OpenFn as a FOSS microservice: click-to-configure, InstantHIE compatible, supported by OpenFn.org

Two-Sentence Overview

By simplifying setup and expanding access to our open-source tools and deployment strategies, Open Function Group ("OFG") will drastically expand upon the reach and impact of our sector-leading, open-core, integration platform as a service solution (OpenFn). Using OpenFn, OFG has delivered dozens of at-scale, real-time, integration, interoperability and automation solutions for global public health organizations over the last 6 years, and has developed the required expertise and market position to not only provide robust, enterprise grade, shelf-ready open-source software, **but to provide *the shelf itself***, delivering that software to the end users that need it most through a hosted web UI.

High-Level Budget Summary

	WP 1 Instant OpenHIE Compliance	WP 2 Installation and Deployment	WP 3 Enhanced Installation Support	WP 4 Product Documentation for Open Source Software	WP 5 Open Source Steering Committee	WP 6 Advanced Community Support	WP 7 Pilot & Impact Evaluation	Total Cost (USD)
Project Costs	**$ 22,600**	**$ 4,000**	**$ 5,400**	**$ 17,800**	**$ 4,000**	**$ 8,400**	**$ 27,880**	**$ 90,080**

Executive Summary

OFG is a team of integration specialists that drives efficient service delivery in the global health sector by helping organizations achieve real-time, enterprise-grade systems interoperability through integration and automation. OFG developed the OpenFn integration platform to connect *any* application (e.g., DHIS2, OpenMRS, OpenHIM, CommCare, KoboToolbox, legacy MoH systems) and automate critical business processes (e.g., sending real-time SMS/email alerts, uploading health indicator results). OpenFn is open-core and is extending its open source software with support from DIAL to introduce **OpenFn/microservice**–a robust, fully open source integration solution that can be deployed to connect any digital health system.

As a global digital good, OpenFn has been implemented at-scale for leading health organizations around the world. **OpenFn/microservice** will extend our reach even further, by allowing organizations with "zero proprietary code" requirements to leverage the power of OpenFn. However, the impact of that product is limited because many organizations lack the funding and expertise to design and implement robust integrations, let alone configure and deploy open source software to run on their own servers. OFG therefore seeks funding support to enhance the OpenFn open source software, to develop robust documentation and community support, and to assemble a steering committee that will shape the roadmap for our open source products. The proposed work packages will not only deliver a robust, "click-to-configure", open source integration solution to the global health sector–but will also save time and money on digital health implementations, and strengthen the Instant OpenHIE project by meeting a critical, and as yet, unmet requirement for real-world deployments.

Critically, we believe that simply making open source software *available* is not enough. Beyond shelf-readiness, OpenFn will provide the shelf itself. We will *deliver* our open-source software through our web UI, so that government ministries, NGOs, or ICT4D consultants can configure OpenFn/microservices online, using our hosted web UI, in a free-forever OpenFn project space, and have the option to "export" their configurations to run as microservices on their own machines.

Consortium Team

OFG does not require a consortium team to deliver the proposed deliverables, but please note that we are **seeking to both leverage existing partnerships *and* formalize new partnerships as we fill our our open source steering committee** (*see Work Package #5*).

Background or problem statement

OFG aims to fundamentally transform the "technology for international development" (ICT4D) sector through integration and automation. Institutions often lack the capacity to design and implement projects that effectively leverage the existing digital ecosystem[1]—blocking access to critical, accurate, and timely information, and encouraging wasteful investment in redundant ICT4D application development. They are often locked into slow, error-prone manual processes or they spend thousands of dollars every time they want to move data between different systems. OFG is creating a new paradigm in which NGOs, governments, and social businesses can automatically, securely, and cost effectively implement integrations between systems in hours or days, not months, no matter their level of technical expertise, compliance requirements, or budgetary constraints.

First released in 2014, OpenFn is an enterprise-grade (***S***[3]) platform on which organizations can connect technologies and automate critical workflows. OpenFn is flexible, scalable, and connects *any* app. Its configurations can be easily modified, replicated, and re-used—delivering quick, adaptable, and cost-effective integration and automation solutions. OpenFn is used by leading global health organizations worldwide[2], but it isn't appropriate for some organizations with particular resource or open source requirements. (OpenFn is "open-core", but includes proprietary components.) To ensure these organizations can also achieve robust data integration and automation, OFG has confirmed funding from DIAL Open Source Center to extend **OpenFn/core** and develop the fully open source app **OpenFn/microservice**. This will provide a completely free and open source pathway for users to deploy and run OpenFn *jobs* (or integration/automation "scripts") as web-enabled microservices on any server, harnessing all the power of the core ETL functionality and thousands of existing open source OpenFn *jobs* and *language-packages*. **OpenFn/microserice** will be an immediately useful FOSS option for any organization that already uses the OpenFn iPaaS (openfn.org), such as UNICEF[3]. However, OFG expects other organizations will struggle to independently leverage **OpenFn/microservice** *as is*, without further investment in its "shelf-readiness".

Digital Health Technologies

Through OpenFn solutions in 43 countries, OFG has demonstrated that interoperability and automation solutions not only deliver connected, open, and secure digital ecosystems, but also help organizations work more efficiently and achieve scale. Catalytic funding will enable us to deliver a shelf-ready, fully open source OpenFn implementation pathway that will empower hundreds more organizations—including those responding to this same call for proposals— to leverage this technology to build robust solutions that create secure, automated, interoperable health systems and strengthen existing digital investments.

OpenFn solutions can be implemented in *any* digital health system, which include all Digital Square Global Goods and OpenHIE (read more here), and thereby only strengthen existing Digital Square investments by extending integration options. Out-of-the-box, OpenFn can connect any application that has a REST endpoint or webhooks service, and can be configured to connect with databases, custom applications, legacy government systems, and even CSV files uploaded to an online location. OpenFn also offers dozens of pre-built, open-source "language-packages" (or "connectors") that further fast-track integration setup for popular ICT4D tools, including DHIS2, OpenMRS, CommCare, Open Data Kit, and more.

OpenFn users can configure automation to clean data and enforce data standards, such as those endorsed by key digital health communities like DigitalSquare, OpenHIE, Digital Solutions for Malaria Elimination COP, CHW COP, etc. For example, Dimagi needed to connect CommCare to OpenHIM for the MomConnect project in 2016, but at the time did not have the resources to develop an OpenHIM mediator. In one afternoon, Dimagi developed OpenFn jobs to transform all CommCare data into FHIR standard-compliant format, before sending the data onto a destination patient

[1] USAID Digital Strategy: https://www.usaid.gov/sites/default/files/documents/15396/USAID_Digital_Strategy.pdf
[2] Learn more about OpenFn clients and our impact-driven solutions, such as the Lwala project (see Lwala and decision support for community health workers in western Kenya through OpenFn). OpenFn has also been highlighted as a ICT4SDG "Building Block" (see demonstration here).
[3] UNICEF has developed the open source case management platform Primero. It plans to embed OpenFn as the middleware in its Primero SaaS offering to facilitate cross-border data exchanges for case referrals. Leveraging OpenFn Microservices, UNICEF plans to offer a Primero FOSS-Only option for its partners with particular government/ jurisdiction constraints.

database registry via OpenHIM. This ensured that data passed between systems met the FHIR standard, and allowed Dimagi to avoid making changes to their API and the partner's CommCare app.

