
HPC/Exascale Centre of Excellence in Personalised Medicine

# D4.1 Dissemination, Communication and Industry Engagement Plan Version 1.0

## Document Information

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# Change Log

| Version | Author | Date | Description of Change |
|---|---|---|---|
| V0.1 | Esther Dorado (BSC), Renata Giménez (BSC) | 2 Nov 2021 | Initial Draft |
| V0.2 | Esther Dorado (BSC), Renata Giménez (BSC), Marta Lloret Llinares (EMBL-EBI), Daniel Thomas López (EMBL-EBI), Ana María Morales (ATOS), Joaquim Calbó (CRG), Damjana Kastelic (CRG), Alessandra Villa (KTH), Vera Matser (EMBL-EBI) | 19 Feb 2021 | Draft submitted for internal review |
| V0.3 | Esther Dorado (BSC), Marta Lloret Llinares (EMBL-EBI), Daniel Thomas López (EMBL-EBI), Ana María Morales (ATOS), Vera Matser (EMBL-EBI) | 8 Mar 2021 | Final draft ready for Steering Group review |
| V1.0 | Alba Jené (BSC) | 30 Mar 2021 | Final editorial review |

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# 1. Executive Summary

This document outlines the Dissemination, Communication and Industry Engagement Plan of the HPC/Exascale Centre of Excellence in Personalised Medicine (PerMedCoE). The aim of this document is to define the strategies to raise awareness of PerMedCoE among different target groups, and to build synergies between the PerMedCoE and the HPC/Exascale communities, with special emphasis on the opportunities and challenges specific to this research area. This plan will be updated during the course of the project if needed, and updates will be reported in future deliverables D4.3 *First Dissemination, industry engagement and Training Report* (M18), and D4.4 *Final report on Dissemination, communication and industry engagement* (M36).

As a starting point, a stakeholder analysis has been carried out through surveys and online meetings with the consortium partners. A stakeholder map has been created with 23 categories of stakeholders, which have been prioritised according to their interest in the project and their power to influence its progress. The prioritisation will affect the level of engagement that PerMedCoE will have with each stakeholder. For dissemination purposes, stakeholders have been divided into six target audience groups, depending on their specific interests.

The main target communities for adoption of PerMedCoE applications have been identified: bioinformaticians, biomedical researchers, clinicians, researchers with experience in modelling tools, pharma & diagnostics companies, SMEs and spin-offs, sequencing initiatives, hospitals. As modelling tools are not widespread among many of these groups, one of the objectives of PerMedCoE is to facilitate access and usage. Therefore, their main pain points for adoption of PerMedCoE tools and/or applications are included in this document, as addressing them adequately will be important for the impact that the consortium can achieve.

With regard to the dissemination and communication of PerMedCoE, this document defines the corporate image that has been created for the project, which will be used by consortium partners in their activities. It also describes the dissemination tools that have been put in place, i.e. a website, social media accounts, and a dissemination pack comprising a flyer, an overview presentation and audiovisual content. A list of relevant events where we intend to present the project is included as well. Additionally, we detail the press strategy and the editorial plan for the website.

Finally, the deliverable presents the three-phase plan, aligned with the technical progress and expected milestones, that has been defined to reach the industrial stakeholders and engage with potential users of the PerMedCoE results through specific activities such as webinars, workshops and interviews. The latter has also the ambition to support the gathering of business requirements within WP5 *Privacy & Sustainability* for the development and definition of realistic and market-oriented services which properly address end-users.

# 2. Introduction

The HPC/Exascale Centre of Excellence in Personalised Medicine (PerMedCoE) aims at providing an efficient and sustainable infrastructure to support the development of personalised medicine, providing methods adapted to pre-exascale systems to translate omics data into actionable molecular disease models. One key element to the success of the CoE is to empower the personalised medicine community with sustainable systems accessible to the end-users. In order to achieve this, it is essential to engage with the different user groups and understand their needs, as well as to raise awareness about the activities and developments of PerMedCoE among the broader community involved in personalised medicine.

This will be the main purpose of the Dissemination, Outreach and Training work package (WP4). Special attention will be made towards engaging with the industry community as a target user group. To better understand the landscape of the HPC and personalised medicine communities and their interest in PerMedCoE, a stakeholder analysis has been conducted during the first four months of the project. This analysis has been the starting point to design the dissemination and engagement strategy of PerMedCoE. In the coming months, the stakeholder analysis will be followed by a training needs analysis, which will constitute the basis for the design of a training programme that will be presented in deliverable D4.2 *Training needs analysis and training plan* (M12). The dissemination and engagement work presented here will continue for the duration of PerMedCoE and therefore reports on these activities will be produced in deliverables D4.3 *First Dissemination, industry engagement and Training Report* (M18), and D4.4 *Final report on Dissemination, communication and industry engagement* (M36).

This document describes how the stakeholder analysis was conducted and the main stakeholder categories identified. Target audiences for dissemination are listed together with the main channels of communication and key messages that PerMedCoE will use with them. The dissemination and communication plan is further outlined in Section 4 of the document, including the corporate image, dissemination tools and press strategy and how they will be developed during the project. Finally, the document presents the different phases of the industry engagement plan, which will allow PerMedCoE to get in touch and engage with the industrial community, which can provide relevant feedback on the value proposition and other business-related topics.

# 3. Stakeholder analysis

A stakeholder analysis was conducted to understand which groups of people and organisations are involved or interested in PerMedCoE. This analysis will help us prioritise the groups we want to engage with, and decide our communication and engagement strategy with them. The analysis of the pain points and training needs of the stakeholders will be the basis of our training plan and will be presented in further detail in deliverable D4.2 *Training needs analysis and training plan* in M12.

To start the analysis, surveys were sent to all the partners within PerMedCoE, including questions about their main stakeholders, the users of their tools as well as their training needs. Bilateral discussions with each of the partners helped to better understand their role in the project, other initiatives they are part of, their main collaborators and their pain points.

From these interactions with the partners, a list with 100 stakeholders was created (Section 7.1). This was the basis for the stakeholder analysis presented here, where the stakeholders were organised in 23 categories that represent the main groups of people and organisations interested in PerMedCoE. A short description of each stakeholder category, as we define them in our analysis, is provided in Table 1. More information about these stakeholders is provided in Section 7.2, including what is important for them and how they can contribute to the project.

| **Stakeholder category** | **Working definition** |
|---|---|
| Partners | Institutions or companies who are part of the PerMedCoE consortium |
| Bioinformaticians | Researchers in the field of genomic/other omic and health-related data analysis with no experience in modelling |
| Biomedical researchers | Experimental researchers working in fields related to personalised medicine with no experience in modelling |
| Clinicians | Healthcare professionals using omic and other health-related data for diagnosis and treatment |
| Researchers with experience in modelling tools | Computational and/or biology researchers working in the field of Systems Biology, especially the ones working with cell-level simulations |

| | |
|---|---|
| Computer Science, HPC community | Community of computer scientists and software engineers who contribute to solving problems in Life Sciences fields, including HPC centres (not part of PerMedCoE) |
| Technological providers and IT companies | Companies that provide technological services or produce hardware components that will be used within PerMedCoE |
| Pharma and diagnostics companies | Pharmaceutical companies and those involved in the developments of diagnostics tools |
| SMEs, spin-offs | Companies working in healthcare products, services and data analysis |
| Industry associations and communities | Networks involving industry interested in the following fields: personalised medicine, genomics, HPC, computational modelling |
| Professional networks and communities of practice | European and broader initiatives that connect professionals in the fields of personalised medicine, biomedical research or computer sciences to share knowledge and procedures, and agree on standards (e.g. CoLoMoTo, GA4GH) |
| Sequencing initiatives | Initiatives that sequence genomes and/or transcriptomes of certain populations or groups of patients |
| Centres of Excellence (CoE) | EU H2020 funded centres of excellence for computing applications |
| EU H2020 projects | EU funded projects in the areas of personalised medicine, healthcare data analysis |
| Hospitals | Hospitals that perform genomic/other omic or other health data analysis for research, diagnosis and/or treatment |
| Research Infrastructures | Facilities that provide resources and services for research communities related to life sciences, human health and data analysis, e.g. ELIXIR, PRACE, EATRIS |

| | |
|---|---|
| Research institutions | Institutions (other than partners) that perform research in the following fields: personalised medicine, genomics, HPC, computational modelling |
| Universities | Universities with study and research programmes in life sciences, data analysis and computer science |
| Funders | The EU commission and other bodies that fund the partners within the consortium |
| Policymakers | European, national and regional governing bodies in the areas of healthcare, science, innovation and technology |
| Media | General and specialised media interested in science topics |
| Citizen's organisations | Organisations that can be interested in the advances of personalised medicine, e.g. patients organizations |
| General public | - |

Table 1: Identified stakeholders and their definition

## 3.1. Stakeholder map

PerMedCoE will need to approach different stakeholders in different ways. To make the best use of the limited resources of the consortium, the stakeholders have been prioritised. Each stakeholder category was rated according to their level of interest in PerMedCoE and their level of power to support PerMedCoE, on a scale from 1 to 6, where 1 means low interest/power and 6 means high interest/power (Figure 1).

