** (on a scale from 1-7, with 1 = completely disagree; 7 = completely agree)

Lack of understanding of the demands involved in pursuing a dual career (Feature 1) was the highest rated item ( $M = 5,79$ ) among participants. In general, the participants agreed that the main characteristic of their environment is that there are some individuals that do not understand what challenges DC athletes face in combining sport and education. More detailed

analysis show that this feature is especially significant for description of university related environment.

[Family support dual career athletes in combining sport and education or work \(Feature 2\)](#) was the second highest rated item ( $M = 5,68$ ). Slovenian participants highly value support from the family and perceive it as one of the crucial aspects in effective coordination between sport and education. Results of other studies (e.g., Cecić Erpič, 2004) have shown similar results.

[Different dual career athletes will require different solutions to support their dual career \(Feature 3\)](#) was the third highest rated item ( $M = 5,53$ ).

[Flexible Dual Career Solutions \(Feature 4\)](#) has previously been identified as one of the main features of effective DCDEs. Participants perceive that flexibility in their DCDE is in place ( $M = 5,21$ ) and there is an understanding that different life domains require priority at different times.

[Dual career athletes are willing to support and mentor each other \(Feature 5\)](#) was fifth highest rated item ( $M = 5,05$ ) among Slovenian participants. Results of the study show that DC athletes help one another and share valuable information. This is especially significant for university students.

[Understanding that different domains in athletes' lives will require priority at different times \(Feature 6\)](#) was sixth highest rated item ( $M = 5,00$ ). In general, participants strongly agree that dual career is not homogenous process but requires flexibility. There are interchangeable periods when each of two domains requires priority in athlete's time and engagement.

[Role models that dual career athletes can look up to try and follow \(Feature 7\)](#): there was an agreement that DC athletes have role models in their DCDEs which are important for their dual career process ( $M = 4,89$ ). This result is consistent with findings from WP2. Interviews with two athletes have shown that they look up to their coaches.

[Sharing of inspirational stories about the experiences of other successful dual career athletes \(Feature 8\)](#) was perceived as an important characteristic of their DCDEs ( $M = 4,79$ ). The participants strongly agree that sharing good practices and success stories is important for student-athletes to stay motivated and succeed in combining sport and education.

Stakeholders are encouraged to engage in continuous professional development (Feature 9): participants strongly agree that their DCDEs are supportive in regard to the continuous education and professional development ( $M = 4,68$ ). This is especially significant for participants that are university students.

Development of career planning competencies are supported (Feature 10): participants strongly agree ( $M = 4,67$ ) that their DCDEs actively support the development of all necessary competences. Further analysis would be needed in order to study which competencies are supported in the environment and which are not.

### Conclusions

In general, we perceive that the data collected via DCDEM provides an adequate picture of the Dual Career environments. Results have shown that major positive characteristics of the environments are actually related to the individual's role in these DCDEs and not to the systematic characteristics. However, the shift from the individual to the DC environment is a new agenda in Slovenia, which is also reflected in the results. This is especially characteristic for the university environment where there are no DCSPs and student athletes need to form their own support network. There the challenge is that different cultures (school culture and sports culture) with different values and beliefs need to be integrated. As seen from the results from WP2, educational domain, although structured and state regulated, usually adapts to the sport requirements. Results from all three WPs have shown that increased communication and mutual understanding among stakeholders from the different domains (sport, school, private) is much needed in Slovenia.

Since the Slovenian sample is relatively small, these results can not be generalized. It was difficult to motivate DCSPs to respond to the survey as they are overloaded with their work. Majority of DCSPs in Slovenia work in gymnasiums, where they are employed as dual career support providers only part time. Majority of them work in the same schools as teachers or have other work obligations. These DCSPs would be very valuable participants in the sample as they have different viewpoints than student-athletes. Furthermore, more coaches would need to be included as well as persons from the private domain (parents, peers). They would provide additional (and maybe – contrasting) views on DCDEs.



## Dual Career Development Environment Monitoring Tool Results – Spain

Until the beginning of November, 106 participants (64 male, 39 female and 1 not-binary) responded the Spanish and Catalan versions of the Dual Career Development Environment Monitoring (DCDEM) tool. The sample includes 30 (32%) Dual Career Athletes (DCA) and 64 (68%) members of DCA's entourage (e.g., coaches, Dual Career Support Providers DCSPs, parents, psychologists). In the Spanish taxonomy of environments proposed in WP1 we organized the dual career environments in 3 main categories: (a) public sport system, (b) private sport system, and (c) education system (see Figure 1). Following this taxonomy, 33% responded from an educative institution (e.g., university), 28.5% responded from a public sport institution (e.g., high performance centre), 25.5% from a multisport private clubs (e.g., FC.Barcelona), 9.5% from a sport specific private club (e.g., fencing club), and 3.5% did not report the environment. Cronbach alphas were good for 4 dimensions in the Structure of the environment features ranging from 0.70 to 0.90 (i.e., Dedicated Dual Career Support Team, Integration of Efforts Across the Whole Environment, Role Models and Mentorship, Access to Expert Support) and not acceptable for 1 dimension 0.49 (i.e., A Clear Understanding of DC Issues and Support). Cronbach alphas were acceptable for the dimensions in the Philosophy of the environment features ranging from 0.62 to 0.82. A closer look to the reversed items should be made with the full sample, and the possibility of deleting some items to increase the reliability should be considered after conducting CFA and ESEM with the full sample. For instance, if we delete the item 'people in the environment want different outcomes from a dual career' from the dimension Integration of Efforts Across the Whole Environment, its Cronbach alpha increases from 0.79 to 0.86.