Use Cases and User Stories

The seven independent work packages in this proposal were selected because specific organizations or users have made clear the following demands. They are laid out as "user stories" in which a persona articulates a reasonable desire which is **not currently met** by either OpenFn (because the feature relies on the use of our proprietary software, in most cases) or other existing technologies.

WP1: Instant OpenHIE Compliance

1. As a **government implementing Instant OpenHIE**, I want to automate critical, asynchronous, business processes *without using any proprietary software* so that I can scale my programs while ensuring systems interoperability across my HIE.
2. As a **government implementing Instant OpenHIE**, I want to connect various applications to OpenHIM that do not already adhere to specific patient standards or for which a mediator does not already exist *without using any proprietary software* so that I can scale my programs while ensuring systems interoperability across my HIE.
3. As an **IT staffer implementing Instant OpenHIE for a government**, I want to deploy OpenFn alongside other pieces of Instant OpenHIE with a single, pre-configurable deployment script.

WP2: Installation and Deployment

4. As an **IT staffter using OpenFn/devtools**, I want to be able to run a single command from my terminal which packages my current offline/testing environment into a deployable OpenFn/microservice so that I don't need to spend extra time or effort to "go live" once I'm happy with my configuration. (OpenFn/devtools is FOSS that enables users to create, test, and run jobs locally.)

WP3: Enhanced Installation Support

5. As a **digital health organization or MoH implementing an automation, interoperability, or data integration solution,** I want to be able to configure, test, and pilot a complete solution online, and *then* be able to click a button to export that hosted setup for local deployment as a microservices so that I (a) do not waste time or money on development in the piloting phase and (b) do not get locked-in to a web-hosted solution that might violate data sovereignty regulations.

WP4: Product Documentation for Open Source Software

6. As an **organization seeking integration and interoperability solutions**, I want improved and easily browseable/searchable documentation on OpenFn's open source software so that I can independently configure and deploy these tools without having to rely on external consultants with specialized knowledge.

WP5: Development & Convening of Open Source Steering Committee

7. As a **digital health organization or MoH**, I want open source integration options that comply with current digital health standards and meet the most common user requirements so that I can deliver a solution that meets my business and compliance requirements.
8. As a **ICT4D product developer**, I want to make sure that a large portion of the ICT4D community has input into the strategic direction of the most prevalent automation/data-integration platform so that it continues to serve the needs of the sector at large, rather than a small group of technologies.

WP6: Advanced Community Support

9. As a **digital health organization or MoH**, I want to share and use common configurations from existing implementations in the digital health community so that I save time and money in the development process. I do *not* want to re-code the wheel.

WP7: Pilot & Impact Evaluation

10. As a **digital health organization or MoH**, I want to implement an open source solution that has been validated by a real-world implementation so that I can ensure the tool performs well at-scale.

11. As a **product owner for OpenFn,** I want to ensure that feature development for our open-source tools is in response to real-world implementation pressures and evaluations so that the product improves.

Objectives and Activities

To provide robust, scalable, secure, and FOSS integration options to *all* digital health implementers, **OFG seeks funding to (1) enhance our current open source software with "click-to-configure" features and InstantHIE compatibility; (2) develop robust product documentation and implementation guidance** that empowers organizations to implement these solutions more efficiently and independently; and **(3) assemble and convene a steering committee** for the open source software. This will deliver the following outcomes:

1. **Provide a robust open source integration solution** that can *connect any digital health system* and be rapidly implemented on any server, in any country, by any organization.
2. **Reduce the costs and skills required to implement interoperability solutions** by providing point-and-click tools to design and deploy integrations, as well as documentation, real-world examples, and re-usable configurations to facilitate implementations. *This will enable organizations to spend time and money where needed most, rather than re-coding the wheel.*
3. **Enhance the value of Instant OpenHIE and existing digital health systems** by providing a fully open source integration option that can connect any app, and thereby extend the integration capabilities of any existing digital health systems. *Through conversations with our partners at Jembi, it's become clear that the complex business process automation provided by OpenFn is often needed alongside OpenHIM in the Instant OpenHIE stack.*

To achieve the envisioned outcomes, OFG proposes the following work packages. The project kick-off will be dependent on completion of the development of OpenFn/microservice through our partnership with DIAL Open Source Center.

No.	Objectives & Activities
WP 1	**Instant OpenHIE Compliance**
1.1	**Design and deliver OpenFn changes to ensure that OpenFn may be deployed in any Instant OpenHIE implementation.**
1.1.1	Collaboration with OpenHIE, Jembi, and partners to define Instant OpenHIE compliance requirements. Complete design of OpenFn changes required to ensure compliance with Instant OpenHIE.
1.1.2	Possible platform API adjustments to enable InstantHIE compliance. (Awaiting additional tech specs from the Instant OpenHIE team.) QA & Testing.
1.1.3	Development of Docker and Kubernetes scripts (in adherence to Instant OpenHIE specifications) so that OpenFn may be deployed in any Instant OpenHIE implementation. Configuration scripts to fast-track OpenFn integration setup alongside other Instant OpenHIE components. Extensions to the test harness. QA & Testing.
1.2	**Validate OpenFn compliance through an OpenFn-Instant OpenHIE prototype implementation based on real-world requirements.**
1.2.1	Engage the OpenHIE community to identify real-world requirement(s) and user stories to inform the prototype design.
1.2.2	Coordinate with OpenHIE community and Jembi Health Systems to plan and design a reference prototype implementation.
1.2.3	Implement the prototype of a OpenFn/microservice and OpenHIE implementation to demo a FOSS integration leveraging both tools.
WP 2	**Installation and Deployment**
2.1	**Improve the installation & deployment process for OpenFn/microservice, by delivering functionality to enable OpenFn users to build a deployable, open source microservice in one step.**
2.1.1	Build out **OpenFn/devtools** to include a command that automatically configures **OpenFn/microservice** based on a selected job, allowing users to convert jobs to a fully-fledged microservice with a single command. QA & Testing.