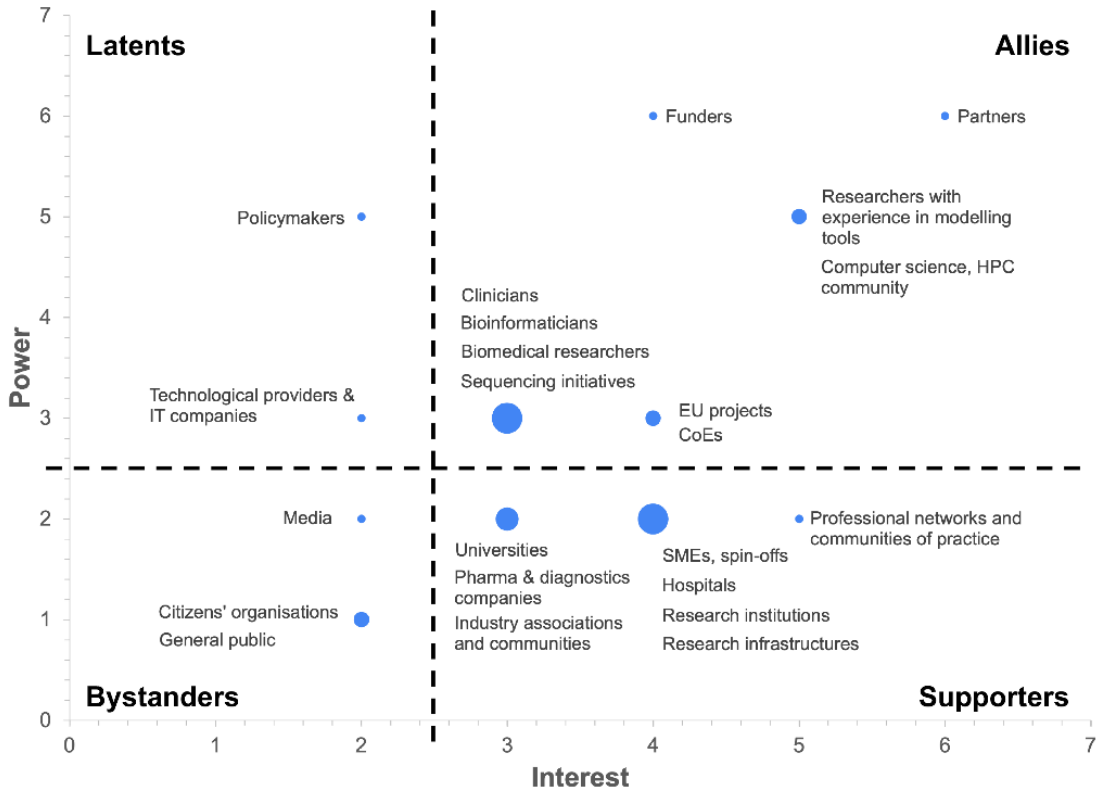



Figure 1: Stakeholder map[1]

According to the level of power and interest, the stakeholders were categorised in four groups, which will determine the level of engagement of PerMedCoE:

- **Allies**: high power and high interest. It is important to collaborate with them, discussing their needs, asking for feedback, sharing data, organising events together. 'Allies' include:
  - Partners
  - Funders
  - Researchers with experience in modelling tools
  - Computer science, HPC community
  - Clinicians
  - Bioinformaticians
  - Biomedical researchers
  - Sequencing initiatives
  - EU H2020 projects
  - Centres of Excellence (CoE)

[1] A threshold was set at 2.5 (indicated with the dashed lines) to categorise the stakeholders in four groups: allies, supporters, latents and bystanders.

- **Supporters**: low power and high interest. This group has a high interest in the project, but not so much power, so PerMedCoE will keep them informed of any developments in the project and ask them for feedback according to their needs in relation to the project. They will be invited to dissemination and training events, so that they learn more about PerMedCoE. If they become users of the tools developed by PerMedCoE, their power would increase. 'Supporters' include:
    - Professional networks and communities of practice
    - Hospitals
    - Research infrastructures
    - Research institutions
    - Universities
    - Pharma & diagnostics companies
    - SMEs, spin-offs
    - Industry associations and communities
- **Latents**: high power and low interest. This group includes stakeholders with relatively high power over the development and sustainability of the project, but not especially interested in its results. The communication strategy towards these actors includes actions to keep them satisfied, by targeting their specific needs and gathering their opinion on how to increase the long-term impact of the project, while also raising their interest on the project's results. 'Latents' include:
    - Policymakers
    - Technological providers & IT companies
- **Bystanders**: low power and low interest. They do not have much power nor interest, so PerMedCoE will keep a relatively low level of engagement with them, informing them about the main developments of the project. However, since they can have influence on other more interested or powerful stakeholders, specific actions may be addressed to them. 'Bystanders' include:
    - Media
    - Citizens' organisations
    - General public

The stakeholder map above focuses on general groups of relevance for PerMedCoE. In order to design an efficient and well-tailored engagement strategy, it is important to understand the specific interests and needs of different stakeholders (Section 7.2), especially for the ones that fall in the 'allies' and 'supporters' groups. The following sections present the main target groups for PerMedCoE activities.

## 3.2. Target audiences for dissemination and communication activities

With regard to the dissemination of the project and its results, we have used the stakeholder analysis to identify the different stakeholders, which have been grouped according to the relevant key messages and main channels of communication in each case (see Table 2 and Table 3).

Partners have not been included among the dissemination target audiences because of their direct participation in the project. The effective internal communication established by WP6 *Coordination and Management* will ensure a first-hand knowledge of all the activities and outcomes of the project among the consortium.

| **Target audience** | **Key messages** | **Value for target audience** |
|---|---|---|
| • Bioinformaticians<br>• Clinicians<br>• Biomedical Researchers<br>• Sequencing initiatives | • Open training in PerMedCoE HPC/Exascale applications<br>• HPC/Exascale modelling software is essential for the future of personalised medicine | • Further develop skills and expertise<br>• Demonstration of the added value of HPC/Exascale optimise/adapt codes |
| • Researchers with experience with modelling tools<br>• Computer science & HPC community<br>• Research infrastructures<br>• SMEs<br>• Pharma & diagnostics companies | • New powerful exascale software adequate to real scenarios<br>• CoE open to new HPC/Exascale developments<br>• CoE as source of computational solutions | • Accurate analysis of personalised medicine data towards better disease diagnosis and treatment<br>• Software, datasets, metrics and HPC/Exascale systems for testing and scoring new implementations<br>• Possibility to analyse/ validate their datasets in the proper environment |
| • Professional networks & communities of practice<br>• Industry associations & communities | • CoE will provide field-specific recommendations<br>• CoE as source of computational solutions | • Extend the area of application and reach other communities<br>• Possibility to analyse/ validate their datasets in the proper environment |
| • EU H2020 projects<br>• Centres of Excellence (CoEs)<br>• Research institutions<br>• Hospitals<br>• Universities | • Activities on applications and HPC/Exascale support<br>• CoE roadshow (in collaboration with Focus CoE) | • Opportunity to become a relying party to the future HPC/Exascale ecosystem |

| | | |
|---|---|---|
| • Technological providers & IT companies | • CoE as source of openly available HPC/Exascale methods<br>• PerMedCoE developments require specific hardware adaptations | • Set of methods to be integrated into their commercial developments<br>• Specific cases demonstrating performances and limitations of PerMedCoE software in different platforms |
| • Funders<br>• Policymakers<br>• Citizens' organisations<br>• Media<br>• General public | • A view of the future of medicine<br>• Organised expertise in HPC/Exascale for personalised medicine | • Learning about the importance of HPC for the future of human health<br>• Advise on the developments of HPC/Exascale in relation to personalised medicine |

Table 2: Dissemination target audiences – key messages

| **Target audience** | **Website** | **Events** | **Training** | **Twitter** | **LinkedIn** | **Videos** | **Flyers** | **Press** | **Publications** |
|---|---|---|---|---|---|---|---|---|---|
| • Bioinformaticians<br>• Clinicians<br>• Biomedical Researchers<br>• Sequencing initiatives | X | X | X | X | X | X | X | X | X |
| • Researchers with experience with modelling tools<br>• Computer science & HPC community<br>• Research infrastructures<br>• SMEs<br>• Pharma & diagnostics companies | X | X | X | X | X | | X | X | X |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Professional networks & communities of practice<br>• Industry associations & communities | X | X | X | X | X | | X | X | |
| • EU H2020 projects<br>• Centres of Excellence (CoEs)<br>• Research institutions<br>• Hospitals<br>• Universities | X | X | X | X | X | | | | |
| • Technological providers & IT companies | | X | | | X | X | X | X | |
| • Funders<br>• Policymakers<br>• Citizens' organisations<br>• Media<br>• General public | X | | | X | X | X | | X | |

Table 3: Dissemination target audiences – communication channels and activities

### 3.3. User groups and their pain points

Actual and potential users of PerMedCoE tools and applications are included in certain stakeholder groups listed above. It is important for PerMedCoE to understand their needs and pain points, so that current users continue using the tools and applications, and potential users adopt them in the near future and contribute to their dissemination and development. Mechanisms for understanding their needs, gathering their feedback and providing support will be set in place by PerMedCoE.

The communication content and the focus of the activities organised for these groups will be adapted to their specific needs. As an example: in an event for bioinformaticians, the focus could be on the usage of the tools while in an event with clinicians, it would be on how the tools can improve diagnosis and treatment, with specific examples from clinical settings. Training events tailored to specific user groups will be organised. The training programme will be detailed in deliverable D4.2 *Training needs analysis and training plan*.