The Spanish sample considered that the dual career environments in Spain provide Flexible Dual Career Solutions ( $m=5.19$ ), cares about DCAs Mental Health and Wellbeing ( $m=5.01$ ), and have Dedicated Dual Career Support Teams ( $m=4.94$ ) as main strengths of the environments. On the other hand, the full Spanish sample considers the Integration of efforts across the whole environment ( $m=4.36$ ), the role models and mentorships ( $m=4.48$ ), and an open and proactive approach to the development of the environment ( $m=4.55$ ) as the main features to improve in the environments evaluated (see Figure 2). If we look at the items level in the aforementioned features/dimensions, the highest rated items were respectively 'In our environment ... there is recognition that different dual career athletes will require different solutions to support their dual career' ( $m=5.86$ ), '...a key value is to protect dual career

athletes' mental health and wellbeing' (m=5.88), '...there is a designated team or person(s) responsible for dual career services' (m=5.39). On the other hand, the lowest rated items were respectively 'In our environment .....there is adequate communication between people in sport and study or work domains' (m=4.25), '...inspirational stories about the experiences of other successful dual career athletes are shared' (m=4,34), '...stakeholders in the environment are encouraged to engage in continuous professional development' (m=4,42).

If we compare the perceptions of the features of the environment between the dual career athletes and their entourage, we can observe a consistent trend with the entourage (mainly DCSPs and coaches) systematically rating higher than the student athletes all the evaluated features. These differences are statistically significant for 7 of the 10 features. Dual career athletes (m=5.29) perceive a significant lower degree of Dedicated Dual Career Support Team in the environment than their entourage (m=4.13;  $t=3.25$ ,  $p=0.003$ ). Dual career athletes (m=4.50) also perceive a significant lower degree of Integration of Efforts across the whole environment than their entourage (m=3.92;  $t=2.17$ ,  $p=0.035$ ). Dual career athletes (m=4.94) also perceive a significant lower degree of Access to Expert Support in the environment than their entourage (m=3.88;  $t=3.34$ ,  $p=0.002$ ). Dual career athletes (m=4.77) also perceive a significant lower degree of A Whole Person Approach in the environment than their entourage (m=3.95;  $t=2.77$ ,  $p=0.009$ ). The same statistical difference is found for the features Flexible dual Career Solutions (mDCA=5.40; ment=4,63;  $t=3,85$ ,  $p<0.001$ ), Care of DC Athletes' Mental Health and Wellbeing (mDCA=5.20; ment=4,33;  $t=2.61$ ,  $p<0.014$ ), and An Open and Proactive Approach to the Development of the Environment (mDCA=4.78; ment=4,13;  $t=2,85$ ,  $p<0.007$ ). Further analysis should help to decide what measures should be considered to favour the convergence of perceptions between dual career athletes and their entourage. The differences are not statistically significant for the features A Clear Understanding of DC Issues and Support, Role Models and Mentorship, and an empowerment approach. Both dual career athletes' and their entourage share a coincident view regarding these features.

We have also provided individualized feedback to those environments (n=3) that provided data from different stakeholders including student athletes, DCSPs, coaches, other support staff and families.

Following this first descriptive analysis a deep analysis of the reverse items, missing values and not applicable values coded with zero.

Next steps could be focused on analysing the differences in how the DCDE is perceived by all agents involved in the DCA's entourage to detect possible areas (i.e., questionnaire dimensions) of intervention.

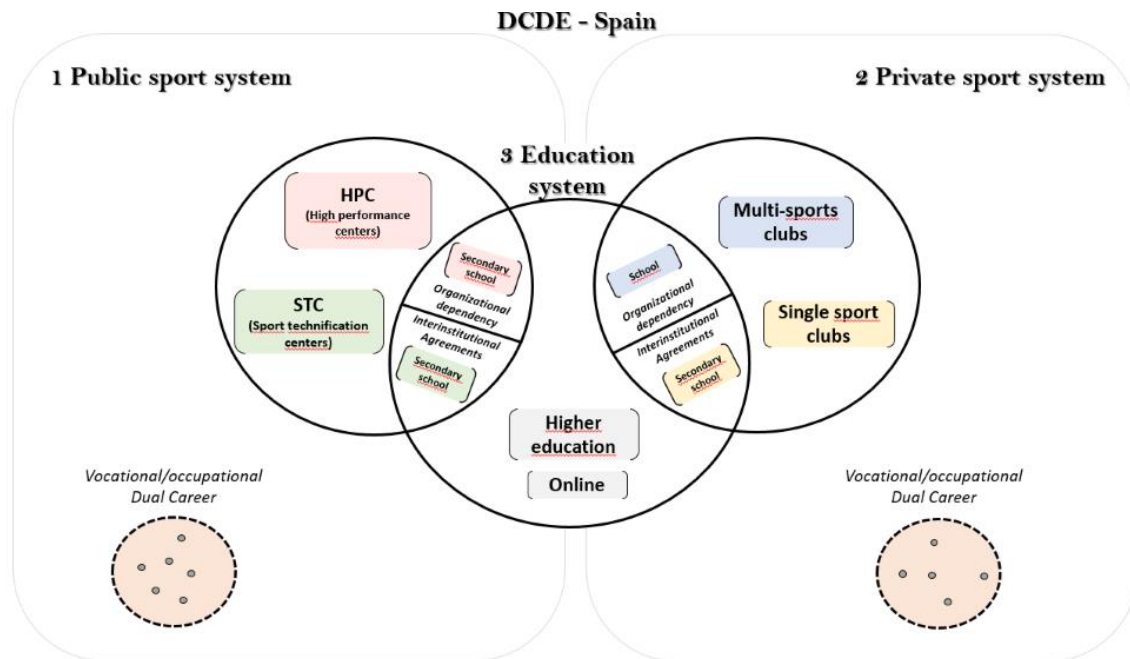


Figure 1. Spanish taxonomy of dual career environments.