WP 3	**Enhanced Installation Support**
3.1	**Deliver a free and user-friendly experience for configuring OpenFn solutions to *all* users by allowing any organization to configure on OpenFn.org and click-to-deploy to run solutions on the FOSS OpenFn/microservice implementation pathway (eliminating the need to use OpenFn/devtools to configure solutions, which requires more advanced technical capacity).**
3.1.1	Click a button on OpenFn.org to prepare a microservice.zip which is this repo with a new Dockerfile, based on the current job's configuration at OpenFn.org (we're not just "shelf ready", we're providing the shelf with a free-forever project on our website). QA & Testing. **>> See here for the envisioned user experience.**
WP 4	**Product Documentation for Open Source Software**
4.1	**Engage the digital health community to gather input on open source requirements and feedback on OpenFn open-source tools.**
4.1.1	Before expanding OpenFn documentation, OFG will conduct surveys with existing OpenFn users and other organizations in the digital health community to understand open-source requirements, technical capacity to implement open-source, and feedback on existing OpenFn open-source software. This will form a critical part of the design of community support resources.
4.1.2	After new documentation is developed, conduct user acceptance testing and surveys to collect feedback from the digital health community.
4.2	**Expand OpenFn documentation and implementation guidance to ensure implementation success and improve accessibility.**
4.2.1	Build fully featured-documentation site (potentially modelled after OpenFn/docs) for the FOSS tools **OpenFn/devtools** and **OpenFn/microservice**.
4.2.2	Develop content to expand existing documentation to deliver enhanced technical and user documentation.
4.2.3	Expand documentation to provide support for two or more languages, based on the two most common languages identified in the surveys conducted for 3.1.1. (**To be contracted to third-party translator.)*
WP 5	**Development & Convening of Open Source Steering Committee**
5.1	**Create a steering committee to drive the design of the open source software and to gather critical input and feedback.**
5.1.1	Develop charter to define the steering committee mandate, roles & responsibilities in supporting the OpenFn open source software.
5.1.2	Recruitment of committee members from existing partners and key organizations in the digital health community, including the OpenHIE community, to advise on the project approach & provide feedback.
5.1.3	Meeting with steering committee to align on committee goals and collect user requirements to inform user stories and the open source road map.
5.1.4	Utilize committee inputs, requirements, and user stories to develop OpenFn/microservice and OpenFn/devtools roadmap for 2021.
WP 6	**Advanced Community Support**
6.1	**Build a public library of OpenFn configurations to enhance community support, provide implementation inspiration and guidance, and enable organizations to re-use existing configurations developed by other organizations.**
6.1.1	Design and implement a community outreach and participation campaign intended to inform users of, and request their participation in a job sharing initiative which would make all selected jobs (which typically do not contain sensitive data) available as free templates for the whole ICT4D community.
6.1.2	Make architectural changes to securely "open up" the OpenFn.org jobs API, providing a free, public, documented API for viewing jobs that have opted in to the sharing program. QA & Testing.
6.1.3	Build an extension of OpenFn/docs which consumes job data from the public API, making all opt-in jobs easily searchable on the public documentation site. QA & Testing.

WP 7	**Pilot & Impact Evaluation** *(*Timeline has UNICEF Cambodia Dependency)*
7.1	**Evaluate the impact of the FOSS OpenFn implementation pathway through a real-word pilot implementation of OpenFn/microservice with our partner UNICEF in Cambodia.**
7.1.1	Conduct baseline evaluation of OpenFn.org implementation (current project) for UNICEF Cambodia. UNICEF is currently piloting OpenFn to deliver an integrated and automated case referral solution that connects with UNICEF's "Primero" case management system with Cambodia local government systems.
7.1.2	Convert UNICEF Cambodia project from OpenFn.org to open source OpenFn/microservice.
7.1.3	Conduct midline evaluation of open source OpenFn/microservice implementation in Cambodia.
7.1.4	Conduct endline evaluations of open source OpenFn/microservice implementation in Cambodia.
7.1.5	Review evaluations with the steering committee and update the product roadmap based on learnings and feedback.

Risk Mitigation

One risk to the implementation timeline is an external dependency on the finalization of the open-source microservice functionality, funded by the DIAL Open Source Center. We have conducted an initial design workshop and technical spike and currently estimate, with a fairly high level of certainty, that all work will be completed well before the proposed October 2020 grant start dates.

Another risk is around adoption. For the impact on the community to be realized, we'll need to see organizations and governments choose the OpenFn/microservice route. We're hoping that by reducing the friction to deploy a microservice we'll drive up adoption, but, to date, all of the governments and NGOs that OFG has worked with have, ultimately, chosen our turnkey hosted solution. We are attempting to mitigate this adoption risk by providing the same final outcome (a fully configured **OpenFn/microservice** FOSS deployment) *through* our free, hosted, web UI at OpenFn.org (see WP3) for users that would prefer to configure their deployment via the web, rather than through **OpenFn/devtools** and the command line. We also hope to ensure continued funding and support for the open source software by making use of it in our hosted platform—this produces a ratchet effect, whereby the success of OpenFn.org strengthens the open source software, but a change in direction at OpenFn.org wouldn't harm the open source offering.

To monitor the success of these efforts, OFG will track the number of OpenFn and open source implementations, and gather feedback from the community before/after individual work packages are released. Under WP #7, OFG has also proposed to pilot the OpenFn/microservice in partnership with UNICEF Cambodia, and to conduct baseline, midline, and endline surveys during this real-world implementation to collect critical feedback for the open source software and its documentation. The creation of a steering committee will also establish an important feedback channel, and allow key organizations in the sector to provide input on the outputs, outcomes, and direction of the open source integration solution.

Community Feedback

The creation of a steering committee (see WP5) will serve as a primary vehicle for engaging the broader digital healthy community for feedback and input. We envision that this committee will meet bi-monthly to drive the OpenFn open source roadmap, inform user requirements and user stories, and provide feedback on features and community support delivered. We will leverage existing partnerships to recruit committee members from key digital health implementers and providers (Dimagi, Medic Mobile, Jembi Health Systems, Partners in Health, BAO Systems, Open Data Kit, etc.).

Through our current work with the Ministry of Health in The Gambia, and our discussions with the Zambia National Public Health Institute, we will seek critical feedback from country stakeholders. While it may prove challenging to recruit MoH personnel to the steering committee directly, we'll seek out their guidance as key advisors.

We also see our recent collaboration with The Digital Impact Alliance, Digital Square, and OpenHIE as critical as these groups help define health interoperability standards that OpenFn is commonly used to implement. These international communities will be engaged during the recruitment period for the steering committee, and OFG team members will continue to actively engage in these communities and other digital health COPs, such as the Digital Health Solutions for Malaria Elimination COP (where OFG has consulted on its development of a malaria "data dictionary" and data standards).

Throughout the proposed project and before/after every work package, we will also regularly solicit feedback from existing OpenFn users (which include several leading health organizations) via surveys and interviews.

Schedule

The table below is a high-level work plan. Any dependencies have been noted (*).

