Applicant: Guillermo Marqueta-Siibert

A. YOUR QUICK PITCH

We want to generate buzz for every great proposal. So, we are offering an introductory section, where you get to provide a broad overview of your solution. We may reveal this information to the public, to other potential funders, and to key opinion leaders (KOLs) in healthcare and IPF. Make sure that your Quick Pitch requires no other context. This is your chance to leave a strong first impression.

EXECUTIVE SUMMARY: ONE SENTENCE (25 words)

Provide a single sentence description of your proposed solution.

The IPF AirMap combines pollution mapping and locations of IPF density to provide key environment insights to the matrix for early detection and prevention.

EXECUTIVE SUMMARY: PARAGRAPH (150 words)

Provide a summary of the most compelling aspects of your solution. Keep your summary to one paragraph. We may use this content to describe our most promising applicants on our website.

To find the genesis of an idiopathic disease it is necessary to look at all factors, from genetics to micro-biome. Our partner Hospital Bellvitge leads studies on IPF genetics and clinical trials investigating the effects of diet on anti-fibrotics; funded with €1.5m. We now aim to analyze effects of pollution.

The World Health Organization has reported 1 in 8 of total global deaths are caused by air pollution. The maps at pollution.org show contaminant distribution worlwide.

Pollution map

We propose to further develop our platform to combine the IPF patient database of pathology, symptoms, and location, with maps indicating possible relationships with the pollutants in those areas.

The mapping technology we use has a resolution of 1 km, so we can target specific areas to carry out an precise screening for possible cases of IPF.

VIDEO PITCH

This is your opportunity to make a personal connection with our judges or to market your solution to an external audience. You are asked to submit a video presentation, which captures your commitment to your proposal. You will upload a short digital film – your Video Pitch must follow these guidelines:

- Do not exceed 90 seconds.
- One or two person(s) should present himself and/or herself during the video (make it authentic).
- Focus on delivering a personal connection; it is not necessary to produce a sophisticated video.
- Your pitch must be in English.

Here are some logistical and technical suggestions:

- Laptop cameras and smart phones are easy-to-use tools for recording your video.
- Laptop or desktop computers can typically record video through Skype or other software.
- If possible, reduce your file size - video uploading is easier at lower resolutions.
- If you are having difficulty uploading your video file, try logging out of the application and logging back in using another Internet browser (Google's Chrome browser is preferred).

Here are general suggestions for delivering a high-quality video pitch:

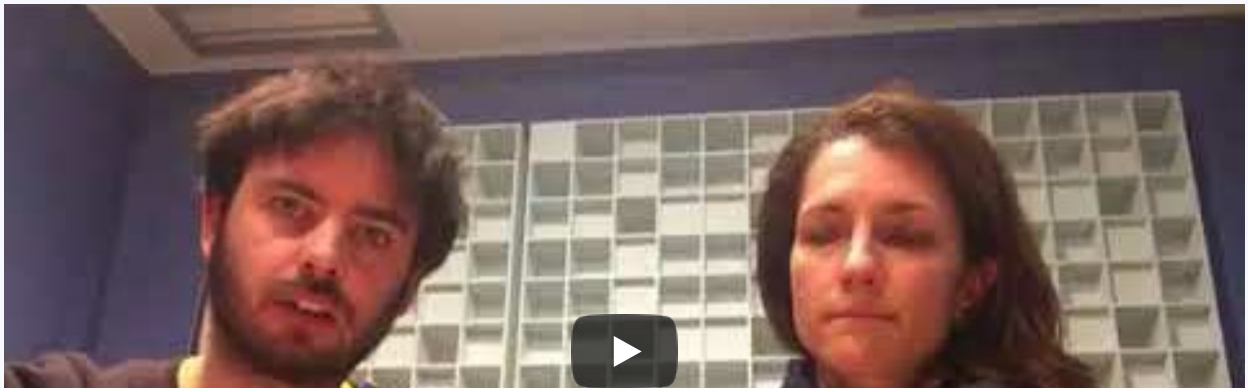
- Introduce yourself and your organization.
- What is your proposed solution?
- What is unique about your team and technical approach?