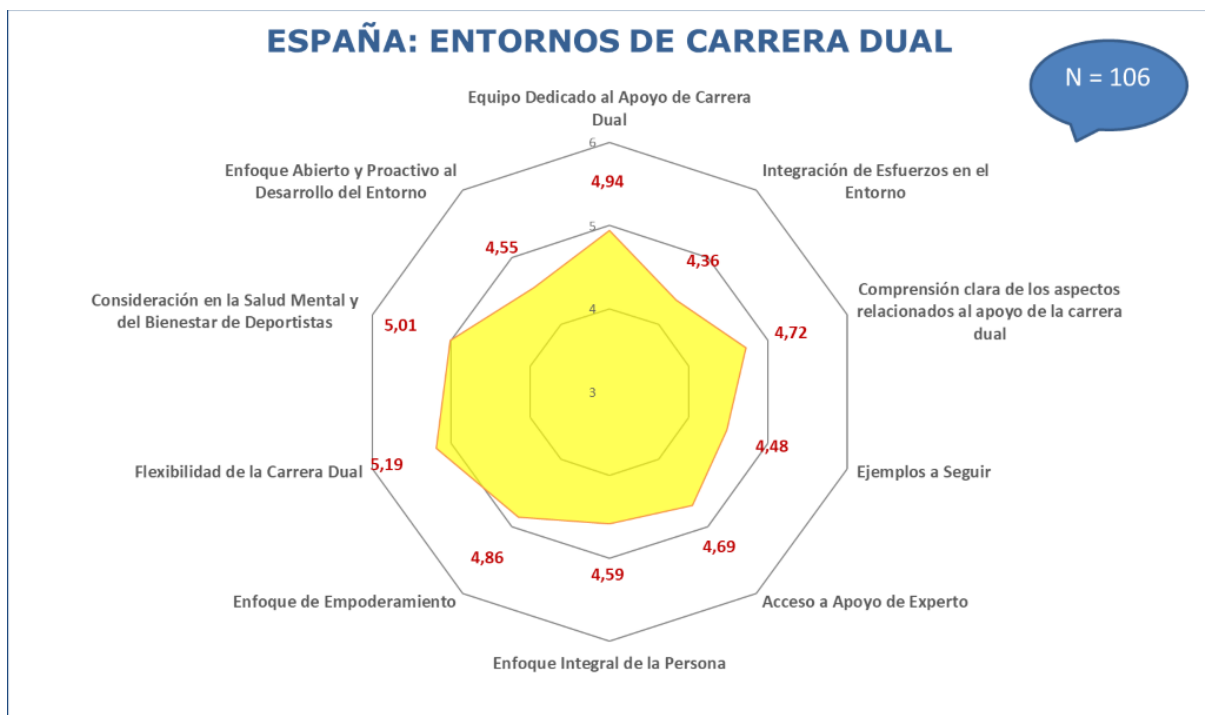


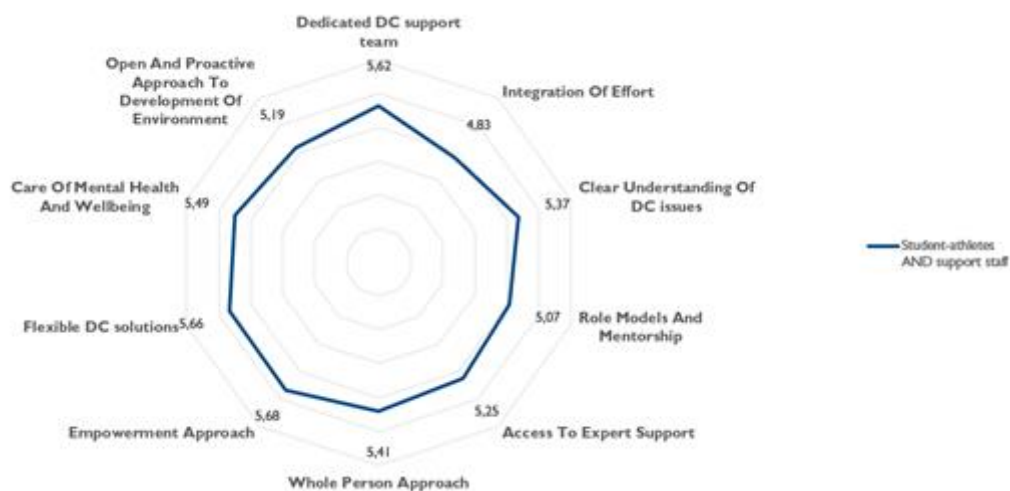
Figure 2. DCDEM profile of DC athletes and support staff data (n=46).

## Dual Career Development Environment Monitoring Tool Results – Sweden

Data were collected from three national sports universities (i.e., combined dual career environments) and 46 participants.

### Overall Strengths and Points for Optimization

The overall DCDEM profile for the investigated DCDEs in Sweden is shown on Figure 1. We calculated the means of the features (separately) and the total feature-mean (all of them together), and we considered strengths to be features above the total feature-mean ( $M_{\text{total}}=5.35$ ). With means of above five on all but one feature, the data reveal a robust profile describing the Swedish DCDEs as having several strengths. The strong points were (highest mean first): *empowerment approach, flexible DC solutions, dedicated DC support team, care of DC athletes' mental health, whole-person approach, and clear understanding of DC issues*. The feature scoring the lowest (but still rather high) and which can be considered as a point for further development based on this profile is *integration of efforts across the environment stakeholders* ( $M=4.83$ ).