No.	Activity	Team	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M 12
WP1	***Instant OpenHIE Compliance***													
1.1.1	*Collaboration with OpenHIE, Jembi, and partners to define Instant OpenHIE compliance requirements. Complete design of OpenFn changes required to ensure compliance with Instant OpenHIE.*	*OFG, UK/ZA*	*x*											
1.1.2	*Possible platform API adjustments to enable InstantHIE compliance. (Awaiting additional tech specs from the Instant OpenHIE team.*) QA & Testing.*	*OFG, UK/ZA*	*x*											
1.1.3	*Development of Docker and Kubernetes scripts (in adherence to Instant OpenHIE specifications) so that OpenFn may be deployed in any Instant OpenHIE implementation. Configuration scripts to fast-track OpenFn integration setup alongside other Instant OpenHIE components. Extensions to the test harness. QA & Testing.*	*OFG, UK/ZA*	*x*											
1.2.1	*Engage the OpenHIE community to identify real-world requirement(s) and user stories to inform the prototype design.*	*OFG, UK/ZA*	*x*	*x*										
1.2.2	*Coordinate with OpenHIE community and Jembi Health Systems to plan and design a reference prototype implementation.*	*OFG, UK/ZA*			*x*									
1.2.3	*Implement the prototype of a OpenFn/microservice and OpenHIE implementation to demo a FOSS integration leveraging both tools.*	*OFG, UK/ZA*			*x*									
WP2	***Installation and Deployment***		*M1*	*M2*	*M3*	*M4*	*M5*	*M6*	*M7*	*M8*	*M9*	*M10*	*M11*	*M12*
2.1.1	*Build out **OpenFn/devtools** to include a command that automatically configures **OpenFn/microservice** based on a selected job, allowing users to convert jobs to a fully-fledged microservice with a single command.*	*OFG, UK/ZA*		*x*										
WP 3	***Enhanced Installation Support***		*M1*	*M2*	*M3*	*M4*	*M5*	*M6*	*M7*	*M8*	*M9*	*M10*	*M11*	*M12*
3.1.1	*Click a button on OpenFn.org to prepare a microservice.zip which is this repo with a new Dockerfile, based on the current job's configuration at OpenFn.org (we're not just "shelf ready", we're providing the shelf with a free-forever project on our website).*	*OFG, UK/ZA*		*x*										
WP4	***Product Documentation for Open Source***		*M1*	*M2*	*M3*	*M4*	*M5*	*M6*	*M7*	*M8*	*M9*	*M10*	*M11*	*M12*

4.1.1	*Before expanding OpenFn documentation, OFG will conduct surveys with existing OpenFn users and other organizations in the digital health community to understand open-source requirements, technical capacity to implement open-source, and feedback on existing OpenFn open-source software.*	*OFG, UK/ZA*		*x*										
4.1.2	*After new documentation is developed, conduct user acceptance testing and surveys to collect feedback from the digital health community.*	*OFG, UK/ZA*						*x*						
4.2.1	*Build fully featured-documentation site (potentially modelled after OpenFn/docs) for the FOSS tools **OpenFn/devtools** and **OpenFn/microservice**.*	*OFG, UK/ZA*			*x*									
4.2.2	*Develop content to expand existing documentation to deliver enhanced technical and user documentation.*	*OFG, UK/ZA*				*x*								
4.2.3	*Expand documentation to provide support for two or more languages, based on the two most common languages identified in the surveys conducted for 3.1.1.*	*Contracted Translator, TBD*					*x*							
WP5	***Development & Convening of Open Source Steering Committee***		*M1*	*M2*	*M3*	*M4*	*M5*	*M6*	*M7*	*M8*	*M9*	*M10*	*M11*	*M12*
5.1.1	*Develop a charter to define the steering committee mandate, roles & responsibilities in supporting the OpenFn open source software.*	*OFG, UK/ZA*	*x*											
5.1.2	*Recruitment of committee members from existing partners and key organizations in the digital health community, including the OpenHIE community, to advise on the project approach & provide feedback.*	*OFG, UK/ZA*		*x*										
5.1.3	*Meeting with steering committee to align on committee goals and collect user requirements to inform user stories and the open source road map.*	*OFG & Partners, Global*		*x*										
5.1.4	*Utilize committee inputs, requirements, and user stories to develop OpenFn/microservice and OpenFn/devtools roadmap for 2021.*	*OFG, UK/ZA*			*x*									
WP6	***Advanced Community Support***		*M1*	*M2*	*M3*	*M4*	*M5*	*M6*	*M7*	*M8*	*M9*	*M10*	*M11*	*M12*
6.1.1	*Design and implement a community outreach and participation campaign intended to inform users of, and request their participation in a job sharing initiative which would make all selected jobs (which typically do not contain sensitive data) available as free templates for the whole ICT4D community.*	*OFG, UK/ZA*	*x*											
6.1.2	*Make architectural changes to securely "open up" the OpenFn.org jobs API, providing a free, public, documented API for viewing jobs that have opted in to the sharing program.*	*OFG, UK/ZA*			*x*									
6.1.3	*Build an extension of OpenFn/docs which consumes job data from the public API, making all opt-in jobs easily searchable on the public documentation site.*	*OFG, UK/ZA*			*x*									
WP7	***Pilot & Impact Evaluation** (timeline dependency on UNICEF Cambodia*)*		*M1*	*M2*	*M3*	*M4*	*M5*	*M6*	*M7*	*M8*	*M9*	*M10*	*M11*	*M12*
7.1.1	*Conduct baseline evaluation of OpenFn.org implementation (current project) for UNICEF Cambodia.*	*OFG & UNICEF, Cambodia*					*x*							
7.1.2	*Convert UNICEF Cambodia project from OpenFn.org to open source OpenFn/microservice.*	*OFG & UNICEF, Cambodia*						*x*						

7.1.3	*Conduct midline evaluation of open source OpenFn/microservice implementation in Cambodia.*	*OFG & UNICEF, Cambodia*									*x*			
7.1.4	*Conduct endline evaluations of open source OpenFn/microservice implementation in Cambodia.*	*OFG & UNICEF, Cambodia*												*x*
7.1.5	*Review evaluations with the steering committee and update the product roadmap based on learnings and feedback.*	*OFG & UNICEF, Cambodia*												*x*

Timelines dependent on the availability of partners for these activities.

Deliverables

OFG will lead all of the project activities (with exception of documentation language translation work to be contracted out to a third-party) and will liaise with partners as needed to ensure delivery of the proposed outputs.

No.	Deliverable (Activity Output)	Due
WP 1	**Instant OpenHIE Compliance**	
1.1	**Design and deliver OpenFn changes to ensure that OpenFn may be deployed in any Instant OpenHIE implementation.**	
1.1.1	- Meeting notes & **documentation of technical requirements** for Instant OpenHIE compliance. (Note that if these requirements change drastically from our current understanding, the schedule for delivery of WP1 may also change.)	Month 1
1.1.2	- New **code (features and corresponding tests)** on OpenFn/microservice (verifiable on GitHub/continuous integration testing service) which enable Instant OpenHIE compliance.	Month 1
1.1.3	- A new **Dockerfile and Kubernetes.yaml files** which enable simple configuration and deployment of OpenFn/microservice as per the deployment specifications of Instant OpenHIE.	Month 1
1.2	**Validate OpenFn compliance through an OpenFn-Instant OpenHIE prototype implementation based on real-world requirements.**	
	- A **narrative report** introducing the intent of the prototype, organization profiles, and needed user stories, which can be circulated within the community to request requirements & user stories.	Month 2
	- A **narrative report** summarizing the use cases, organization profiles, and design of the prototype implementation.	Month 3*
1.2.1	- A **narrative report** documenting processes, outputs, and short-term outcomes of the implementation that can serve as guidance for future implementations.	Month 3
WP 2	**Installation and Deployment**	
2.1	**Improve the installation & deployment process for OpenFn/microservice, by delivering functionality to enable OpenFn users to build a deployable, open source microservice in one step.**	
2.1.1	- New **code (a new CLI command and corresponding tests)** in OpenFn/devtools (verifiable on GitHub/continuous integration testing service) which enables a user to build a deployable microservice *from* existing jobs, credentials, and triggers of their choice on their local machines.	Month 2
WP 3	**Enhanced Installation Support**	
3.1	**Deliver a free and user-friendly experience for configuring OpenFn solutions to all users by allowing any organization to configure on OpenFn.org and click-to-deploy to run solutions on the FOSS OpenFn/microservice implementation pathway (eliminating the need to use OpenFn/devtools to configure solutions, which requires more advanced technical capacity).**	