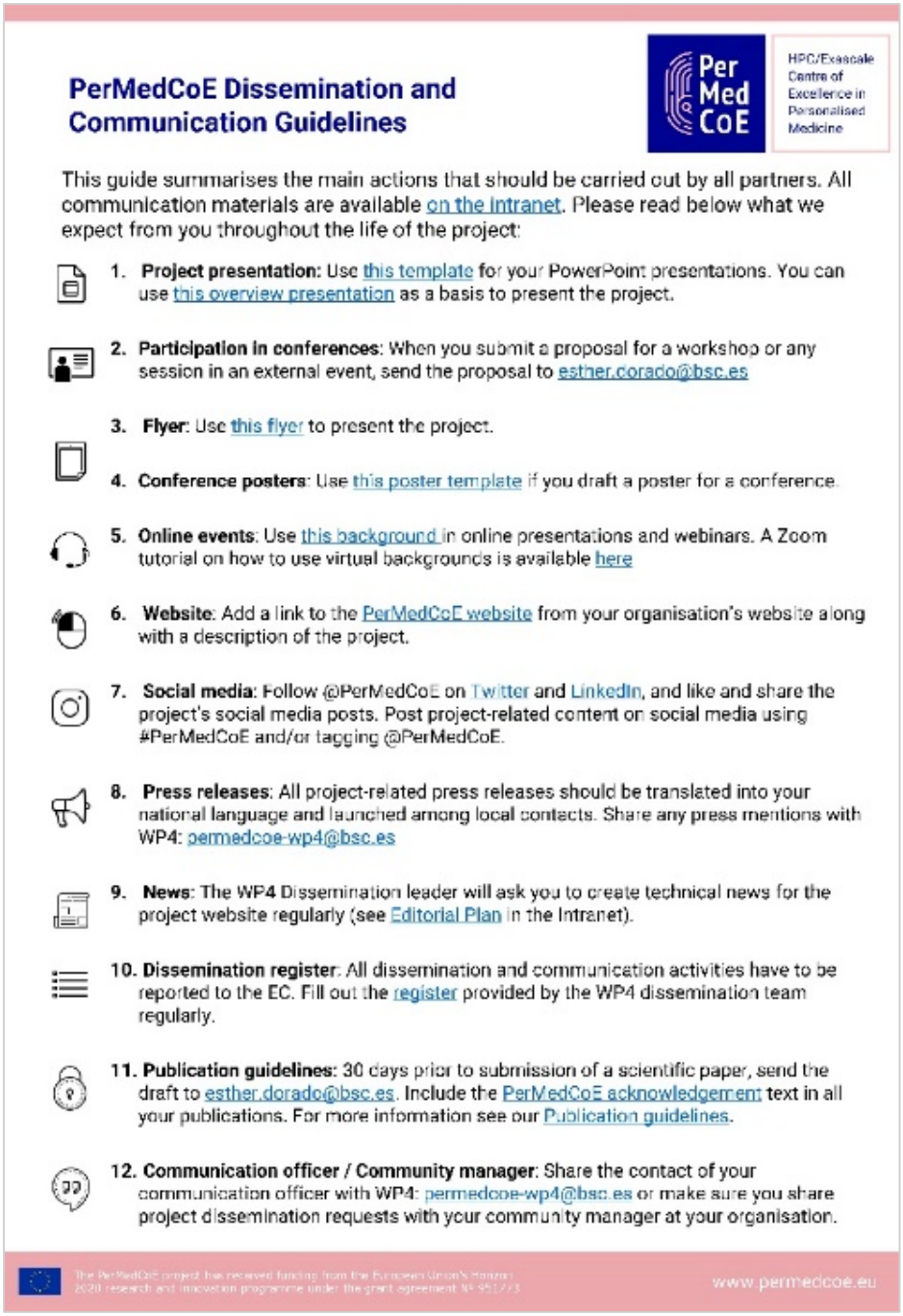
Table 4 shows the main user groups and their pain points. It includes four categories of individuals, and four categories of institutions or companies that will benefit from using PerMedCoE applications. At the same time, these stakeholders might be part of professional networks and other initiatives. In addition, within these groups of stakeholders there might be different interests or needs, as some of them might collaborate with PerMedCoE (e.g. 'clinicians' involved in use cases). In order to facilitate the access of these communities to PerMedCoE applications, the consortium will address as many of these pain points as possible within the scope of this engagement plan and the training plan.

| **Stakeholder category** | **Pain points** |
|---|---|
| Bioinformaticians | Lack of knowledge of modelling tools and/or on how these may help to enrich their research. |
| Biomedical researchers | Lack of awareness/knowledge of modelling tools.<br>Lack of background to understand how to apply those tools.<br>No experience in access to HPC clusters. |
| Clinicians | How to store and share data in a secure way and respecting patients' rights.<br>Lack of awareness/knowledge of modelling tools that could help improve the diagnosis and treatment of their patients. |
| Researchers with experience in modelling tools | Lack of awareness on ways to access HPC clusters. |
| Pharma and diagnostics companies | Access to modelling tools for cell simulations. |
| SMEs, spin-offs | Access to modelling tools for cell simulations. |
| Sequencing initiatives | Lack of knowledge/usage of modelling tools.<br>Lack of awareness on the needs of the workflows developed in PerMedCoE for the data they generate. |
| Hospitals | Access to modelling tools.<br>Lack of awareness of the possibilities with modelling tools. |

Table 4: User groups for PerMedCoE developments

# 4. Dissemination and Communication

In order to facilitate the collaboration and support of all partners in the dissemination and communication activities, the dissemination team provided a set of guidelines for partners (Figure 2). It consists of a summary of the main actions that need to be carried out by all partners and links to relevant websites and documents on the intranet. These guidelines were shared with all the partners and are available on the intranet.



**PerMedCoE Dissemination and Communication Guidelines**

HPC/Exascale Centre of Excellence in Personalised Medicine

This guide summarises the main actions that should be carried out by all partners. All communication materials are available on the intranet. Please read below what we expect from you throughout the life of the project:

1. **Project presentation:** Use this template for your PowerPoint presentations. You can use this overview presentation as a basis to present the project.
2. **Participation in conferences:** When you submit a proposal for a workshop or any session in an external event, send the proposal to esther.corado@bsc.es
3. **Flyer:** Use this flyer to present the project.
4. **Conference posters:** Use this poster template if you draft a poster for a conference.
5. **Online events:** Use this background in online presentations and webinars. A Zoom tutorial on how to use virtual backgrounds is available here
6. **Website:** Add a link to the PerMedCoE website from your organisation's website along with a description of the project.
7. **Social media:** Follow @PerMedCoE on Twitter and LinkedIn, and like and share the project's social media posts. Post project-related content on social media using #PerMedCoE and/or tagging @PerMedCoE.
8. **Press releases:** All project-related press releases should be translated into your national language and launched among local contacts. Share any press mentions with WP4: permedcoe-wp4@bsc.es
9. **News:** The WP4 Dissemination leader will ask you to create technical news for the project website regularly (see Editorial Plan in the Intranet).
10. **Dissemination register:** All dissemination and communication activities have to be reported to the EC. Fill out the register provided by the WP4 dissemination team regularly.
11. **Publication guidelines:** 30 days prior to submission of a scientific paper, send the draft to esther.dorado@bsc.es. Include the PerMedCoE acknowledgement text in all your publications. For more information see our Publication guidelines.
12. **Communication officer / Community manager:** Share the contact of your communication officer with WP4: permedcoe-wp4@bsc.es or make sure you share project dissemination requests with your community manager at your organisation.

The PerMedCoE project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement No 951773

www.permedcoe.eu

Figure 2: Dissemination guidelines for partners

## 4.1. Corporate image

A common graphic identity in all dissemination tasks allows better visibility and recognition. All dissemination materials are consistent with the brand guide developed (colours, typography, composition, logo) and include the name, website, logo, and disclaimer of the PerMedCoE project. The WP leader will make sure that this brand is applied correctly.

### *Logo*

The logo was inspired by the twofold nature of the project (Table 5). The isotype is formed by a fingerprint with a microchip, which expresses the patient-specific medicine and HPC respectively. The square shape represents a centre and refers to the fact that PerMedCoE is a centre of excellence, and the European flag blue reminds of the European character of the project.

- **Complete logo**: This logo will be used preferably, as it contains the whole name of the project and makes the meaning of PerMedCoE clear.
- **Boxed logo**: This logo can be used for smaller-sized promotional material, where the title of the project would be too small to be legible.

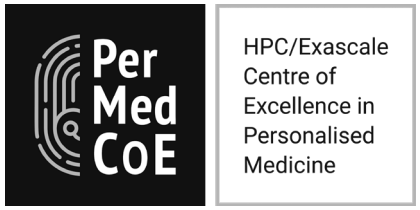
| | **Complete logo** | **Boxed logo** |
|---|---|---|
| Colour |  |  |
| Black & White |  |  |
| Negative |  |  |

Table 5: Variations of the PerMedCoE logo

### *Font*

The main project font defined is **Roboto**. It is an easy-to-read font and similar to the most commonly used fonts, such as Arial and Calibri. Thus, it is a font that feels natural

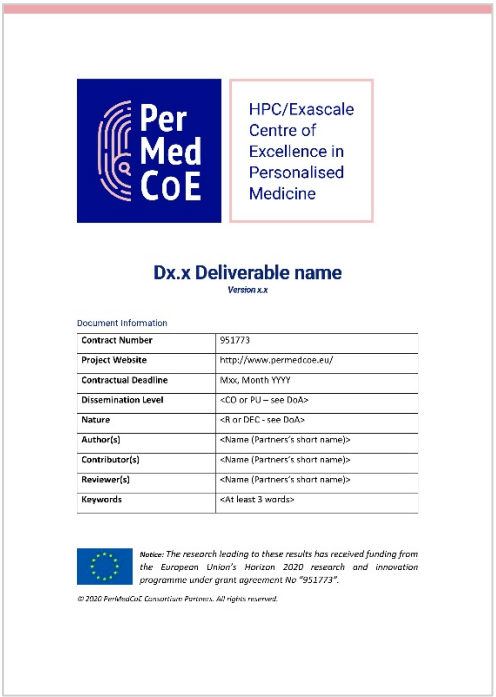
but it has its own character and gives PerMedCoE a brand. The brand font is used for the website and the presentation templates. However, to ensure better compatibility in the writing of deliverables and personalisation of the slides related to the project, Calibri is a secondary font that will be used for other project texts, such as deliverables.

### *Language*

The official language of the PerMedCoE project is **British English**. However, the dissemination material should be translated into the different partners' languages, where possible. Each partner should ensure that the material is adequately translated into the local languages, e.g. in the case of the press releases for the local media. Funding for this is not included in the dissemination budget.

### *Deliverable template*

WP4 prepared a template for all deliverables following the project's branding (Figure 3). The template is uploaded on the intranet for partners to use.


HPC/Exascale Centre of Excellence in Personalised Medicine

**Dx.x Deliverable name**

*Version x.x*

Document Information

| | |
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| **Contract Number** | 951773 |
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| **Contributor(s)** | <Name (Partners's short name)> |
| **Reviewer(s)** | <Name (Partners's short name)> |
| **Keywords** | <At least 3 words> |

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Figure 3: Deliverable template (first page)

### *Presentation template*

The presentation template is used in all presentations done by all partners and is included in the internal repository for all partners to use. This template provides design guidelines by defining common layouts, font sizes, etc. The presentation template is available in both Microsoft PowerPoint and Open Office (Figure 4). The files are available in the project's intranet.


Figure 4: PowerPoint presentation template (first slide)

### *Poster template*

The poster template is in PowerPoint format and is used in all poster presentations in different events. In addition to the most common portrait orientation, a landscape template has also been designed for virtual events, as it is easier to see on screen (Figure 5). It is a basic layout template which the partners fill in with different scientific and technical content depending on the presentation objective and audience. It is available in the internal repository for all partners to use.