**Figure 1.** DCDEM profile of DC athletes and support staff data across all three universities ( $n=46$ ).

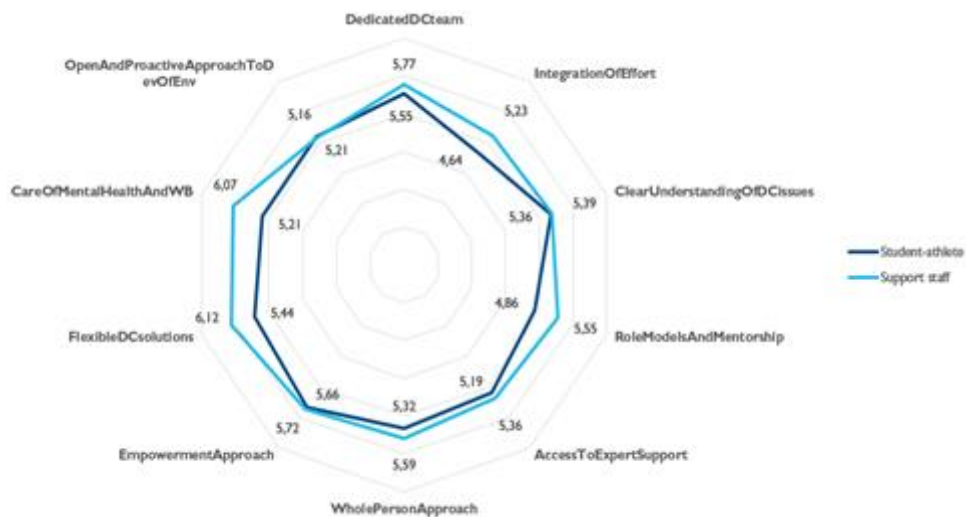
### DCDEM Profiles based on the Data from DC Athletes vs. DC Support Staff

Figure 2 outlines the DCDEM profiles to allow comparison of the perceptions of DC athletes and support staff in the three Swedish DCDEs. Overall, the data/profile show a rather consistent view with features ranging from 4.64–6.12. To further explore the participants' perceptions of

their environments, we calculated the effect size for the mean difference between DC athletes and support staff responses (see Table 1). Our analysis suggests that the DC athletes and support staff had similar and strong views on the DCDEs when it came to the presence of a *dedicated DC support team, clear understanding of DC issues, access to expert support, as well as whole person, empowerment and proactive developmental approaches*. Four features were perceived differently by DC athletes and support staff (i.e., had a moderate-to-large effect size, see Table 1). These were *care of DC athletes' mental health, role models and mentorships, flexible DC solutions, and integration of efforts*. Below we provide some reflections on these differences.

The topic of *athletes' mental health* has been an integrated part of the development of the Swedish DC system and discussed several times during the last years within national DC educations held by the Swedish Sports Confederation. We believe this might provide one explanation to the difference in perception between DC athletes and support staff, in that support staff might have had this more in their awareness and therefore evaluated the importance of this feature as higher.

The lack of *role models* was found in the Swedish DCDE case study (WP2) and is also highlighted here. The development of *mentorships and role models* seems to be a point for further development of Swedish DCDEs.



**Figure 2.** DCDEM profiles of DC athletes vs. support staff across all three universities ( $n= 31$  DC athletes; 15 support staff)

**Table 1.** Effect size (Cohen's *d*) of the mean difference between DC athletes (*n*=31) and support staff (*n*=15) across all three universities

Feature	DC athletes		Support staff		Cohen's <i>d</i>
	M	SD	M	SD	
Dedicated DC support team	5.55	1.51	5.77	1.20	0.16
Integration of effort	4.64	1.14	5.23	1.28	<b>0.51</b>
Clear understanding of DC issues	5.36	1.21	5.39	0.98	0.03
Role models and mentorship	4.86	1.13	5.55	0.82	<b>0.68</b>
Access to expert support	5.19	0.97	5.36	0.90	0.18
Whole person approach	5.32	1.15	5.59	0.58	0.28
Empowerment approach	5.66	1.05	5.72	1.17	0.06
Flexible DC solutions	5.44	1.12	6.12	1.10	<b>0.63</b>
Care of mental health and wellbeing	5.21	1.06	6.07	0.98	<b>0.85</b>
Open and proactive approach to development of env.	5.21	1.17	5.16	1.06	0.05

Note. Small effect/difference  $\geq .20$ ; moderate difference  $\geq .50$ ; large difference  $\geq .80$  (Cohen, 1988). Moderate and large differences in bold.

*Flexible DC solutions* is a well-developed and disseminated section of the Swedish national DC guidelines (2018). The difference between support staff and DC athletes with regards to this feature suggests that Swedish DC support providers should do even more to inform DC athletes about the already existing possibilities. Also, the participants within our sample represent more university staff than sports staff, and DC athletes could keep in mind (usually lower) flexibility in their sports training, which might account (at least partly) for the difference in their perceptions of this feature.

As seen in Table 1, *integration of efforts* was the feature that DC athletes ranked the lowest and there was a moderate difference to the perceptions of the support staff. Based on the data, *integration of effort* seems to be one of the major points for optimization of these DCDEs. This is also consistent with the ECO-DC European-level data as presented by Kuettel and Torregrossa (2019) at the multiplier sport event in Brussels.