3.1.1	- A **new feature (hosted and available on a "free forever" plan on OpenFn.org)** which allows users to "export" their OpenFn configurations from the proprietary, hosted platform to run as FOSS microservices on their local servers.	Month 2
WP 4	**Product Documentation for Open Source Software**	
4.1	**Engage the digital health community to gather input on open source requirements and feedback on OpenFn open-source tools.**	
4.1.1	- A **narrative report** which summarizes research into the major barriers that current users face in using or deploying OpenFn's open-source offerings.	Month 2
4.1.2	- A **documentation roadmap** of additional content and features to enhance technical and user guidance.	Month 6
4.2	**Expand OpenFn documentation and implementation guidance to ensure implementation success and improve accessibility.**	
4.2.1	- A new **website (open-source.openfn.org or an extenstion to docs.openfn.org)** which users can browse and search to get support in setting up OpenFn/devtools and OpenFn/microservices, the FOSS offerings from OpenFn.	Month 3
4.2.2	- New **content (technical documentation, user guidance, & videos)** published and publicly available on the documentation website.	Month 4
4.2.3	**- Content available in 2 languages** published and publicly available on the documentation website.	Month 5
WP 5	**Development & Convening of Open Source Steering Committee**	
5.1	**Create a steering committee to drive the design of the open source software and to gather critical input and feedback.**	
5.1.1	- A **steering committee charter**, which enumerates the objectives of the committee, outlines the members and terms, and lays out the governance process for the committee.	Month 1
5.1.2	- **List** of committed members, **date of the first meeting**	Month 2
5.1.3	- **Notes** from the first meeting, including **documented user requirements.** **Date of second meeting**.	Month 2
5.1.4	- Official strategy and **roadmap for 2021** for the FOSS offerings.	Month 3
WP 6	**Advanced Community Support**	
6.1	**Build a public library of OpenFn configurations to enhance community support, provide implementation inspiration and guidance, and enable organizations to re-use existing configurations developed by other organizations.**	
6.1.1	- A **list of organizations who have agreed to share their job scripts** with the entire community. (After having officially "opted in" to this program, their job data will be used in WP 6.2.)	Month 1
6.1.2	- A **new, free and publicly available API** that provides job "scripts" in a secure manner, from clients that have opted in to the jobs-sharing program from an OpenFn.org server. (Note that this will allow *any* application to make use of the shared OpenFn jobs, but in 6.3 we're proposing to extend the FOSS docs.openfn.org application to consume and display this data.)	Month 3
6.1.3	- A **new website section of docs.openfn.org** which allows any user to browse existing OpenFn "jobs" which can be reused safely as templates or recipies for other jobs. (docs.openfn.org is also FOSS, so the code required to consume jobs from the OpenFn.org API and present them to users will be verifiable and re-usable by any other initiatives.)	Month 3
WP 7	**Pilot & Impact Evaluation** *(*Has UNICEF Cambodia dependency)*	
7.1	**Evaluate the impact of the FOSS OpenFn implementation pathway through a real-word pilot implementation of OpenFn/microservice with our partner UNICEF in Cambodia.**	

7.1.1	- A **baseline report** summarizing the current project and evaluation.	Month 5*
7.1.2	- A **link** to the Github repository where the new OpenFn/microservice configuration will be available to browse.	Month 6*
7.1.3	- **Midline report** summarizing the evaluations.	Month 9*
7.1.3	- **Endline reports** summarizing the evaluations.	Month 12*
7.1.3	- **Updated road map** based on evaluation learnings.	Month 12*

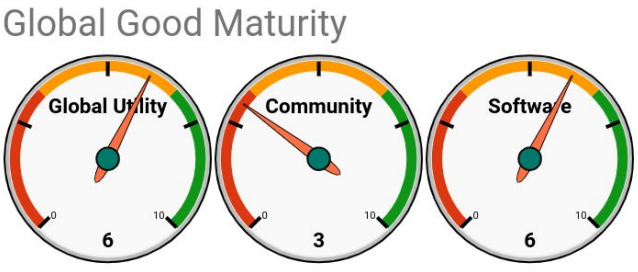
Timelines dependent on the availability of partners for these deliverables.

Global Good Maturity Model Assessment

See this link for the completed OpenFn Global Good Maturity Model Assessment: https://docs.google.com/spreadsheets/d/1a-Yc_GUeCG001YIwhVAVexxQBFd0sVOEuOch-AmcGpI/edit#gid=249752520

While the number of at-scale public-health implementations is high, adoption within government is low because, until recently, many aspects of the platform had only been offered as proprietary software. By investing more in our open-source and local deployment pathways, we expect to see the community and global utility metrics increase drastically over the next 6-12 months. Already, after introducing local, in-country, and open source implementation pathways in the last year, we've been able to work with organizations like UNICEF and government partners, such as our current work to support The Population Council with country-wide monitoring of NGO and community COVID-19 response activities for the Ministry of Health Kenya.

While the OpenFn SaaS has been used at scale for 5+ years, running on Google Cloud Platform in the US and Switzerland, making use of Kubernetes for auto-scaled and load-balanced delivery and we conduct frequent security reviews, we have not had an external security audit (as most fully open-source tools do) and have scored ourselves as "medium" on that criterion, though our security standards are otherwise best-in-class. See https://www.openfn.org/trust for details.



Additional Attachments

OFG Health Solutions

Open Function Group is the organization behind OpenFn.org and has delivered data integration/automation projects for more than 40 organizations, many working in global health. Our systems have gone live in 43 different countries. We've integrated CommCare, Kobo, DHIS2, OpenMRS, OpenHIM, Salesforce, and many other digital tools, for organizations such as UNICEF, the IRC, The Population Council, Population Services International, myAgro, MiracleFeet, Lwala Community Alliance, TechnoServe, Dimagi, and many more.

→ View Open Function Health Solutions

Key Personnel

This project will be led by our Head of Product, Taylor Downs, and our Head of Services, Aleksa Krolls, and they will manage OpenFn staff as well as key partner organizations.

Taylor Downs, Head of Product & Founder

Taylor is a full-stack (Erlang/Elixir/Phoenix/Postgres/Javascript/React.js) developer and Senior Atlantic Fellow for Social & Economic Equity. He received the first annual Harvard SECON Social Impact Award and the 2017 Pizzigati Prize for Software Development in the Public Interest. He was named to Forbes' 30 under 30 list, is a 2012 Echoing Green Fellow, a 2014 Rainer Arnhold Fellow, and a 2015 PopTech Fellow. Taylor founded OFG in 2014, and now oversees our Product team, including the development of the new FOSS pathway OpenFn/Microservice in partnership with the Digital Impact Alliance (DIAL).