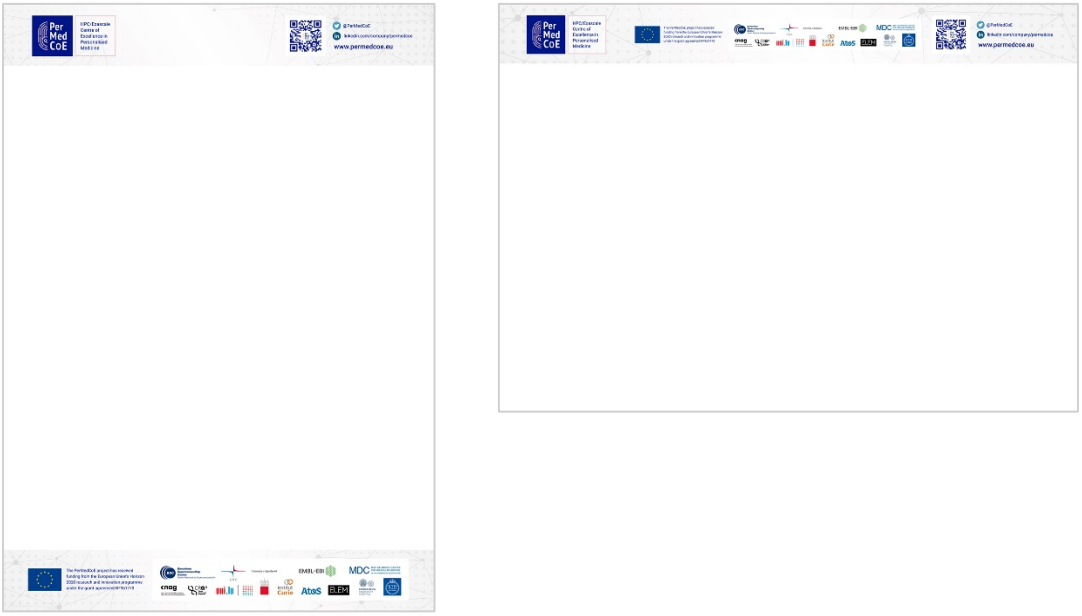

Figure 5: Poster templates

## 4.2. Publications

The dissemination team has reviewed the provisions of "The Guidelines on Open Access to Scientific Publications and Research Data" in Horizon 2020 and defined a strategy for knowledge management and protection. The team has also prepared appropriate publications guidelines that explain the EC publication and Open Access requirements. The guidelines were shared with all partners and are uploaded on the intranet.

The consortium is committed to providing at least "green" open access publications wherever feasible. Green open-access defines that the author, or a representative, archives (deposits) the published article or the final peer-reviewed manuscript in an online repository before, at the same time as, or after publication. Some publishers request that open access may be granted only after an embargo period has elapsed.

Green access allows beneficiaries to deposit the final peer-reviewed manuscript in a repository of their choice. They must ensure open access to the publication within 6 months at the most after publication to a third-party publisher. To provide support concerning compliance with Horizon 2020 embargo periods, the Commission offers a model amendment to publishing agreements, which are often signed between authors and publishers. This model is not mandatory but reflects the obligations of the beneficiary under the H2020 grant agreements. It can be supplemented by further provisions agreed between the parties, provided they are compatible with the Grant Agreement. The Commission/Agency takes no responsibility for the use of this model.

All publications from the project (publications, white papers, technical reports, etc.), as well as dissemination materials, have to include the following acknowledgement:

**The research leading to these results has received funding from the European Union's Horizon 2020 Programme under the PerMedCoE Project (www.permedcoe.eu), grant agreement n° 951773**.

## 4.3. Dissemination tools

In order to efficiently reach the targets for dissemination and to maximise the visibility of the project, a broad spectrum of communication channels and dissemination tools are used. The role of the dissemination tools and activities is to ensure that the different target audiences identified in the stakeholder analysis are aware of the PerMedCoE and the strategic relevance and impact of this project for Europe.

The public website and the social media channels (Twitter, LinkedIn and YouTube) are the first points of contact and play a significant role in dissemination followed by a carefully chosen list of scientific conferences, as well as the rest of the external communication tools.

### *PerMedCoE website*

The public website (Figure 6) plays a central role as it is the most important medium for disseminating the project's results and activities and it provides general information about the project objectives, current activities, publications and achievements. The website is designed to be responsive and can adapt to all commonly used devices: desktop screens, laptops, smartphones and tablets.

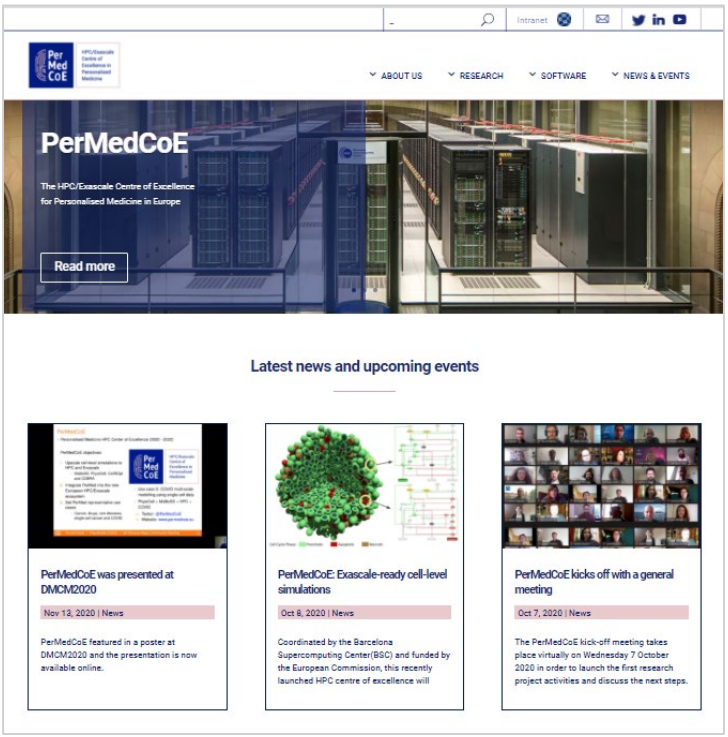


Figure 6: PerMedCoE website screenshot (homepage)

The WP4.2 task leader, in collaboration with WP4 dissemination team, is the primary person responsible for editing the website content, website deliverables, feedback and statistics.

The website will be regularly updated with information about the project's work, results and scientific publications. Furthermore, the latest and forthcoming events in which PerMedCoE researchers participate will be featured, together with the training sessions organised by the project. News pieces with either technical information about the project and reports of events and other dissemination activities undertaken will be published frequently. The website includes a page with a contact form and the project contact details.

A monitoring tool (Google Analytics) has been implemented in order to obtain relevant information about target audience behaviour and drive better decisions regarding the contents if necessary. This analytics tool helps the dissemination team to ensure dissemination effectiveness and results of monitoring will be included in deliverables D4.3 *First Dissemination, industry engagement and Training Report* (M18), and D4.4 *Final report on Dissemination, communication and industry engagement* (M36).

### *Social media*

Social media is important to boost dissemination activities as well as to engage the target audiences with the project. The dissemination team has selected two main social media channels: Twitter and LinkedIn, since they are the most frequently used by the targeted audiences. Both channels will be used, not only to disseminate key

messages and project information, but also to learn about the latest updates of technologies related to the project such as personalised medicine and HPC on the first instance, and trends in identified relevant sectors.

As requested in the Dissemination guidelines for partners (Figure 2), PerMedCoE experts contribute to the social media strategy by creating content and posting information to influence the scientific community. The relevant technical and project news posted on the PerMedCoE website are also shared and disseminated on the PerMedCoE social media in order to engage a wider audience.

Dissemination deliverables D4.3 *First Dissemination, industry engagement and Training Report* (M18), and D4.4 *Final report on Dissemination, communication and industry engagement* (M36) will include a detailed social media performance analysis.

A dedicated YouTube channel was set up as the main repository for sharing audiovisual content developed during the project, in particular for the webinar series done within T4.3 and T4.4. YouTube channels of the partners can also include links to certain videos in order to maximise their impact.

### Twitter

A PerMedCoE Twitter account was created (Figure 7). Twitter is a very popular social media channel, which we will use to reach most of our target audiences, particularly researchers in all relevant fields, research institutions, related projects and centres of excellence, professional and industry networks, policymakers, citizen organisations and the general public. In addition, we will use it as a platform to create synergies with other similar stakeholders and influencers in order to boost the impact of the project's dissemination activities.


Figure 7: PerMedCoE Twitter account screenshot

The most relevant hashtags to use are #PerMedCoE, #personalisedmedicine, #HPC, #Exascale and #precisionmedicine. These hashtags will be followed as well to keep track of the influencers, other HPC CoEs and projects related accounts (such as FocusCoE, ELIXIR, etc.).

Twitter Analytics will provide information about the account's performance to analyse the effect of and reaction to different communication activities, which will help improve our future actions.

### LinkedIn

A PerMedCoE LinkedIn company page was created for the project (Figure 8). It will be used to post project news and events, as well as content related to personalised medicine and HPC sectors such as conferences, events, calls, news and other information of interest. LinkedIn is a broad communication channel that we will use to engage with all target audiences in a professional capacity, especially to share technical discussions with industry-related stakeholders.

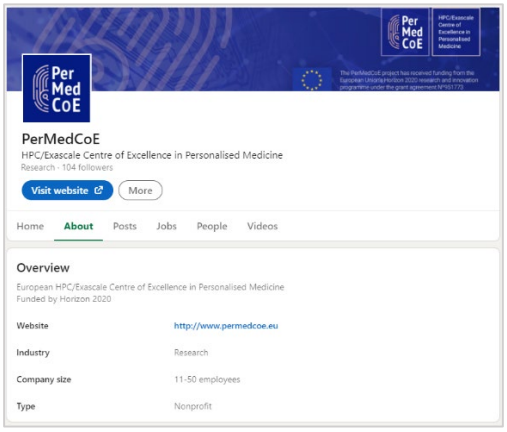


Figure 8: PerMedCoE LinkedIn account screenshot

The information on followers and visitors provided by LinkedIn Analytics will be used to evaluate the performance of the account and adapt the strategy during the project duration.