### Specific Challenges across Three Swedish DCDEs

The three DCDEs investigated in Sweden (i.e., DCDE-a, -b and -c below) represent environments with rather different preconditions. Beyond our analysis above, we also developed DCDEM profiles for each DCDE, which helped us to reveal the environment-specific challenges.

*DCDE-a* ( $n=20$ ) had the strongest profile with features ranging from 5.25-6.05 ( $M=5.72$ ), and their main challenges included to optimize *role modelling* and *integration of efforts*.

The features across the *DCDE-b* ( $n=19$ ) ranged from 4.28-5.38 ( $M=5.04$ ) and their main challenge was *integration of efforts*. Interesting to note is that in DCDE-b, the DC athletes ( $n=13$ ) ranked all but one feature as higher than the support staff ( $n=6$ ). The effect size analysis shows moderate differences across three features (i.e., *dedicated DC support team*, *clear DC understanding*, *access to experts*) and large differences with regards to *empowerment and proactive approaches*, suggesting that the support staff perceived a stronger need to further develop these aspects of the environment than what the DC athletes perceived. In terms of the main challenge of *integration of efforts*, the views of the DC athletes ( $M=4.33$ ) and support staff ( $M=4.16$ ) were consistent.

With regards to *DCDE-c*, the number of participants ( $n=7$ ) with only one support staff member makes the comparisons difficult. Based only on the DC athletes' ( $n=6$ ) perceptions, the main challenges for the DCDE-c seemed to be *role models* ( $M=4.54$ ), *proactive approach* ( $M=4.54$ ) and *integration of efforts* ( $M=4.61$ ).

All the three DCDEs have received their DCDEM profiles followed by recommendations on points for optimization.

## Dual Career Development Environment Monitoring Tool Results – United Kingdom

### Participant Characteristics

In the UK, 92 responses to the dual career development environment (DCDE) monitoring tool validation questionnaire were collected. With a response rate of 62%, 57 complete responses were retained. The questionnaire took participants on average 15 minutes 40 seconds to complete. Of these 57 participants, 52.6% (n = 30) were male and 47.4% (n = 27) were female. From the sample, the majority of respondents were dual career service providers (n = 36), which includes roles such as dual career coordinators (n = 19), (performance) lifestyle advisors (n = 9), coaches (n = 2), and teachers (n = 2). The remaining participants were dual career athletes (n = 21). The environments from which the participants are situated in can be categories according to the findings of work package 1. The majority of participants were situated in university systems, which reflects the national approach to dual careers support within the UK. These university systems include sport friendly universities (i.e., university scholarship schemes; 50% participants) and universities that are a part of a combined dual career environment network (33% participants). However, Sports Friendly Schools (3% participants), Sports Clubs (3% participants) and National Sports Federations (6% participants) were also included in the sample.

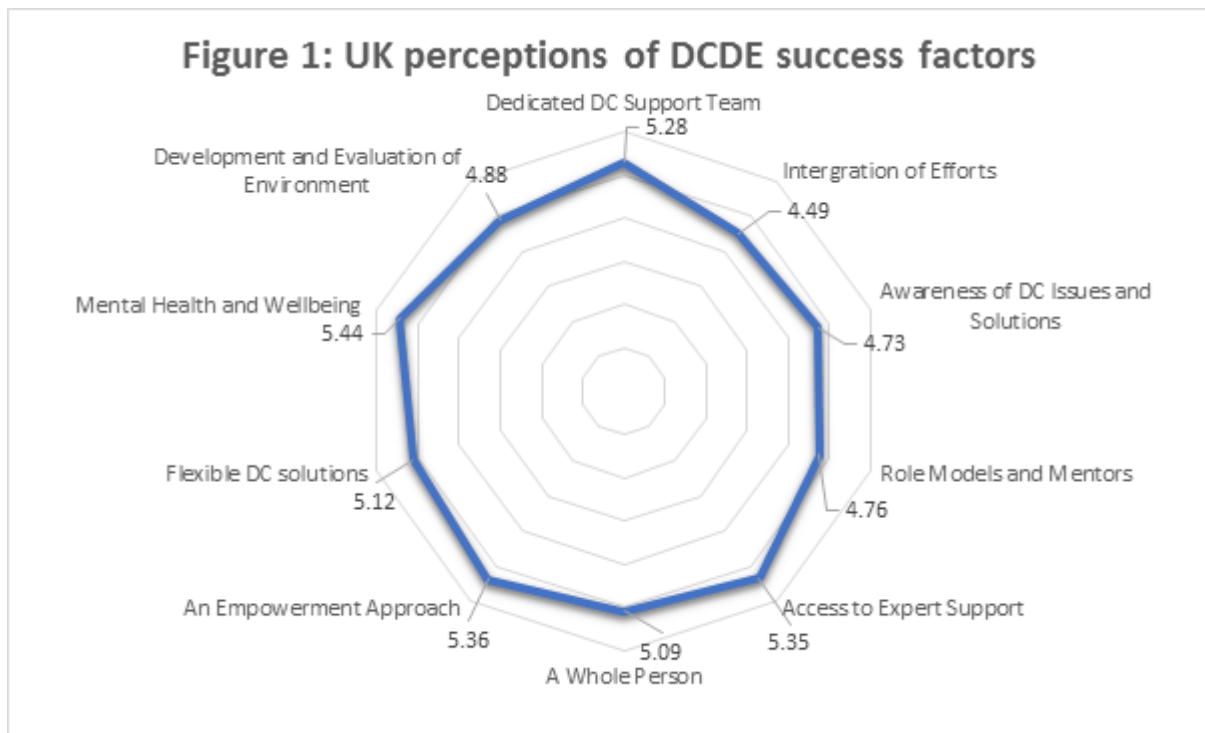
### Strengths and Areas for Optimisation