Hone your content:

- Keep your description and language simple.
- Demonstrate passion through your words and enthusiasm.
- Thoroughly prepare.

Practice numerous times and solicit feedback from colleagues, family, and friends before submitting. You will record your video and upload to YouTube; then, you will enter your YouTube Video ID.

View in new full window



B. YOUR TEAM

The following information is required to capture a basic understanding of the leadership, structure, capabilities, and vision of your team.

TEAM LEADER (POINT OF CONTACT)

Each team must be led by one person, who assumes final responsibility for completing the application. Team Leaders may delegate responsibilities to others, but each Team Leader will act as the primary point of contact and must have a working knowledge of all decisions made by the team. Please provide the name and title of your Team Leader. A Team Leader may be different than the person who completed registration.

First Name

Guillermo

Last Name

Marqueta-Siibert

Title

Operations Manager

PRIMARY ORGANIZATION

Please provide the name of the organization with whom your Team Leader is affiliated. Any Winner(s) of the IPF Catalyst Challenge will be required to enter into an Agreement with our sponsor. Therefore, select your Team Leader and his/her Primary Organization, based on the authority to enter into a binding contract on behalf of those accountable for implementing your proposed solution.

Medtep, Inc.

STRUCTURE OF PRIMARY ORGANIZATION

Please describe the legal structure of your Primary Organization. We accept applications from nonprofit

agencies or for-profit ventures. The IPF Catalyst Challenge welcomes teams with public partners, but we prefer that your Primary Organization is not a government entity.

For-profit Venture

CONTACT INFORMATION

Please provide the phone number, email address, and mailing address of your designated Team Leader. Contact information will not be used for any purpose other than direct communication about the IPF Catalyst Challenge. You may reference our Privacy Policy to understand how we use this information.

Phone	+34 932 778 075
Email	guillermo@medtep.com
Street Address	1540 Market Street
Address Line 2	
City	San Francisco
State / Province / Region	California
Postal / Zip Code	94102
Country	United States

MANAGEMENT (200 words)

Please provide a narrative description of your team management structure with the name/title for each executive, who assumes a key role/responsibility for delivering the proposed solution. Describe the relationship between your senior leaders. You may describe a formal organizational chart, but we want to understand how they share responsibilities and/or hold one another accountable.

Medtep has worked with chronic and rare diseases since 2011. The collaboration with multiple healthcare providers, governments and pharmaceutical companies has evolved the team to address all needs. Currently the management team is formed by Jordi Cabot (Managing Director), Daniel Cuenca (Chief Technology Officer), Dr. Joima Panisello (Chief Medical Officer) and Guillermo Marqueta-Siibert (Operations Manager).

Specifically for the proposed project, the coordinating Project Manager will be Jessica Shull and the technical and operational management will be carried out by Guillermo Marqueta-Siibert.

On the other side, the Medical advisory and content will be led by Dr. Maria Molina, from the Bellvitge Hospital in Barcelona.

EXPERIENCE (250 words)

Include a brief biographical statement for up to three of your team members who oversee the management of your team. You may also list the names and credentials of any key advisors, not included as a member of your team (up to three) who are responsible for providing counsel, where management appears to lack relevant credentials. If your organization is governed by a Board of Directors, please describe those Directors and any controlling authority that they have (or do not have). Emphasize any prior successes or achievement that is related to your proposed solution. Focus on convincing our judges that your team has the talent and track record to deliver results.

Medtep's online platform lets patients and healthcare professionals provide information to monitor patient evolution through relevant variables. Their experience on care plans varies from IPF, asthma, COPD, obesity, BPD, hemophilia to multiple myeloma. With a strong involvement in rare diseases, they are partners of FEDER, the Spanish rare disease patient's federation. They have presented twice their outcomes at the World Federation of Hemophilia Congress, as well as other international congresses for other diseases. Beyond the clinical studies, their target is to facilitate lasting behavioral changes and better quality of life for patients. They are HIPAA and Privacy Shield compliant.