### *Dissemination pack*

### Brochure

The general PerMedCoE brochure (Figure 9) provides information about the PerMedCoE project, its objectives, applications and use cases. The format of the brochure is an A4 folded in a triptych. It is available on the PerMedCoE branding page and on the intranet so that interested project partners can easily download, print and distribute it in events and local actions for their own dissemination purposes.

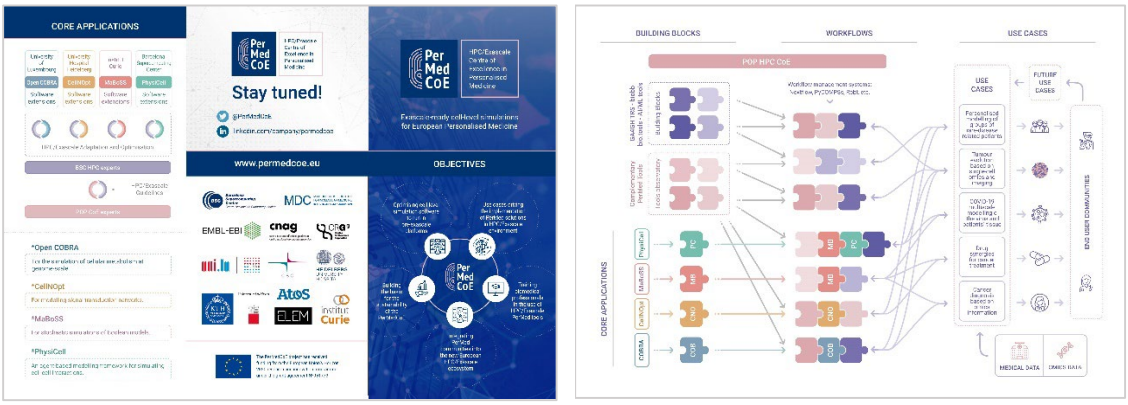


Figure 9: PerMedCoE brochure

## General overview presentation

A presentation with a general overview of the project has been designed to showcase the project's objectives, key messages and KPIs in an aligned fashion, regardless of the presenter (Figure 10). It will be used by all partners in dissemination activities in which the project needs to be presented for the first time to an audience.

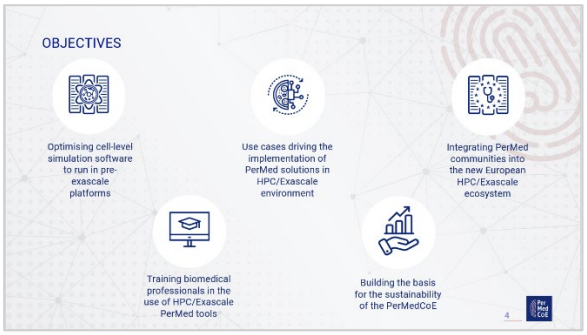


Figure 10: One of the slides of the PerMedCoE overview presentation

The presentation has been uploaded on the PerMedCoE intranet and it will be periodically updated when needed. A video of the presentation has also been uploaded to YouTube.

## Videos

Understanding that our society is increasingly consuming information by visual means, the dissemination team will produce at least one video to showcase the outcomes of the CoE.

As stated in Section 4.3.2, a dedicated YouTube channel was set up and it will be the main channel to share those dissemination videos together with webinars and all training activities, as well as recordings of online PerMedCoE presentations whenever possible.

## 4.4. Events

Attendance and presentations at high-level peer-reviewed conferences in the fields of HPC, bioinformatics and personalised medicine are important dissemination activities for the project. Presenting the latest updates of the project at such events, meetings or workshops will give visibility to the project and will facilitate its communication to researchers in diverse scientific fields, different types of companies, policymakers, professional communities, research institutions and other related projects. It is also an effective means of involving industry leaders in discussions about standards and procedures early on.

PerMedCoE will focus on two main conferences and exhibitions:

- **ECCB 2022**: The European Conference on Computational Biology is the main computational biology and bioinformatics conference in Europe. Its 2022 edition will be organised by BSC, which will facilitate PerMedCoE's active participation.
- **Supercomputing 2022**: The International Conference for High Performance Computing, Networking, Storage, and Analysis, is the main HPC forum in the world.

The list of targeted scientific events (Table 6) includes conferences, workshops and networks of excellence, where different activities can take place, e.g. poster presentation, conference proceedings, shared booth, etc.

The comprehensive reporting list of events where PerMedCoE has a presence will be included in D4.3 *First Dissemination, industry engagement and Training Report* (M18), and D4.4 *Final report on Dissemination, communication and industry engagement* (M36).

| **Event** | **Location and Date** |
|---|---|
| 5th Disease Maps Community Meeting (DMCM2020) | Online, 12 November 2020 |
| INCOME (INtegrative COllaborative Modelling in Systems MEdicine) | Online, 1 March 2021 |
| HMGU ChromeDesign Winter School | Online, March 2021 |
| VIZBI 2021 (International meeting on Visualizing Biological Data) | Online, 24 March 2021 |
| LifeTime Berlin (TBC) | TBC, June 2021 |

| | |
|---|---|
| ISMB-ECCB 2021 (Intelligent Systems for Molecular Biology-European Conference for Computational Biology) | Online, 25 July 2021 |
| JuliaCon 2021 | Online, 28 July 2021 |
| CMSB 2021 (International Conference on Computational Methods in Systems Biology) | Bordeaux, 22 September 2021 |
| SC21 (Supercomputing 2021) | St Louis (USA), 14 November 2021 |
| MEDICA 2021 | Düsseldorf, 15 November 2021 |

Table 6: List of relevant events

### 4.5. Press strategy

The press strategy will be consistent with the dissemination strategy and its objectives. As one of the most relevant dissemination activities, the press strategy will last for the complete duration of the PerMedCoE project.

Press releases are one of the most effective ways of communicating the existence and updates of the PerMedCoE project. They attract attention to the project's progress and its achievements. During the project, different press releases will be launched. The initial press release was published and shared with technical media on 8 October 2020, which resulted in 7 press clippings. It is the most important one because it defines the PerMedCoE project objectives as well as its working plan. Ideally, there should be another press release in the middle of the project to explain its progress, and another one at the end of the project, which includes the scientific results.

All press releases are included in the PerMedCoE website news page. Partners have the opportunity to include them on their institutional websites in order to increase the click rates and referrals (the first press release, for instance, was published on the BSC, CSC, UNILU, CNAG-CRG, and ATOS websites). In addition, all partners are encouraged to write press articles about PerMedCoE to be shared with local media channels.

Press releases will be shared with key technical media in the fields of HPC, computational biology, biomedicine and personalised medicine, in order to make the project visible to the appropriate audiences targeted in the stakeholder analysis. Some examples would be HPCwire, Scientific Computing World, Science Daily, GEN Genetic Engineering & Biotechnology News, BioTechniques News, Healthcare IT Analytics, News Medical or MedCity News.

## 4.6. Website news

News pieces about the technical work carried out by the consortium and the project outcomes, as well as events and dissemination activities that partners participate in, will be published on the PerMedCoE news page on a regular basis. An editorial calendar was produced and shared with the consortium to encourage the partners to write and publish technical news in a regular manner. Editorial guidelines on how to write technical news for the PerMedCoE website as well as social media guidelines for relevant posts were created and shared with all partners. These pieces are shared on the website and social media channels in order to raise awareness about the project and grow the PerMedCoE community.

# 5. Industry engagement

As a Centre of Excellence, PerMedCoE aims to act as a reference for the HPC and Personalised Medicine community and industry by offering access to HPC/Exascale adapted and optimised software simulations of intra- and inter-cellular systems, as well as complementary AI/ML strategies. For this purpose, ensuring that the knowledge gathered and produced within the project is effectively shared to the relevant industrial stakeholders is key to guarantee its impact. It is also essential to engage with these groups for gathering valuable feedback for other WPs and Tasks within PerMedCoE.

According to the work plan, Task 4.3 *Engagement with the industry community* will focus on the creation of a community of interest composed by industry representatives who may adopt the PerMedCoE services. To do so, the task has and will continue to leverage the work and output of other tasks as it is shown in Table 7.

In the same way that other tasks serve as an input for the development of activities envisioned within T4.3, the execution of interviews with industry representatives will support some specifics of WP5 *Privacy & Sustainability*, especially for understanding the needs and expectations of potential end-users which will be essential for the definition of the sustainability plan within T5.3 *Sustainability and business development*.

The establishment of strong relations with key industrial stakeholders and gathering feedback from them in terms of business and commercial goals contributes directly to the definition of realistic and strong value proposition and business models considering the market and their expectations.

| Task | Relation to T4.3 | Actions performed between M1-M5 | Actions for upcoming months/lifetime of the project |
|---|---|---|---|
| **T4.1 - Stakeholder and training needs analysis, including user profiling** | T4.3 leverages the list of stakeholders and the analysis of their relationship with PerMedCoE according to their current and potential, interest and power on the stakeholder map. | Preliminary identification of industrial stakeholders within the stakeholders' map presented in Section 3 and contacts within the list included in Annex I | • Continuous mapping and enlargement of the list of industrial individuals and contacts by category + Reporting<br>• According to their specific profile, the involvement of industrial individuals on activities organised by PerMedCoE (workshops/webinars/interviews) |
| **T4.2 - Dissemination and communication within the HPC and PerMed community** | T4.3 leverages the dissemination and communication channels and tactics set, in order to promote the activities organised and engage with stakeholders with the content that is produced and shared through those channels | Identification of potential channels and tactics to maximise the impact and engagement (e.g. newsletter) | • Provide information and content about the activities organised for appropriate promotion on project website, social media, emailing, etc.<br>• Provide recordings of webinars and virtual workshops to feed the project YouTube Channel |

| | | | |
|---|---|---|---|
| **T6.2 - Strategic alignment with running CoEs and other PerMed initiatives** | T4.3 leverages the liaison established with other CoEs and initiatives at community engagement level to maximise the reach of activities organised by PerMedCoE, identify potential opportunities for joint activities, and involve the Scientific Advisory Board (SAB), among others. | Identification of potential synergies between the tasks.<br><br>Identification of potential engagement actions involving the SAB, as it is integrated by members of the HPC and Pharmaceutical-related Industry, a National PerMed initiative, a pan-European infrastructure, a software provider, and an Ethics expert, representing potential end-users of PerMedCoE results. | • Organise a first round of interviews with the SAB<br>• Organise joint workshops and/or webinars with related CoEs and initiatives<br>• Get support from the SAB to maximise the reach of industrial stakeholders |

Table 7: Relation of T4.3 with other tasks

For effectively engaging with the industrial community and share the progress and results achieved by the project, PerMedCoE has defined a three-phased approach, considering not only the work plan from WP1-WP3 and its estimated milestones, but also the content strategy and its relation to the stakeholder map produced within T4.1.