The mean UK scores for each of the ten environment success factors, that were identified in work package 3, are shown in Figure 1. In general, the UK sample identified three strengths of DCDEs. The factors, *Mental Health and Wellbeing* ( $\mu = 5.44$ ), *An Empowerment Approach* ( $\mu = 5.36$ ), and *Access to Expert Support* ( $\mu = 5.35$ ), were rated the strongest. If we consider the scores at the item level the following three items were scored highest in general, ‘A key value is to protect dual career athletes’ mental health and wellbeing’ ( $\mu = 5.79$ ) from the factor *Mental Health and Wellbeing*; ‘Dual career athletes can make decisions about their own dual career’ ( $\mu = 5.77$ ) from the *Empowerment Approach* factor; ‘There is a central point of contact so that dual career athletes know where to go for support’ ( $\mu = 5.77$ ) from the factor *Dedicated Dual Career Support Team*.

The three factors that were scored, in general, lowest by the UK sample and, therefore are could be considered as areas for optimisation were *Integration of Efforts* ( $\mu = 4.49$ ), *A Clear Understanding of DC Issues and Solutions* ( $\mu = 4.73$ ), and *Role Models and mentors* ( $\mu = 4.76$ ).



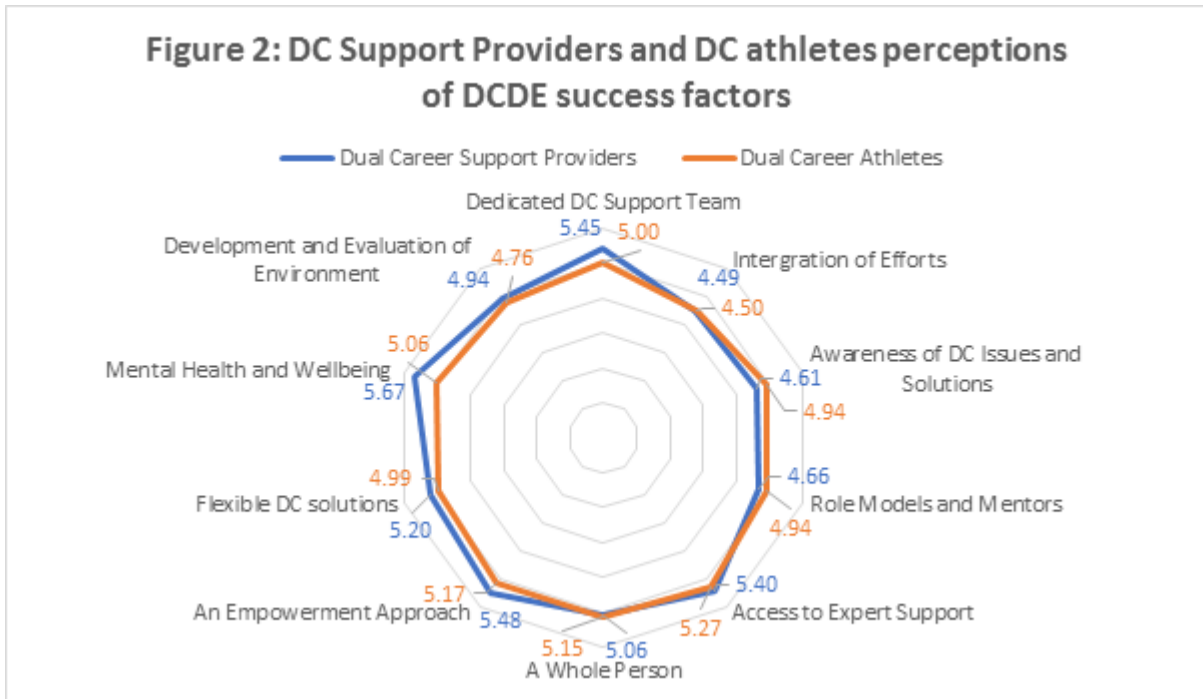
When considering the scores at the item level, the lowest three items were: ‘People in the environment want different outcomes from a dual career’ ( $\mu = 3.04$ ) from the *Integration of Efforts* factor; ‘Some people in the environment show a lack of understanding of the demands involved in pursuing a dual career’ ( $\mu = 3.67$ ) from the factor *A Clear Understanding of DC Issues and Solutions*; and ‘There is limited opportunity for stakeholders to engage in continuing professional development’ ( $\mu = 4.26$ ) from the factor *An Open and Proactive Approach to the Development of the Environment*. All of these items were reversed scored items.



### Differences Between DC Support Providers and DC Athletes

Figure 2 outlines the differences in perceptions of the ten success factors between dual career support providers (DCSP) and dual career athletes (DCA). Out of the ten factors, six are rated more strongly by DC support providers than DC athletes. However, the only factor that showed a significant difference between support providers and athletes was Mental Health and Wellbeing ( $t = 2.26, p = 0.03$ ). This is particularly interesting considering that the factor Mental Health and Wellbeing was scored as one of the highest factors. The exceptions to this trend are the factors Integration of Efforts, Awareness of DC Issues and Solutions, Role Models and Mentors, and A Whole Person Approach, where dual career athletes, on average, scored the

environments more favourably than dual career support providers. However, none of these differences were significant, suggesting there is limited difference between dual career service providers and dual career athletes of perception of DCDEs within the UK.