Medtep and Hospital de Bellvitge are running together the ObservatoriFPI.cat, a project to gather information about potential IPF patients to enhance a multidisciplinary committee diagnosis. The target is to have a more precise prevalence and incidence in Catalonia (Spain).

Jessica Shull started building virtual surgery devices in Washington DC in 2002. She now consults for the WHO to create disease protocol materials, and is completing a PhD in BioMedicine focusing on digital tools to improve respiratory disease outcomes. She is also now managing clinical trials for patients with IPF with Dr. Molina at Hospital Bellvitge.

The medical advisor, Dr. Maria Molina has been working in IPF since 2002. She is an expert on genetic and familial factors involved in IPF. She is also a foremost authority on incorporating systems biology into early detection and treatment of Interstitial Lung Disease.

PARTNERSHIPS (200 words) (optional)

If your team has agreed to partner with one or more other organization(s), provide a brief narrative of the structure of your partnerships, including any decision-making authority between the parties. Please note that your application requires that the Primary Organization has secured permission to represent any partner(s), to disclose information on behalf of any partner(s), and to propose any operational or financial information that is binding to the partner(s).

Hospital de Bellvitge: We consider them more than a simple partner, as they are part of the core efforts of the digital IPF projects. They are the reference center for interstitial lung diseases in the north-east of Spain. A reference as well throughout Europe.

Supercomputing center: We have a verbal agreement with the environment team at a leading supercomputing center in Barcelona. They have developed an air quality monitoring system that produces a detailed analysis of emissions and atmospheric chemicals. They map this data, providing quantitative and qualitative information about the main pollutants regulated by the World Health Organization (ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, particulate matter and benzene). The system is up and running; running the simulations are very expensive, however if selected for the IPF Challenge, we have an agreement to share data and develop an integrated matrix.

WHAT MOTIVATES YOUR TEAM? (150 words)

Perhaps the single strongest indicator of future success is the grit and resilience of your team. We want to understand that your team has the credentials and experience to succeed, but we also know that real success demands more. This is your opportunity to describe the passion and commitment that you offer. Why have you chosen to pledge yourselves to this difficult but important task? What motivates you today, and can we expect that your commitment would endure over time?

IPF is a devastating disease, with a mean survival of 3-5 years from diagnosis. Although IPF is considered a rare disease, it is the most prevalent interstitial lung disease in the world and the incidence is increasing every year. If we could find a way to reduce incidence through contaminant-mapping, especially in light of climactic conditions worsening globally, this would be a true achievement.

Approaching medicine from a systems biology perspective is a monumental task, but holds enormous potential, especially for early detection and prevention campaigns.

Our team is always involved in clinical trials, but here are not many which take a holistic approach to solving IPF, but this Challenge presents us with the opportunity to do so.

C. YOUR SOLUTION

In this section, you will describe your team's proposed solution. Emphasize how your team's specific plans align with the four traits that will be used to score your application.

PROBLEM STATEMENT (200 words)

Each team must start with a clear and compelling understanding of a specific need of IPF patients. Your charge is to improve the quality of life for those suffering from IPF. Our judges will score your application based on the scope and impact of the problem that you have selected. Context is important. So, explain the circumstance that led to the problem – why does the problem persist within the current system? Explain how current efforts (if any) are either insufficient or unavailable to solve the problem. If any previous attempts have been made to solve the problem, why did they fail? Later, you will offer a detailed description of your solution; so, this is your

chance to convey your team's appreciation and depth of understanding for the complexity of the issues that you will address.

Early detection of IPF is difficult because in most cases patients are not tested for this particular disease until symptoms have become severe. However even then, diagnosis can take months. We are working on reducing the gap between onset and diagnosis in Catalonia by educating regional health centers in IPF and offering resources for radiologists. However in addition to this, in order to catch cases before symptoms become debilitating, there needs to be a screening process. Screening everyone over 55 would be very costly and time consuming. But screening a very select population based on specific indicators is very possible, and even cost effective.

Location on our IPF AirMap, combined with these weighted indicators could determine who should undergo diagnostics: age, premature graying, smoker, and dry cough.