It is worth mentioning that the activities organised within this task will tackle primarily industrial stakeholders and potential user groups presented on Table 1 and Table 4 of this deliverable such as:

| **Stakeholder category** | **Working definition** |
|---|---|
| Bioinformaticians | Researchers in the field of genomic/other omic and health-related data analysis with no experience in modelling |
| Biomedical researchers | Experimental researchers working in fields related to personalised medicine with no experience in modelling |
| Clinicians | Healthcare professionals using omics and other health-related data for diagnosis and treatment |

| | |
|---|---|
| Researchers with experience in modelling tools | Computational and/or biology researchers working in the field of Systems Biology, especially the ones working with cell-level simulations |
| Computer Science, HPC community | Community of computer scientists and software engineers who contribute to solving problems in Life Sciences fields, including HPC centres (not part of PerMedCoE) |
| Technological providers and IT companies | Companies that provide technological services or produce hardware components that will be used within PerMedCoE |
| Pharma and diagnostic companies | Pharmaceutical companies and those involved in the developments of diagnostics tools |
| SMEs, spin-offs | Companies working in healthcare products, services and data analysis |
| Industry associations and communities | Networks involving industry interested in the following fields: personalised medicine, genomics, HPC, computational modelling |
| Centres of Excellence (CoE) | EU funded centres of excellence for computing applications |
| Sequencing initiatives | Initiatives that sequence certain populations or groups of patients |
| Hospitals | Hospitals that perform genomic/other omic or other health data analysis for research, diagnosis and/or treatment |

Table 8: Industry related stakeholders

The first four categories included in Table 8 refer to a professional profile, not an organisation. In relation to the industry engagement plan, we will focus on individuals matching those profiles that work in the industry. Specific examples can be found on Section 7.1. Moreover, sequencing initiatives and hospitals are considered into the stakeholders to be reached within this plan since they are potential user groups that can benefit from using PerMedCoE applications.

In the case of other Centres of Excellence, their involvement in this list is mainly because collaboration is expected to maximise the reach of industrial contacts while also identifying strong synergies that could benefit our work and positioning.

Figure 11 shows a comprehensive view of each one of the phases, duration, industry stakeholders, among others.

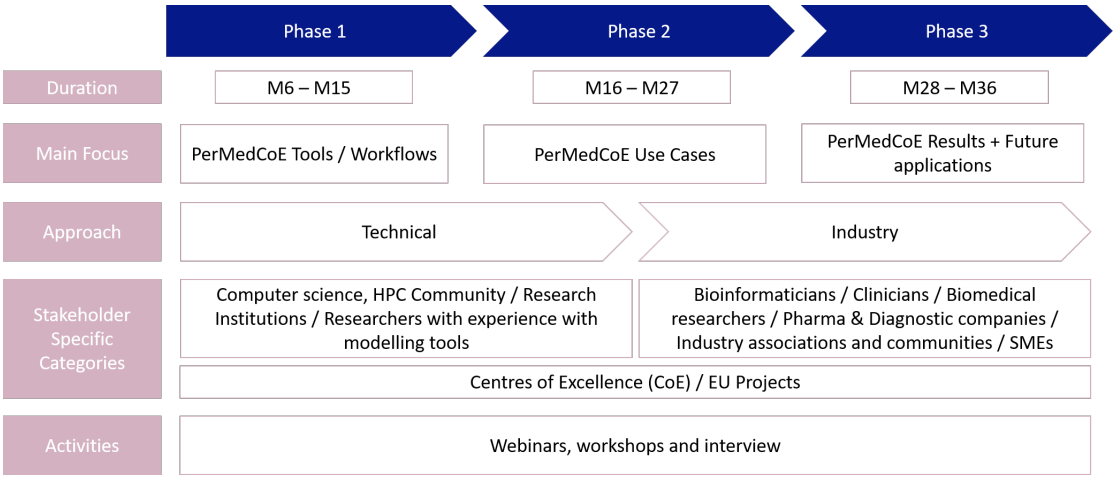


Figure 11: Industry engagement strategy

The reasoning behind the three phases goes together with the evolution and progress expected from the project. During Phase 1, there will be scarce project results available to show and engage with potential end-users. Conversely, in Phase 3 the situation will be completely different as it is foreseen to have solid results from both the technical development and the validation on specific use cases. Hence, it will be more feasible to approach end-users and get them interested in the project.

Therefore, the strategy will move from a technical approach, considering the industrial stakeholder groups which currently have high interest and power in relation to PerMedCoE, towards a more commercial and industrial approach based on the results generated. The contacts and relationships established during all phases will contribute to the sustainability of the Center of Excellence.

During **Phase 1**, spanning from April to December 2021, the focus is to share how PerMedCoE is refactoring, reimplementing, adapting and optimising core applications (openCOBRA, CellNOpt, MaBoSS, and PhysiCell) to run in HPC/Exascale environments, and how it is expected that these processes benefit different stakeholders, also considering the extension of functionalities of these applications. Another important component for this phase is the development of the PerMedCoE workflows in HPC/HPDA for addressing use case requirements while providing scalability and efficiency to deploy workloads across HPC/Exascale infrastructures for cell-level simulations using other novel technologies.

Consequently, the stakeholders within the industry to be reached during this phase include, but are not limited, to the following categories taken from Table 1: computer science, HPC community, research institutions investigating topics related to PerMedCoE, and researchers with experience in modelling tools.

**Phase 2**, that will run approximately from January to December 2022, will be devoted to sharing the value of PerMedCoE and the software developed through its application on the five use cases defined. Besides the workshops, webinars and interviews that T4.3 will execute, it will be fundamental to produce relevant content within T4.2 that highlights the main benefits of PerMedCoE tools and workflows on these scenarios.

Given that for this phase it would be potentially possible to demonstrate the application of technologies on real-life scenarios, the approach will become more commercial based on how the results available meet industrial stakeholders needs.

In terms of stakeholders, the ones previously described are foreseen to be reached together with other groups of stakeholders, also described in Table 1: Bioinformaticians, clinicians, biomedical researchers, pharma & diagnostic companies, industry association and communities, SMEs and others within the industry.

Finally, **Phase 3** will comprise the last months of the funding period in 2023. In this phase, the tone and main messages foreseen to be shared to the stakeholders mentioned on the previous paragraph, and to any other relevant stakeholders identified while conducting the activities outlined in this plan, will focus on PerMedCoE general results, its application to the five use cases, as well as other potential applications to other use cases based also on the input gathered from the T4.3 activities. In this phase, more diverse activities will take place in terms of demos, tutorials, etc.

As it has been mentioned, different categories of industry stakeholders are envisioned to be engaged in each phase. Nevertheless, this does not mean that the activities will be limited only to these groups, as the concept of “engagement” is very broad and PerMedCoE is expected to engage with different types of audience also through various strategies and channels implemented by T4.2 as it is described in Table 7. In addition, due to the nature of PerMedCoE, there are two categories from which it is expected not only to engage but to actively collaborate throughout the whole life of the project: other CoEs and related EU funded research projects.

According to the main objectives of the Engagement with the industrial community task, two main groups of activities are foreseen to be executed throughout the lifetime of the project:

- Workshops/webinars: Organised by PerMedCoE and/or in collaboration with other CoEs, in order to keep industry stakeholders informed about the project progress. These can be held either face-to-face, hybrid or online given the current restrictions of COVID-19. The webinars described in this engagement with the industry plan have the aim of sharing PerMedCoE progress and results among specific stakeholders and industry representatives who may adopt PerMedCoE services.

- Interviews: 1:1 interviews with selected industrial stakeholders for gathering feedback and elicit business requirements for WP5.

Figure 12 and Figure 13 show the roadmap put in place to successfully hold workshops, webinars, and interviews.