## Dual Career Development Environment Monitoring Tool Results – European Summary

### Participant Characteristics

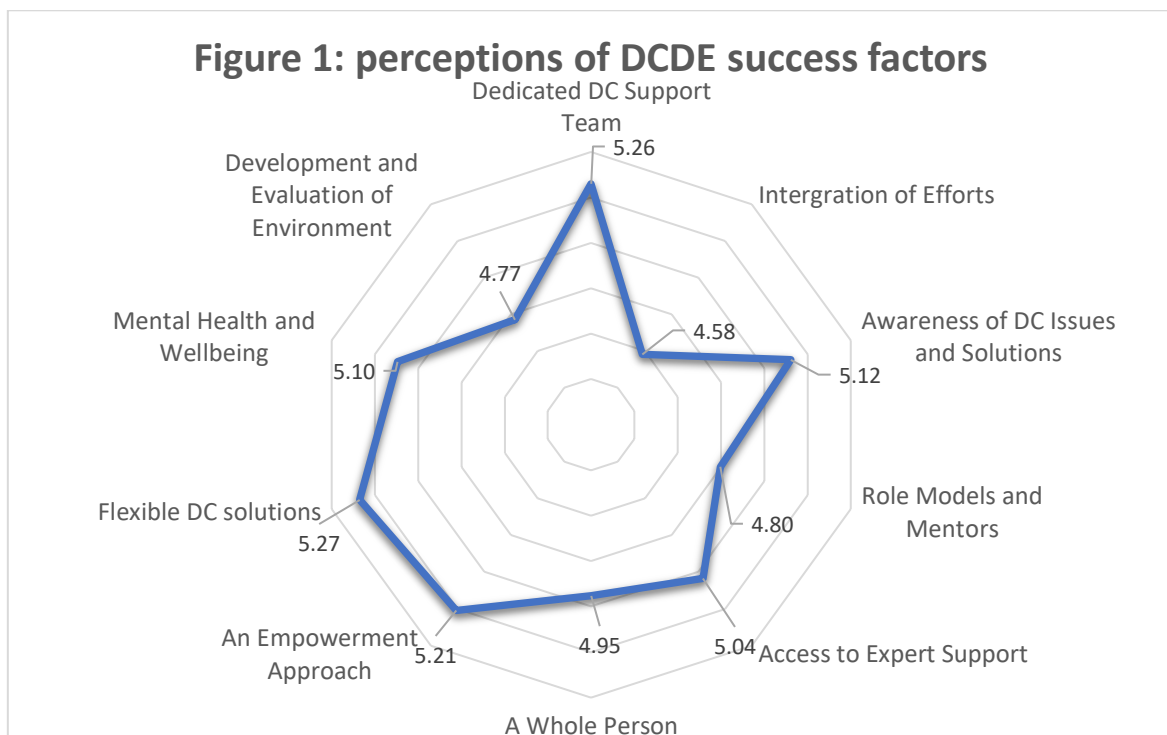
Overall, from the participating European countries, 874 responses to the dual career development environment (DCDE) monitoring tool validation questionnaire were collected. With a response rate of 70%, 616 complete responses were retained. Of these participants, 49% (n = 302) were male and 51% (n = 314) were female. The majority (55%) of respondents were dual career athletes (n = 339) and the remaining were dual career service providers, which includes roles such as dual career coordinators (n = 67), coaches (n = 39), and teachers (n = 50). The environments from which the participants are situated in can be categorized according to the findings of work package 1. The majority of participants were situated in Sports Friendly School (n = 215), Elite Sports Schools (n = 115) and Sports Friendly University Systems (n = 190), but participants were also situated within National Sports Programs (n = 43), Sports Clubs (n = 24), and Combined Dual Career Development Environments (n = 11).

### Strengths and Areas for Optimisation

The mean scores for each of the ten environment success factors, that were identified in work package 3, are shown in Figure 1. Three strengths of DCDEs were identified, in general, across the participating countries. The factors, *Flexible Dual Career Solutions* ( $\mu = 5.27$ ), *Dedicated Dual Career Support Team* ( $\mu = 5.26$ ), and *An Empowerment Approach* ( $\mu = 5.21$ ) were rated the strongest. If we consider the scores at the item level the following three items were scored highest in general, 'Family support dual career athletes in combining sport and education or work' ( $\mu = 5.81$ ) from the factor *A clear understanding of DC issues and support from across the environment*; 'there is a central point of contact so that dual career athletes know where to go for support' ( $\mu = 5.64$ ) from the *Dedicated Dual Career Support Team* factor; 'There is recognition that dual career athletes require flexible solutions to develop their career' ( $\mu = 5.57$ ) from the *Flexible Dual Career Solutions* factor; and 'There is access to appropriate coaching for dual career athletes' ( $\mu = 5.57$ ) from the factor *Access to Expert support*.