Before starting OpenFn, he co-founded and served as CEO of Vera Solutions for 4 years. During that time, Vera Solutions designed, built, and implemented data systems for more than 125 clients from hubs in Boston, Geneva, Nairobi, and Mumbai. Before Vera, he lived in Southern Africa while working for a major public-health implementer and consulting on intervention design and training with more than a dozen NGOs around the world. He holds an MSc in inequalities and social sciences from the London School of Economics and Political Science and a BA in religious studies with a focus on Tibetan Buddhism from Amherst College.

→ View Taylor's Resume

Aleksa Krolls, Head of Services

Aleksa is an information technology consultant who has worked in the ICT4D sector since 2013. She manages OFG's global services and oversees our portfolio of 40+ clients and key partnerships.

Prior to OFG, Aleksa worked at Vera Solutions from the Cape Town and Mumbai hubs, where she established the global customer support team and founded an internal innovation hub, tasked with researching and evaluating technologies for client data systems, including Salesforce, ODK, CommCare, Kobo Toolbox, Magpi, SurveyCTO, TaroWorks, SMS/IVR tools, PowerBI, Tableau, AWS, MPESA and more. While at Vera, she designed, implemented, and supported data systems for more than 100 social impact organizations, and contributed to the product design and development of Amp Impact–Vera's product suite for impact measurement & portfolio management. Before Vera, Aleksa worked at the Red Cross Global Disaster Preparedness Center in Washington, D.C., where she helped design and implement mobile applications for first aid training and disaster preparedness education in 40+ countries. She holds a BS in Foreign Service from Georgetown University.

→ View Aleksa's Resume

Awards

Open Function Group was started in 2014 by Vera Solutions' co-founder and former CEO, Taylor Downs, to focus on data integration and interoperability issues in international development. Vera Solutions is one of the most influential technology consulting groups in the sector and has designed, built, and implemented custom data systems for over 300 organizations in 45 countries around the world, including Oxfam, Oxfam, The Global Fund, GAVI, PATH, John Snow Inc., IPA, JPAL, and Skoll Foundation.

In addition to our social sector clients, OFG has several strategic partnerships and has received the following awards and recognition:

- In 2014 a **Salesforce Foundation R&D grant** allowed us to prototype the integration platform solution while still operating as a division of Vera Solutions.
- In 2015, our CEO was selected as a **Rainer Arnhold Fellow by the Mulago Foundation** and OpenFn received a grant to develop and scale the young solution.
- In 2015, OpenFn's solution was recognized by PopTech and our CEO was named a **PopTech Social Innovation Fellow**.
- In 2017, OpenFn's solution was recognized for its impact on the social sector and recognized with the **Pizzigati Prize for Software Development in the Public Interest**.

Open Fn Group

Open Function ***Health*** Solutions

Open Function Group ("OFG") helps health and humanitarian interventions in 40+ countries achieve scale and improve service delivery through ***automation***, ***data integration***, and ***interoperability*** solutions.

About the OpenFn integration platform.

OFG manages the **OpenFn** integration platform to offer enterprise-grade, scalable, and secure infrastructure to connect existing technologies and automate key workflows so that you don't have to re-code the wheel.

When setting up automated integrations involving multiple technologies, there are dozens of things you need to get right. OpenFn takes care of the integration "plumbing", while leaving users in complete control of how data is processed.

➔ *Watch a platform demo video.*

Connect *any* app with OpenFn–including common ICT4D tools (i.e., DHIS2, CommCare, ODK, Kobo Toolbox, Salesforce, OpenMRS), custom databases (i.e., Postgres, MySQL, MongoDB), custom applications, legacy systems, and even Excel spreadsheets. If your technology has a REST endpoint or webhooks service, integration will likely work right out of the box. This covers most web applications.

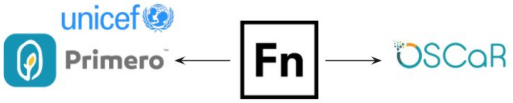
➔ *Explore our Apps page & view the **OpenFn Feature List** on page 5.*

Health Integration Solutions.

Organizations worldwide use OpenFn to integrate **health information and automate service delivery applications.** OpenFn solutions strengthen existing health digital systems through automated data integration, data cleaning, and reporting pipelines. Learn more at openfn.org/solutions.

Automated case referrals for integrated child protection service delivery & quality care in Cambodia
Primero (Protection-related Information Management) is a software project led by UNICEF to provide better information management support to country offices and field-level protection workers. UNICEF Cambodia implemented OpenFn to integrate Primero with partner agency systems to prevent child re-victimization. Every time a case worker refers a case to an external agency, ***OpenFn…***

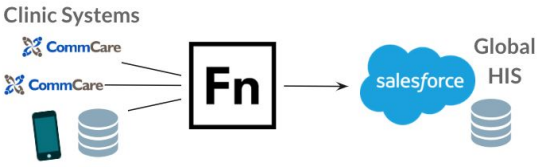
- ➔ ***Validates consent was provided & securely sends case details*** to the relevant agency partner with services requested
- ➔ ***Automates bi-directional batch sync between systems*** to deliver up-to-date intake and referrals across provinces
- ➔ ***Normalizes service classifications*** between systems



Global deployment of a connected health information system to improve service delivery

MiracleFeet uses OpenFn as the interoperability layer of its connected health information system (HIS), used to improve clubfoot treatment delivery across 25 countries. ***OpenFn...***

- ➔ ***Integrates multiple clinic systems with a central HIS*** where MiracleFeet can centrally report on its health KPIs
- ➔ ***Sends real-time case updates*** to program staff who monitor health services & outcomes across 180+ clinics worldwide
- ➔ ***Combines data sources & automates duplicate-checking*** before loading updated case information to the HIS



Nationwide DHIS2 disease surveillance in Nigeria, in-country deployment

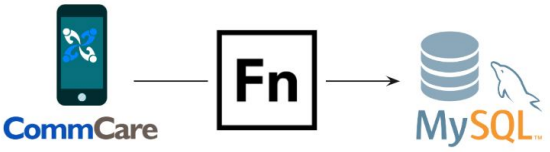
SwissTPH uses OpenFn to connect key health indicator data to a national DHIS2 reporting system for the ALMANACH health initiative in Nigeria. ***OpenFn...***

- ➔ ***Integrates data collection apps with a national reporting system*** for real-time monitoring of child diagnoses across Nigeria
- ➔ ***Automatically delivers 300 beneficiary case updates daily*** and logs events with 100 individual "data elements" in DHIS2
- ➔ ***Runs on Switzerland-based cloud servers*** to ensure compliance with SwissTPH data residency concerns

Real-time national reporting of HIV service delivery in Haiti

In Haiti, the Caris Foundation leverages OpenFn to connect its CommCare case management mobile app with a national HIV database built in MySQL. When health workers record patient visits in CommCare, ***OpenFn...***