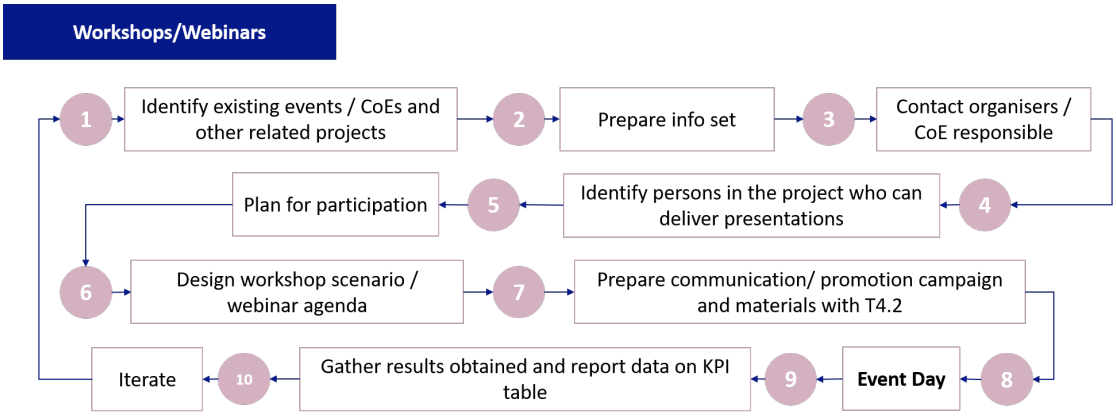


Figure 12: Workshops and webinars for industry

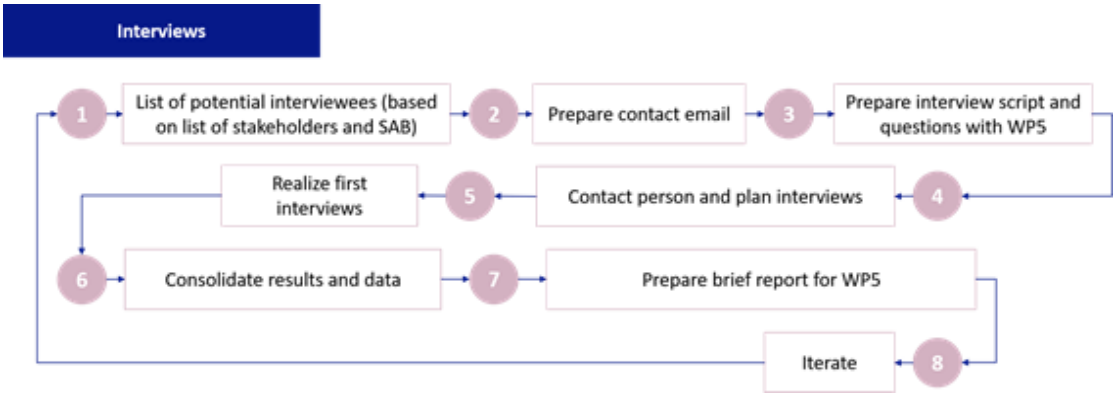


Figure 13: Interviews to selected industrial stakeholders

The timeline for the execution of the aforementioned activities considered within T4.3 is being established together with the milestones and expected progress of the project, the availability of experts within the consortium, external events where it is possible to co-locate a workshop, the availability of other CoEs and their internal schedule, among many other factors. In addition, a factor that directly impacts the number and/or format of activities planned within T4.3 is the evolution of the COVID-19 pandemic and the different restrictions and regulations in place at national and international level. Nonetheless, the timeline and planning of workshops, webinars and interviews will be done by having in mind the relevant KPIs presented on the proposal and included in this deliverable in Table 9.

To report the status of achievement of the KPIs, the team responsible for T4.3 will keep track of individuals, companies, institutions, etc., participating in and/or joining

PerMedCoE engagement activities. These will be properly documented on D4.3 *First Dissemination, industry engagement and Training Report* (M18) and D4.4 *Final report on Dissemination, communication and industry engagement* (M36), taking into account the anonymisation of personal details for data protection reasons.

# 6. Key performance indicators

All dissemination and industry engagement activities are carefully monitored. Table 9 summarises the Key Performance Indicators (KPIs) included to guarantee a good impact of those activities. They will be monitored frequently and revised yearly, as they might change or evolve based on the project progress.

| KPI | Explanation | Total Target (M36) |
|---|---|---|
| **First visits to the project website**[2] | Web analysis of the project website's first visits | 500 visits/month in the first year<br>1,000 visits/month in the last year |
| **Twitter engagement** | See the effectiveness of the community and its engagement with the online channels, understanding engagement rate as "the number of clicks, retweets, replies, follows and likes divided by the total number of impressions". Regular engagement and updates are needed to increase reach on social media channels | 0.3% increase in engagement rate by the end of the project |
| **Number of new user communities engaged** | The stakeholder map (see Section 3) helps to identify user communities (understood as stakeholder groups or subsections of them sharing specific interests and needs regarding PerMedCoE) to whom we will reach out, and the CoE will tailor training activities to them | Engagement (attendance) of reps from 8 user communities outside the consortium in training and dissemination events |
| **Number of stakeholders reached and engaged** | A person representing a company or organisation corresponding to one of the stakeholder categories defined in this deliverable | At least 20 different organisations |

Table 9: List of KPIs

[2] Please note that the terminology of some parameters has been changed in the new Google Analytics 4. The proposal's KPI "Unique visitors" (unduplicated visitors to a website) has been replaced here by the new parameter "First visits" (first visits from a given client / user ID).

# 7. Annexes

## 7.1. Individual stakeholders identified with their corresponding category

Table 10 below lists all the stakeholders identified through the surveys and meetings with the partners. The stakeholders were organised in 23 general categories that were used in the stakeholder analysis presented in Section 3 of this document. In this table, each individual stakeholder is mapped to one of the 23 categories.

| **Name of stakeholder** | **Stakeholder category** |
|---|---|
| ATOS - ATOS SPAIN SA | Partners |
| BSC - Barcelona Supercomputing Center | Partners |
| CRG - Fundació Centre de Regulació Genòmica | Partners |
| CSC - IT Center for Science | Partners |
| ELEM Biotech S.L. | Partners |
| EMBL-EBI - European Molecular Biology Laboratory - European Bioinformatics Institute | Partners |
| IC - Institut Curie | Partners |
| IRB Barcelona - Institute for Research in Biomedicine[3] | Partners |
| KTH - Kungliga tekniska högskolan | Partners |
| MDC - Max Delbruck Center for molecular medicine | Partners |
| UKHD - Universitaetsklinikum Heidelberg | Partners |
| UL - University of Ljubljana | Partners |
| UNILU - University of Luxembourg | Partners |
| Agència per la Competitivitat de l'Empresa | Funders |
| AGAUR - Catalan Agency for Management of University and Research Grants | Funders |

[3] IRB Barcelona is a third-linked party through BSC. In the general classification of the stakeholders, we consider it a partner because they will actively participate in PerMedCoE.

| | |
|---|---|
| AstraZeneca | Pharma & diagnostics companies |
| BIST - Barcelona Institute for Science and Technology | Research infrastructures |
| Beyond 1M Genomes | EU H2020 projects |
| BDVA - Big Data Value Association | Industry associations and communities |
| BioCreative | Professional networks and communities of practice |
| BioExcel - CoE for Computational Biomolecular Research | Centres of Excellence (CoE) |
| BIB - Bioinformatics Barcelona | Professional networks and communities of practice |
| CDTI - Centre for the Development of Industrial Technology | Funders |
| CINECA - Common Infrastructure for National Cohorts in Europe, Canada, and Africa | EU H2020 projects |
| CoLoMoTo - Consortium for Logical Models and Tools | Professional networks and communities of practice |
| CompBioMed - CoE for Computational Biomedicine | Centres of Excellence (CoE) |
| EASI Genomics | EU H2020 projects |
| ENS - École Normale Supérieure Paris | Universities |
| EIT Health - European Institute of Innovation & Technology, Health community | Professional networks and communities of practice |
| ELIXIR | Research infrastructures |
| ELIXIR Bioinformatics Industry Forum | Professional networks and communities of practice |
| ELIXIR German node - RNA Expert Center | Professional networks and communities of practice |
| ELIXIR Luxembourg | Research infrastructures |

| | |
|---|---|
| ELIXIR Spain | Research infrastructures |
| ELLIS - European Laboratory for Learning and Intelligent Systems | Professional networks and communities of practice |
| EMBL – European Molecular Biology Laboratory | Research institutions |
| EOSC-Hub - European Open Science Cloud Hub | EU H2020 projects |
| EOSC-Life - European Open Science Cloud Life | EU H2020 projects |
| ETP4HPC - European Technology Platform for High Performance Computing | Industry associations and communities |
| EUDAT Collaborative Data Infrastructure | Research infrastructures |
| EU-Life - European Alliance of Research Centres of Excellence in the field of Biomedicine | Professional networks and communities of practice |
| European Commission | Funders |
| EGA - European Genome-Phenome Archive | Research infrastructures |
| ECPC - European Cancer Patient Coalition | Citizens' organisations |
| European Patients Forum | Citizens' organisations |
| AI4EU - European Union for Artificial Intelligence | EU H2020 projects |
| EXCELLERAT - CoE for Engineering Applications | Centres of Excellence (CoE) |
| EXDCI - European eXtreme Data and Computing Initiative | EU H2020 projects |
| EXSCALATE - Exascale Smart Platform Against Pathogens | EU H2020 projects |
| FairData.fi | Research infrastructures |
| FIMM - Finnish Institute for Molecular Medicine | Research institutions |
| Focus CoE | Centres of Excellence (CoE) |
| France Médecine Génomique | Professional networks and communities of practice |

| | |
|---|---|
| Fujitsu | Technological providers & IT companies |
| GA4GH - Global Alliance for Genomics and Health | Professional networks and communities of practice |
| Genopole France | Research infrastructures |
| DE.NBI - German Network for Bioinformatics Infrastructure | Research infrastructures |
| HiDALGO - CoE HPC and Big Data Technologies for Global Systems | Centres of Excellence (CoE) |
| Children's Hospital of Eastern Ontario (CHEO) Research Institute | Hospitals |
| Hospitals (France) | Hospitals |
| Hospitals (Spain) | Hospitals |
| Hospitals (Sweden) | Hospitals |
| HPC centres | Computer science, HPC community |
| Huawei | Technological providers & IT companies |
| INFORE - Interactive Extreme-Scale Analytics and Forecasting | EU H2020 projects |
| IMI - Innovative Medicines Initiative | EU H2020 projects |
| IDIBAPS - Institut d'Investigacions Biomèdiques August Pi i Sunyer | Research institutions |
| ISCIII - Instituto de Salud Carlos III | Research institutions |
| ICGC - International Cancer Genome Consortium | Professional networks and communities of practice |
| ISCB - International Society for Computational Biology | Professional networks and communities of practice |
| iPC Project - Individualized pediatric cure | EU H2020 projects |

| | |
|---|---|
| Janssen | Pharma & diagnostics companies |
| Karolinska Institutet | Research institutions |
| LENOVO | Technological providers & IT companies |
| LifeTime | EU H2020 projects |
| LS-RIs communities | Professional networks and communities of practice |
| LUMI - Large Unified Modern Infrastructure consortium | EU H2020 projects |
| Megeno s.a. (UNILU spin off) | SMEs, spin-offs |
| NKI - Netherlands Cancer Institute | Research institutions |
| Nextflow / Seqera (CRG spin off) | SMEs, spin-offs |
| NEXTGenIO - Next Generation I/O for the Exascale | EU H2020 projects |
| NIUM s.a.r.l. (UNILU spin off) | SMEs, spin-offs |
| Non-EU H2020 projects | Professional networks and communities of practice |
| NTNU - Norwegian University of Science and Technology | Universities |
| NVIDIA | Technological providers & IT companies |
| PCAWG - Pan-Cancer Analysis of Whole Genomes | Professional networks and communities of practice |
| POP - CoE in Performance Optimisation and Productivity | Centres of Excellence (CoE) |
| PRACE - Partnership for Advanced Computing in Europe | Research infrastructures |
| EURORDIS - Rare Diseases in Europe | Citizens' organisations |
| Sanofi | Pharma & diagnostics companies |