The three factors that were scored, in general, lowest by the sample and, therefore, could be considered as areas for optimisation were *A clear understanding of DC issues and support from across the environment* ( $\mu = 4.58$ ), *An Open and Proactive Approach to the Development of the Environment* ( $\mu = 4.77$ ), and *Role Models and Mentorship* ( $\mu = 4.80$ ). When considering

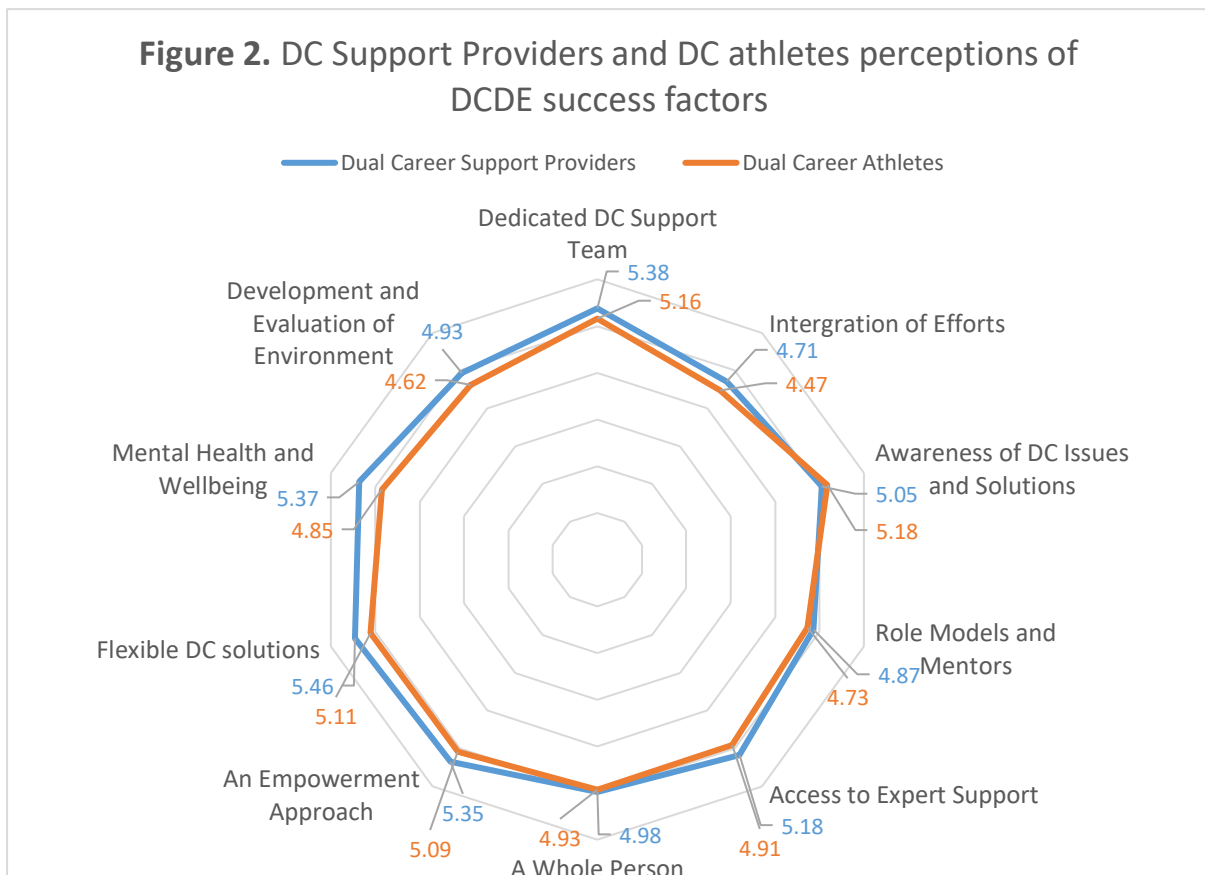
the scores at the item level, the lowest three items were: ‘People in the environment want different outcomes from a dual career’ ( $\mu = 3.39$ ) from the *Integration of efforts across the whole environment* factor; ‘Some people in the environment show a lack of understanding of the demands involved in pursuing a dual career’ ( $\mu = 3.79$ ) from the factor *A clear understanding of DC issues and support from across the environment*; and ‘There is limited opportunity for stakeholders to engage in continuing professional development’ ( $\mu = 4.11$ ) from the factor *An Open and Proactive Approach to the Development of the Environment*. All of these items were reversed scored items.



### Differences Between DC Support Providers and DC Athletes

Figure 2 outlines the differences in perceptions of the ten success factors between dual career support providers (DCSP) and dual career athletes (DCA). Out of the ten factors, nine are rated more strongly by DC support providers than DC athletes, the exception being the factor *A clear understanding of DC issues and support from across the environment*. Two factors showed a significant difference between support providers and athletes. These factors were *Integration of efforts across the whole environment* ( $M = 0.24$ ,  $t = 3.03$ ,  $p = 0.00$ ) and *An Open and Proactive Approach to the Development of the Environment* ( $M = 0.33$ ,  $t = 4.49$ ,  $p = 0.01$ ).

Some items with the great difference between dual career athlete and dual career support providers scores include: *‘People in the environment want different outcomes from a dual career’* from the factor *Integration of efforts across the whole environment*, *‘No policies or processes are in place to manage mental health issues’* from the factor *Care of DC athlete’s mental health and wellbeing*, and *‘Family support dual career athletes in combining sport and education or work’* from the factor *A clear understanding of DC issues and support from across the environment*.



## Conclusion

This report has provided a summary of work package 3 which covers aim 3 of the Ecology of Dual Career ERASMUS+ project - to develop and test a DCDE monitoring tool (DCDEM). The DCDEM was developed based on the factors of successful DCDEs that were identified in WP2. Data was then collected in participating countries, from DC service providers and DC athletes. These data were then analysed to validate the questionnaire. The final version of the questionnaire along with recommendations for how to use it were included in this report. National descriptive results identify the areas to optimise practice. These areas differed depending on the national context, for example: in Denmark, *integration of efforts across the whole environment*; in Spain, *integration of efforts across the whole environment, the role models and mentorships*, and an *open and proactive approach to the development of the environment*; and, in the UK, *integration of efforts, a clear understanding of DC issues and solutions*, and *role models and mentors*.

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Co-funded by the  
Erasmus+ Programme  
of the European Union



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