In addition to screening, areas of high IPF density where pollution levels are high should undertake measures to reduce contaminants, measures which improve the quality of life of everyone in the area.

YOUR SOLUTION CATEGORY

During registration, you provided an initial category for the solution that you were considering. Now, please take time to confirm or change that category.

- Early Diagnosis & Detection - Early detection of IPF can create a smoother path to care as patients will no longer lose valuable time dealing with misdiagnoses.
- Patient Education & Engagement - With more practical and direct information after a confirmed diagnosis, patients can know what to ask and feel more empowered over their disease.
- Oxygen Improvement - A smarter oxygen therapy system with real time data could help both the patient and the Clinician have better access to information, allowing for more responsive care.
- Improving the Care Continuum - As the disease progresses, improving the quality of life is vital. With more products and services, patients can have a more comfortable experience in the late stages.
- Other - This category is for any ideas that may not fall into the above categories, but that you strongly feel could positively impact the quality of life for patients and caregivers.

YOUR APPROACH (250 words)

Now that you've defined the problem that you are solving, you will propose the product or service to deliver results within your solution category. The IPF Catalyst Challenge is designed to invite a broad range of big ideas to the table. You may start with a description of your strategic approach, but you must ground your proposal with a specific application that is most appropriate to the conditions that you have previously described. You are welcome to deliver any technical explanation(s), but the judges assigned to your team may not have relevant technical expertise. So, explain what you are proposing but emphasize why your approach is both relevant and meaningful.

We propose to develop the IPF AirMap, starting with Catalonia, a Spanish region with a population of 7.5M people, with Barcelona as the capital.

In 2016 Hospital de Bellvitge and Medtep began creating a database called the IPF Observatory.cat of all prevalent and incident cases of IPF in Catalonia. This project, led by Dr. Molina, aggregates detailed IPF patient data from 24 healthcare centers and hospitals, including severity of symptoms according to date, allergies, comorbidities, related work history (exposure to paint, fumes, dust, feathers etc), location, and results of diagnostics. Information is being added every day.

The IPF AirMap will cross-reference this information, with air contaminant maps developed by the supercomputing center. We can select certain toxic elements as well as temperature and humidity, tracking the location and saturation by year. All of this data crunching is made possible by using a supercomputer with storage capabilities of 14 petabytes (14 million gigabytes) and a working speed of 13.7 petaflops, the most powerful supercomputer in Spain.

These two diverse information sources will be overlapped thanks to GIS software capabilities, which will require cooperative programming. This will be led by Medtep with a continuous advising on the medical side, especially for diagnostics after the maps have been created.

PROJECTED IMPACT (200 words)

Now that we know what you are offering and why, describe the intended outcome of your product or service. As you assert any claims, make your case based on the most realistic explanation of your projected impact. Describe how many IPF patients might benefit from your proposal and/or the degree to which any one IPF patient may realize an improvement in quality of life.

There are currently +/- 200 patients registered in the IPF database in Catalonia, all diagnosed in the last three years. Extrapolating from that figure, we aim to provide early detection thanks to this approach for at

least 100 patients over the three year period from 2018-2021.

Applying the matrix to other parts of the world would simply require identifying correlated areas of pollution.

In addition to early detection, the IPFAirMap solution may lead to identification of contaminants adversely affecting IPF patients. This data can then be used to isolate and eradicate these harmful molecules.

Catalonia is especially an ideal start for this analysis because people do not move often. They tend to stay in one home and work in the same place for 30-40 years. Creating a matrix like this would have far more variables in the US. By analyzing this region, the correlation between the pollutants and IPF can be related more directly. The results will be applicable to the same contaminants anywhere in the world.

This systemic approach can be deployed within the regions which are gathering information about IPF patients. First results will help to encourage other regions to do so and use this system.

SYSTEMS INTEGRATION (200 words)

Healthcare is complicated. Whether you are offering a product or service, reaching patients and appealing to their needs frequently involves satisfying other interests, such as insurance companies, doctors and nurses, front-line caretakers, hospital or patient care centers, to name a few... As you consider how your offering fits into the larger marketplace, explain how you plan to integrate your solution within the relevant system(s). Who is critical to your success? What do they require to help you succeed? And, how are you prepared to work with those other interests to ensure your success?