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| SCOG - Single-cell Omics Germany | Professional networks and communities of practice |
| Servier | Pharma & diagnostics companies |
| Software developers | Computer science, HPC community |
| CNIC - Spanish National Center for Cardiovascular Research | Research institutions |
| AEI - Spanish Research Agency | Funders |
| SeRC - Swedish e-science Center | Research institutions |
| TransBioNet - Spanish Translational Bioinformatics Network | Professional networks and communities of practice |
| UPF - Universitat Pompeu Fabra | Universities |
| UCL - University College London | Universities |
| Uppsala University | Universities |

Table 10: Individual stakeholders identified by category

## 7.2. Information about stakeholder categories

Table 11 below contains information about the 23 stakeholder categories defined in the stakeholder analysis. It includes what is important for each stakeholder in relation to PerMedCoE and how they can influence its progress. The last column defines the pain points of the most relevant target groups for PerMedCoE activities.

| **Stakeholder category** | **Working definition** | **What is important to the stakeholder?** | **How can the stakeholder contribute to the project?** | **How can the stakeholder block the project?** | **Pain Points** |
|---|---|---|---|---|---|
| Partners | Institutions or companies who are part of the PerMedCoE consortium | To progress in the project in the directions planned in the project proposal | By carrying out the tasks assigned to them in the project | By not carrying out the tasks assigned to them | |
| Bioinformaticians | Researchers in the field of genomics/other omics and health-related data analysis with no experience in modelling | To learn to use modelling tools that can be applied to research to uncover hidden mechanisms | By applying the tools of the CoE to data from research/clinical setting, and by training other bioinformaticians | By not adopting the tools | Lack of knowledge of modelling tools and/or on how these may help to enrich their research |
| Biomedical researchers | Experimental researchers working in fields related to personalised medicine with no experience in modelling | To understand where modelling tools can be applied to their research to extract meaningful data | By providing data in a secure way, by explaining their needs where PerMedCoE can be helpful and by providing feedback whether the products of the CoE are useful in their research | By not being able to provide/obtain data to be applied in the context of PerMedCoE | Lack of awareness/knowledge of modelling tools. Lack of background to understand how to apply those tools. No experience in access to HPC clusters |

***Notice:*** *The research leading to these results has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No "951773".*

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|---|---|---|---|---|---|
| Clinicians | Healthcare professionals using omics and other health-related data for diagnosis and treatment | To understand where modelling tools can be applied to their work to extract meaningful data for their patients | By providing data in a secure way, by explaining their needs where PerMedCoE can be helpful and by providing feedback whether the products of the CoE are useful in their research. By annotating the data with rich clinical metadata. By being advocates of the modelling tools | By not being able to provide/obtain clinical data to be applied in the context of PerMedCoE | Store and share data in a secure way and respecting patients rights<br><br>Lack of awareness/knowledge of modelling tools that could help improve the diagnosis and treatment of their patients |
| Researchers with experience in modelling tools | Computational and/or biology researchers working in the field of Systems Biology, especially the ones working with cell-level simulations | To have HPC pipelines/tools that allow them to process research/clinical data | By testing the products of the CoE in a showcase, and by training Biomedical researchers in computational biology. By bridging the gap between HPC community and bioinformaticians in terms of language/use | By not testing the CoE tools or not providing feedback on their testing experience | Lack of awareness on ways to access HPC clusters. |
| Computer science, HPC community | Community of computer scientists and software engineers who contribute to solving problems in Life Sciences fields, including HPC centres (not part of PerMedCoE) | Advances regarding HPC and exascale that come out of PerMedCoE | By collaborating with the project, providing feedback, sharing knowledge. By sharing advances regarding HPC and exascale that come out of other projects | By not engaging with the project | Computational biology research and simulations in biomedicine are not (yet) popular topics of research in the HPC area |

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| Technological providers & IT companies | Companies that provide technological services or produce hardware components that will be used within PerMedCoE | To understand the technical requirements for the project's tools | By producing hardware to be used within PerMedCoE. By presenting use cases where co-design has been applied. By informing about the technical specifications of hardware that can be useful to optimise the performance of some PerMedCoE tools | If a company is the single one producing a specific technological solution needed for the project | Lack of synergies and partnerships with the ecosystem of the healthcare and life science industry |
| Pharma & diagnostics companies | Pharmaceutical companies and those involved in the developments of diagnostics tools | Tools that come out of the project and could add value to their products | By discussing with PerMedCoE about their needs in relation to the project's goals, by adopting PerMedCoE tools | By not interacting with PerMedCoE, by not adopting the tools | Access to modelling tools for cell simulations |
| SMEs, spin-offs | Companies working in healthcare products, services and data analysis | Tools that come out of the project and could add value to their products | By discussing with PerMedCoE about their needs in relation to the project's goals, by adopting PerMedCoE tools | By not interacting with PerMedCoE, by not adopting the tools | Access to modelling tools for cell simulations |
| Industry associations and communities | Networks involving industry interested in the following fields: personalised medicine, genomics, HPC, computational modelling | Results and applications that come out of the project. Events organised by the project | By adopting the tools, participating in training and dissemination activities, providing feedback | By not interacting with the project or adopting the tools developed within PerMedCoE | |

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| Professional networks and communities of practice | European and broader initiatives that connect professionals in the fields of personalised medicine, biomedical research or computer sciences to share knowledge and procedures, and agree on standards (e.g. CoLoMoTo, GA4GH) | Tools, use cases and guidelines that can be used for their work. Adoption of their work (standards, etc.) in PerMedCoE to reach a wider/different audience. | By adopting and disseminating the tools and providing feedback. | By not adopting the tools and not interacting with PerMedCoE | |
| Sequencing initiatives | Initiatives that sequence certain populations or groups of patients | Tools that come out of the project and can be used with their data. Usage of their data in other projects/communities at which it would not typically aim | By discussing with PerMedCoE about their needs in relation to the project's goals, by adopting PerMedCoE pipelines and best practices, by providing data | By not interacting with the project, not providing data, not adopting the best practices and pipelines and hindering the use of their data in PerMedCoE | Lack of knowledge/usage of modelling tools<br><br>Lack of awareness on the needs of the workflows developed in PerMedCoE for the data they generate |
| Centres of Excellence (CoE) | EU funded centres of excellence for computing applications | To have areas of synergy with PerMedCoE | By engaging in collaborations with PerMedCoE, disseminating PerMedCoE activities, providing feedback | By not collaborating with PerMedCoE, not disseminating its activities | |
| EU H2020 projects | EU funded projects in the areas of personalised medicine, healthcare data analysis | To have areas of synergy with PerMedCoE | By engaging in collaborations with PerMedCoE, disseminating PerMedCoE activities, providing feedback | By not collaborating with PerMedCoE, not disseminating its activities | |

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| Hospitals | Hospitals that perform genomics/other omics or other health data analysis for research, diagnosis and/or treatment | Tools and applications that can benefit patients in terms of diagnosis and/or treatments | By adopting the tools, participating in training and dissemination activities, providing data, providing feedback | By not collaborating with the project, engaging with it or adopting the tools developed within PerMedCoE | Access to modelling tools<br>Lack of awareness of the possibilities with modelling tools |
| Research infrastructures | Facilities that provide resources and services for research communities related to life sciences, human health and data analysis, e.g. ELIXIR, PRACE, EATRIS | Results and applications that come out of the project. Events organised by the project | By engaging in collaborations with PerMedCoE, providing access to their infrastructures, disseminating PerMedCoE activities, providing feedback | By not interacting with the project or adopting the tools developed within PerMedCoE | |
| Research institutions | Institutions (other than partners) that perform research in the following fields: personalised medicine, genomics, HPC, computational modelling | Results and applications that come out of the project. Events organised by the project | By adopting the tools, participating in training and dissemination activities, providing feedback, collaborating with the project | By not interacting with the project or adopting the tools developed within PerMedCoE | |
| Universities | Universities with study and research programmes in life sciences, data analysis and computer science | To have products of the CoE that can be disseminated to their students and/or to their researchers | By disseminating the CoE products among their networks, including in the regular studies | By not interacting with PerMedCoE, not adopting or disseminating its tools | |

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|---|---|---|---|---|---|
| Funders | The EU commission and other bodies that fund the partners within the consortium | That the project advances and complies its objectives | Providing funding and support | By not providing / blocking funding | |
| Policymakers | European, national and regional governing bodies in the areas of healthcare, science, innovation and technology | Results and applications that come out of the project | By promoting computational research for healthcare applications | By discouraging funding, not considering the CoE outcomes significant | |
| Media | General and specialised media interested in science topics | To see results or content that can be interesting to disseminate | By disseminating the CoE activities and products | By not endorsing and disseminating the CoE activities | Lack of awareness about personalised medicine |
| Citizens' organisations | Organisations that can be interested in the advances of personalised medicine, e.g. patients organizations | To have results and tools that can be applied for the benefit of patients in a demonstrated safe way | By endorsing the CoE | By not endorsing the CoE goals | Lack of awareness about personalised medicine |
| General public | | Advances in personalised medicine that can benefit anyone | By endorsing the CoE | By not endorsing the CoE goals | Lack of awareness about personalised medicine |

Table 11: Stakeholder categories

# Acronyms and Abbreviations

- PerMedCoE – HPC/Exascale Centre of Excellence in Personalised Medicine
- AI – Artificial Intelligence
- CoE - Centre of Excellence
- D – Deliverable
- EC – European Commission
- EU – European Union
- HPC – High Performance Computing
- HPDA – High Performance Data Analysis
- IT – Information Technology
- KPI – Key Performance Indicator
- M – Month
- ML – Machine Learning
- PM – Person month
- PU – Public
- R – Report
- SAB – Scientific Advisory Board
- SME – Small and Medium-sized Enterprises
- T – Task
- V - version
- WP – Work Package

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