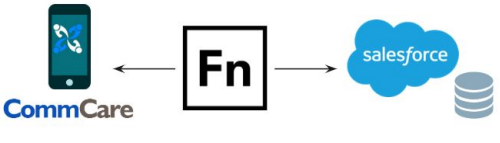
- ➔ ***Cleans the data collected*** for the required standard
- ➔ ***Uploads the data*** to the national HIV database
- ➔ ***Automates real-time reporting*** of 5,000 visits every month



Building a real-time decision support tool for community health workers in Kenya

In Kenya, Lwala Community Alliance implemented OpenFn to build a real-time decision support tool for its community health workers. Every time a patient case record is updated by a health worker, ***OpenFn...***

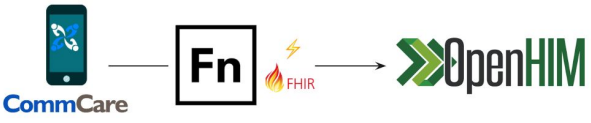
- ➔ ***Forwards real-time case updates*** between CommCare and the centralized HIS built on Salesforce to keep the systems in sync
- ➔ ***Automatically transforms the case data*** to match each system's required format and to prepare it for analysis
- ➔ ***Sends CHWs regular updates on their progress for key indicators***



Enforcing FHIR-HL7 standards to prepare for data integration with healthcare information exchange

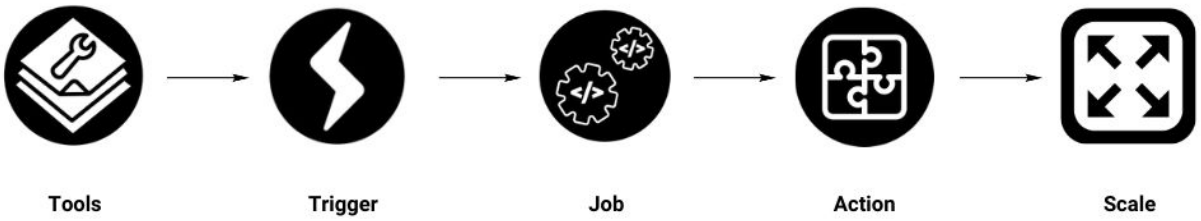
Dimagi partnered with MomConnect to implement CommCare for mobile data collection. Rather than investing in custom development to integrate CommCare with a OpenHIE health information exchange, Dimagi configured OpenFn to transform the CommCare data to meet the FHIR-HL7 standard. ***OpenFn...***

- ➔ ***Cleans & transforms the data*** into the FHIR-HL7 standard
- ➔ ***Uploads the data*** to the OpenHIM information mediator
- ➔ ***Sends error notifications to administrators*** if a data cleaning process fails or if a data format is rejected



OpenFn Is Your Automation Engine.

OpenFn solutions connect and *strengthen* digital ecosystems. Implement OpenFn *jobs* to quickly and securely connect siloed systems, integrate data sources, and automate critical processes.



To automate processes and information flows:
(1) choose the **tools** to connect from your stack of digital technologies,
(2) define what **triggers** the processes (i.e., new case registered, new payment made, daily sync @11pm),
(3) write OpenFn **jobs** (or "scripts") to define how OpenFn should process data & connect with tools,
(4) automate **actions** such as data sharing, data cleaning, routine tasks and notifications, and
(5) flexibly **scale** jobs to expand your reach, introduce new processes, & connect additional systems.

How do I get started? OFG provides implementation and capacity-building packages to ensure successful implementation and ongoing management (*see below section*). OpenFn solutions can also be implemented independently using DIY OpenFn documentation.

Implementation Packages.

OFG offers flexible technology, consulting and **implementation packages** tailored to your project needs. We support projects of all sizes–from pilots and prototypes, to enterprise and national-scale ICT4D solutions.

OFG offers **discounted products & services for government and non-profit projects**.

→ Contact OFG at enterprise@openfn.org for a free consultation and help getting started.

Total Solution Ownership.

To deliver sustainable options and support a range of operational, technical, budget and data governance needs, OFG offers several implementation pathways for OpenFn solutions–from the cloud hosted platform-as-a-service on OpenFn.org, to local deployments that ensure total solution ownership.

	Monthly (SaaS)	Enterprise (SaaS or Local)	Unlimited (SaaS or Local)	Microservice (Open Source)
Description	Pilot, prototype, or go-live today on OpenFn.org . No lock-in, change plans at any time	Custom offerings to accommodate scaling projects or specific project requirements	Unrestricted use of OpenFn to ensure cost effective implementations at scale	Fully open source integration option (not the full platform) [1] ***Expected Release: Q4 2020/ Q1 2021***
License [2]	Choose a plan openfn.org/pricing	Enterprise license w/ custom annual- or multi-term agreements	Unlimited license, OpenFn deployment on dedicated servers	Open source (In development w/ UNICEF and DIAL Open Source Center)
Hosting	**SaaS** OpenFn.org secure cloud infrastructure	**SaaS or Local** OpenFn.org cloud infrastructure OR your designated servers	**SaaS or Local** OpenFn.org cloud infrastructure OR your designated servers	**Local** Deployment on your designated local or cloud servers
Deployment	Register today at OpenFn.org	Contact OFG	Contact OFG	To be available on github.com/OpenFn
Setup [3]	Your choice. OFG or your IT team can configure	Your choice. OFG or your IT team can configure	Your choice. OFG or your IT team can configure	Your choice. OFG or your IT team can configure
Support	***Community support*** *available via group forum & documentation , OR choose from paid* ***Priority Support*** *options for dedicated, 1:1 assistance and capacity building*			

[1] **The FOSS Microservice Approach** is in development with funding from the DIAL Open Source Center. This option does not provide the entire OpenFn platform as free and open source (FOSS). In situations where a particular partner or government is unable to use the proprietary platform, this approach ensures that no investment in the platform is lost. All jobs, triggers, and project configuration can be exported and used, in conjunction with OpenFn's FOSS ETL tools to deploy a microservices-style implementation which incurs zero licence costs and provides the basic data processing that OpenFn's platform does. While at the outset there will be no user interface, no ability to reprocess messages, no user management or visualizations, etc., these features could be built by partners in time to replace the features of OpenFn. I.E., none of the initial investment in OpenFn will be lost if the partners choose to build their own, fully open-source integration platform based on our powerful open-source ETL tools.

[2] **Usage of the hosted OpenFn platform** incurs ongoing license costs for platform use and server fees, largely dependent on expected data volumes to be processed. For CommCare integrations, typically: ***1 OpenFn Run*** *= processing for 1 CommCare form submission or 1 new case/ case update.*

[3] **OpenFn configuration costs:** OpenFn integrations typically take 1-5 days to configure, cost $2k-5k on average to implement (e.g., our QuickStart Integration package costs $5,000 to configure ~5 integration flows in 1 week and includes support hours). Standard implementation packages do not cover advanced custom development, external database setup, nor analytics tool configuration–which are add-on items.

About Open Function Group.