The IPF Observatory.cat project has allowed us to start with the implementation of the solution, understanding the best flows to fit with current clinical processes. We are already working with most of the Catalan healthcare centers.

IPF AirMap doesn't require doctors to change the way they work, and it doesn't require patients to alter their lifestyle. It does require recognition of primary physicians to authorize a CAT scan? if all the indicators point toward a high degree of risk.

We will secure agreements from these Catalan healthcare centers and hospitals to provide IPF diagnostics prior to launching the project.

We would like to later expand the screening system, though this would be a later phase of the project, requiring agreements from US healthcare and air quality organizations. We do however already have contacts at the University of Pittsburgh Regenerative Medicine program at the McGowan Institute, as well as at Kaiser Permanente in Atlanta, and the Department of Medicine at the University of Colorado, Denver.

PROJECT PLANNING (250 words)

We want to understand how you plan to spend $333,000 to realize your proposed solution. Some teams will

arrive with a strong record of achievement, while other teams may offer early stage big ideas. In either case, this is your opportunity to explain what you will do, if named as a Winner of the IPF Catalyst Challenge. Later, you will offer a more detailed description in a project plan – take time to cross reference each of these responses, so that our judges can understand the relevance of specific tasks.

The project has 3 big working packages:

Coordinate location-specific data collection on patients in Catalonia, create screening system for susceptible people. After the IPF AirMap system is running, Hospital Bellvitge can coordinate the recommendation that each healthcare center in the region screen for possible IPF, with educational materials posted in public spaces and identifying possible candidates when they come in for annual checkups. Responsible: Hospital Bellvitge IDIBELL

Design and execute the IPF AirMap platform interface and integration. The data visualization will be integrated with current capabilities of the platform. The atmospheric data should be crossed with the professional reported data from the FPIObservatory.cat and the patient reported data. These will be prompted as graphic statistics and through a map. Responsible: Medtep

Transform contaminant data (Ozone, PM10, PM 2.5, NO2, SO2, CO, temperature and humidity) from 2 consecutive years with up to hourly resolution to a detailed mapping (1 km2) and a compatible format with the platform. Responsible: Computing Center

YOUR PROJECT PLAN

In this section, you are asked to list the individual tasks you plan to complete, to implement and manage your team's proposed project. This exercise is important for our judges, so that they can understand your practical approach and the feasibility of your planning process.

We are providing the following tool for use in documenting your plan. It requires you to indicate tasks by number and name. You will be assessed based on the level of detail that you provide; we encourage you to identify any subtasks that support any primary tasks.

Please list each task chronologically by start date and enter end dates accordingly.

For tasks that start at the same time, please prioritize the most essential and continue the list in order of importance.

NOTES:

PROJECT SUPPORT (150 words) (optional)

Now that you've mapped your project plan, please describe the use of any volunteers or other in-kind

resources by describing those contributions against any relevant task(s) identified in Your Project Plan. Your description of any necessary project support is intended to show where difficult tasks will be supported through means other than funding. In your response, you may refer to partnership(s) that have been previously identified.

We count with the support of several patients we have treated and lived with. They help us in addressing how to communicate better to find the right approach at the screening process. We have also a good relationship with the national IPF patients and families association (AFEFPI), who has supported us also in all these years.

About the Observatory work, we are partially funded for the region of Catalonia. Jessica Shull is seeking funding as a doctoral research student to carry out this work on a larger scale (in the USA).

PROJECT TRACKING & METRICS (150 words)

Provide the way in which you plan to measure the overall performance of the proposed project. You will choose how to calculate your performance, but you are required to submit projected goals and the means through which you will track results. While projects may range according to their goals and the way in which they define success, our judges will assess your response according to how precisely your methodologies will track meaningful outcomes and how closely your metrics are linked to a realistic assessment of your performance.

