

research cooperation, and working life collaboration. The content-related development of doctoral training will be carried out in collaboration between the

partner universities, and connections will be established to regional companies [4].

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## From PhD to job market:

### *Transforming doctoral training with the SAF21 model*

European doctoral training is faced with problems such as long PhD completion time and high rates of dropout, which consistently range from 35 to 65 % [1]. Poor supervision, lack of relevant skills and lack of structure are among the main reasons for attrition [2]. Moreover, the employment landscape shifted significantly in the last decade and now fewer than 30% of doctoral graduates work in academia or in research and development related jobs [3]. The training programme of early stage researchers (ESRs) has to acknowledge this development and address skills and competencies that will prepare ESRs for careers in multiple sectors [4].

In order to address these problems, and following the seven EU principles for innovative doctoral training [5], the European Training Network [SAF21](#) - Social Science Aspects of Fisheries for the 21st Century (an EU funded Marie Skłodowska-Curie project that started in 2015 and hired 10 PhD candidates at academic and non-academic institutions) has proposed an innovative doctoral training model that comprises the following six pillars:

The logo for SAF21, with 'SAF' in blue and '21' in green, separated by a vertical line.

**1. Development of a Personal Career Development Plan (PCDP).** Individual expertise, skills, and competencies that need to be developed, both for the successful completion of the individual, personalised doctoral project, and for later use in a scientific or professional career have been identified for each SAF21 ESR within 6 months following their recruitment. These skills, expertise, and competencies served as a basis for the development of each individual PCDP. This plan is thought to be a means of integrating the local and network training to create useful and individually-tailored training paths. The PCDPs are evaluated and modified at least once a year by the ESR and her/his supervisors taking into account the achievements of the ESR and the evolution of her/his career objectives. Developing PCDPs additionally

facilitates self-reflection as well as practising core competencies such as personal effectiveness, research governance, career management and research impact.

**2. Network-wide training in project specific scientific education and research training** (i.e. topics related to the interdisciplinary study of fisheries as socio-ecological complex adaptive systems).

**3. Network-wide training in core transferable skills.** Departing from the conventional PhD training programmes where training transferable skills are left to the initiative and good will of the supervisor, the training component of the PhD programmes run by the SAF21 network include mandatory training in a core group of transferable skills (e.g. ethics of science, grant writing). These core skills will give the SAF21 ESRs work competencies that are relevant for a broad job market, although the specific skills they need may vary across sectors. This core group of transferable skills was selected based on the results of recent studies about tools for supporting career development and research [6, 7]. In addition, training in intercultural communication sets the basis for successful international mobility.

**4. Secondments (i.e. temporary transfer of each ESR to another partner in the network).** Through the mechanism of secondments, the SAF21 doctoral candidates are exposed to three different work sectors (i.e. academia, fisheries industry, science communication through entertainment facilities). The schedules for secondments are developed based on each ESR's needs of knowledge, training, skills, and competencies.

**5. Local training according to individual ESR needs.** This local training completes the network-wide training by offering a large range of theoretical and practical scientific

training activities, as well as training in transferable skills. These activities will allow the ESRs to complement and expand both their original background and the one acquired through network-wide activities. They also have the chance to practice their own research methodologies in a work environment different from the one they are taking their PhD in.

**6. Training and practice in science communication using a wide variety of platforms** (e.g. Facebook, Twitter, personal blog).

In addition to these six pillars, the SAF21 doctoral training model is encouraging the SAF21 ESRs to participate in local, national and international young researchers associations, such as Tromsø Doctoral Candidates (at University of Tromsø – The Arctic University of Norway), the Marie Curie Fellowship Association, the European Council of Doctoral Candidates and Junior Researchers (EURODOC). This involvement in young researcher associations allows the ESRs to interact with other early career scientists in a different setting and to broaden their networks.

Based on the experience accumulated by implementing this training model during the first two years of the SAF21 project, it can be said that enthusiasm, perseverance, sufficient financial means and collaboration across sectors is the winning combination for keeping up the enthusiasm and motivation in any doctoral program. The members of the SAF21 network hope that fulfilling this training will increase the ESRs' rate of successful international, intersectoral and interdisciplinary mobility and, consequently, enhance their employability.

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From left to right, upper row: Alexander Holdgate (Plymouth University, UK; University of Tromsø, Norway; SAF21 intern), Ixai Salvo Borda (CETMAR, Spain), Kristinn Nikulás Edvardsson (University of Iceland, Iceland); middle row: Cezara Păstrăv (Matis, Iceland), Shaheen Syed (Manchester Metropolitan University, UK), Luz K. Molina (Manchester Metropolitan University, UK), Rannvá Danielsen (Syntesa, Denmark), Charlotte Weber (University of Tromsø, Norway); lower row: Theodora Sam (University of Tromsø, Norway), Lia ní Aodha (Manchester Metropolitan University, UK), Samaneh Heidari (Utrecht University, The Netherlands), Melania Borit (University of Tromsø, SAF21 Coordinator).

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