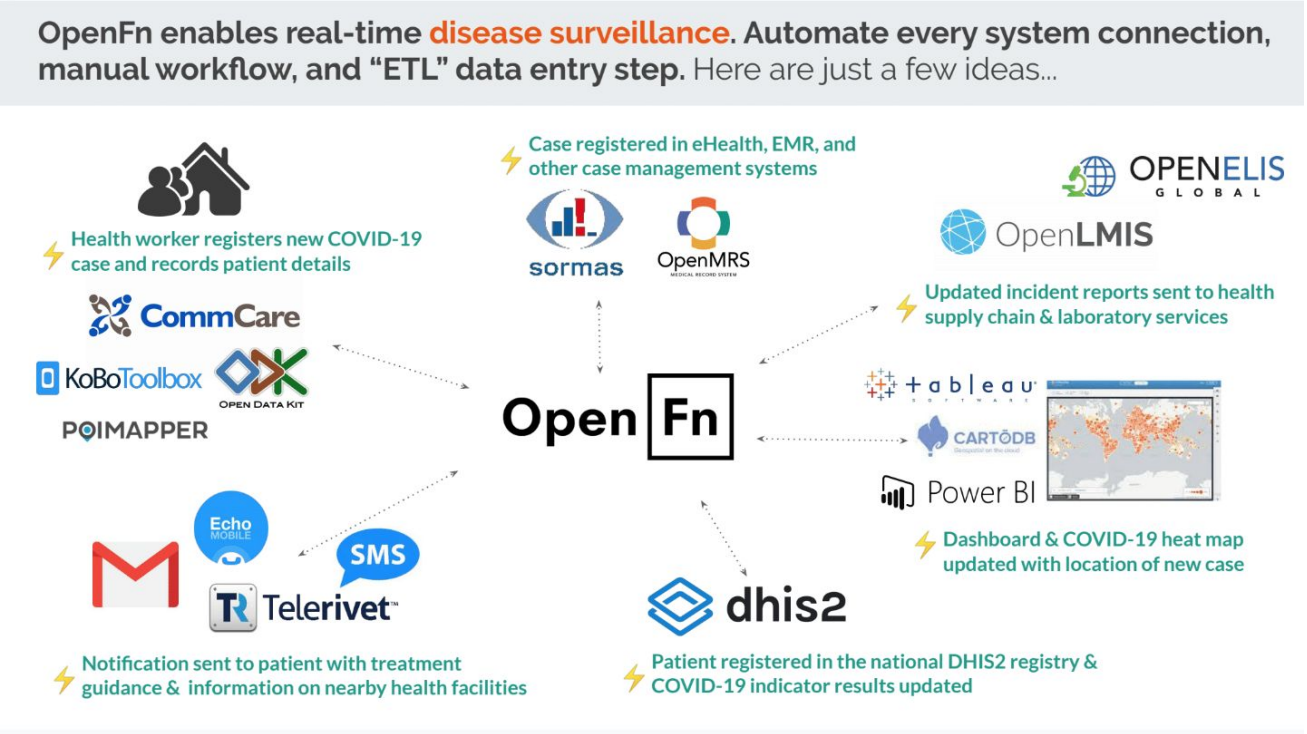
Open Function Group ("OFG") is a team of integration specialists. We offer advisory, implementation, and capacity-building services to help organizations build smarter, connected data systems.

OFG solutions have been used by 40+ organizations around the world, including UNICEF, Wildlife Conservation Society, PSI, Population Council, The Clinton Health Access Initiative, International Rescue Committee, TechnoServe, The Swiss Tropical and Public Health Institute, Lutheran World Relief, Carolina for Kibera, myAgro, Lwala Community Alliance, Livelyhoods, Vera Solutions, Dimagi, and many more.

COVID-19 Response.

Open Function Group is donating **configuration support & zero-margin license fees*** on the OpenFn integration platform for projects supporting the urgent COVID-19 response.

→ Learn more here or contact aleksa@openfn.org.



**The amount of pro bono support available to organizations is dependent on the project scope and OFG team availability.*

Questions?

Contact Aleksa Krolls at aleksa@openfn.org for more information and support. Visit OpenFn.org or OpenFn Github to learn more about the platform, or watch this video overview.

Follow our Twitter, Blog, and YouTube channel to read case studies, watch demo videos, and stay up-to-date with new features being added to the platform: @openfn | OpenFn Blog | OpenFn on YouTube

OpenFn Feature List.

Focus	
Business Sustainability & Scalability	**Deploy anywhere** (Cloud, Mac, Linux, or Windows) with Ansible or Docker
	Elastic scaling to minimize costs and meet needs in real-time
	Load-balancing ensures high availability of your endpoints
	No multi-month lock-in, change plans at the click of a button
	Offline integration scripting and testing tools
	Transition between standard, enterprise, unlimited, and local deployments with ease
	Pay-as-you-go or access **unlimited use**, variable-length contracts
	Global **cloud hosting** options (incl. EU and non-EU)
	In-country cloud hosting options
	Local, **on-premise hosting** options
	Zero vendor lock-in (possible to run all OpenFn jobs on our fully free-and-open-source software)
Security & Trust	Automatic **data archiving** and cloud storage
	24/7 real-time public status monitoring from independent infrastructure
	Variable data retention to minimize sensitive data protection risks
	Encrypted authentication credential storage
	SSL-only encrypted connections
	Routine backups via leading cloud storage provider and 99.999999999% durability
	Real-time, transaction-level **audit trail** (includes system logs from connected applications)
	User access management with distinct roles and privileges
Support & Training	1-on-1, dedicated, **premium support** options available
	Active community for peer-to-peer support and Q&A
	Personalized implementation **training available**
	Robust **documentation** for platform and connector usage
	User activated **in-app support** allows for contracted support from OpenFn experts within your project
Integration Workflows & Connections	**Automate business processes** within or between systems in the cloud
	Build **complex, branching business logic** automation
	Manage powerful, **custom workflows**
	Bulk sync and **batch job** options (nightly jobs, direct database syncing, etc.)
	Connect to ***ANY* application**
	Open-source, **extensible connectors** for simplified integration scripting
	Complete flexibility: create simple **ETL jobs** or **full microservices** to employ modern federated architecture patterns
	Implement a **data cleaning pipeline** with multi-step chained requests
	Perform data validation & **automate adherence to standards** (e.g. FHIR HL-7 patient standard)
	Direct **database connections** (SqlServer, MySql, PostgreSQL, MongoDb, etc.)
	Duplicate checking and upserts
	Feature-rich IDE to help you write jobs
	Fuzzy matching/identity matching across platforms
	Event-driven workflows: real-time integration based on external webhooks
	Multi-step workflows: integration jobs based on success or failure of other jobs
	Cron/timer-based workflows: integration jobs based on timers
Admin & Management	**Adjustable concurrency**: set the number of concurrent runs to manage load or API limits across systems
	Bulk reprocessing of inbound messages or prior job runs
	Custom, filterable **data exports**
	Customizable **notification threshold** for plan usage
	Error reporting & reprocessing
	Isolated **event/message/run reprocessing**
	Fully **searchable message payloads**
	Fully **searchable transaction logs**
	Message (payload) editing for spot-fixes with original payload rollbacks
	Multiple project spaces per user to limit access within organizations
	Real-time alerting and notifications on job failure
	Industry standard **version control**, including auto-deploy from Github and job rollbacks