Success of the first phase will be measured by quantifiable points of data achieved:

- Mapping Catalonia to a level of detail which can clearly demonstrate points of notable pollution. Mapping is to be rendered at a 1km resolution.
- Correlating contaminant data with patient location – successful overlapping of patient location with map.
- Identifying high risk areas. Expect to find concentrations of 3-4 high risk areas and 2-3 medium risk areas.

Screening program for those areas in use by Sept 2018, 150 screenings in 2018-19.

PROJECT RISK MANAGEMENT (150 words)

Please describe threats to the proposed project and your plan to address them. While every project is different, we expect you to raise any assumptions and how you intend to manage risk(s).

The largest risk for our solution is if there in indeed no correlation between air quality and occurrence of IPF. The main aim of this project is first to clear up the doubt of air conditions being a relevant cause in IPF, the second one is to replicate this to other diseases.

Other big risk is that there are not many regions collecting needed variables to correctly assess IPF. For this, the first case through the Observatory should serve as an example of the importance of collecting them. To avoid this obstacle, we have contacts with other regions (e.g. UK and USA) that are already gathering this information. This other example should show if the correlation continues as analyzed with this project.

Another challenge is enacting air quality control measures, but this data could represent a very strong argument.

FUTURE PLANNING (200 words)

Explain how your team plans to sustain and/or expand the impact of your solution over time. If your plan requires additional resources, please describe the most likely pathway for securing any additional support. Illustrate your long-term vision for the growth and future success of your solution.

Our projects so far have received acceptance and economical cooperation from the pharmaceutical industry. We have partnered with Boehringer Ingelheim and Roche for IPF and with other pharmaceutical companies for other diseases. We are confident in achieving agreements to guarantee the economic sustainability of the solution.
On the other hand, public and private healthcare providers specialized in these kind of diseases are another path to revenue.

Climate change and pollution are only becoming more severe with greater impacts on our environment and health; we believe a solution that addresses the source of the problem is the most powerful. And this data will be useful in reducing risk of other diseases such as asthma, COPD, and lung cancer.

For the long term, our team would like to develop a systems biology approach to finding innovative treatments for IPF. This is a huge undertaking that will be built one step at a time. Next steps will be to start aggregating genetic and micro-biome data, which serve to further refine and perfect the matrix.

D. YOUR RESOURCE REQUIREMENTS

While the information provided in the previous section is intended to reveal strategic and practical implementation plans for your solution, we also require other information necessary for our judges to understand the financial sustainability of your proposal and your organization(s).

TOTAL PROJECT COST

What are the detailed costs to implement the proposed project within the specified duration? This includes capital expenditures and operational expenditures. Please list and describe each cost category in the following table. If they require further explanation, you may submit NOTES at the end of the table. Your total project cost should not exceed $333,000.

NOTES:

TEAM SUSTAINABILITY (200 words)

An important consideration is the sustainability of your organization(s) beyond any funds provided through the IPF Catalyst Challenge. Please take time to read how we describe Sustainability in our rubric. The IPF Catalyst Challenge is open to both existing and start-up teams. So, this is your opportunity to describe how you plan to operate beyond the project described in your project plan. What is the long-term vision for your Primary Organization and any partner(s), if applicable.

The work of every member of this team will continue beyond Challenge funding, but this Challenge allows us to shed light an area we would otherwise have to leave in the dark.

Since 2011, Medtep has successfully worked with pharmaceutical companies, healthcare organizations and private and public entities to provide their software as a service. Medtep has received $2.2M funding to develop their solution and can include the IPF AirMap as an extra asset.

The IPF work at Hospital de Bellvitge will continue with the limited resources available, focusing on the genetic side of the holistic system, seeking support from other foundations in the US and UK.

OTHER CONSIDERATIONS (150 words) (optional)

We recognize that our Application is rigorous and time consuming. Thank you for completing it. However, we also want to provide a final opportunity for your team to raise any other considerations. This is your opportunity to emphasize or expand on a previous point or to provide any new information not previously required.

For more information on current platform, see medtep.com and https://www.medtep.com/ipf/
For more information on Hospital de Bellvitge's Pulmonary Fibrosis Service,
see http://www.bellvitgehospital.cat/usuaris/aula_pacients/es_fibrosi_presentaci_.html