# Terms of Reference FOR CONSULTANCY

# Development Of An Interactive Dashboard Visualising Global Trends In Humanitarian Market Data During Covid-19

**Overview**

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| **Purpose of consultancy** | IMPACT is seeking a qualified developer, or group of developers, with demonstrated technical capacity to design and create an interactive, easily maintained information management product according to the parameters below.  |
| **Objective** | The primary purpose of this interactive dashboard will be to illustrate trends in market data collected in humanitarian contexts throughout 2020 and 2021, with the aim of better understanding the microeconomic impact of the COVID-19 pandemic on crisis-affected countries. Developing this dashboard is expected to involve some back-end work to display indicators drawn from many different datasets in a comparable manner. |
| **Duration of consultancy** | Approximately **20 working days**, beginning on 20 September 2021 at the latest. |
| **Expected completion date**  | The complete product must be finalised and validated by IMPACT HQ by 15 October 2021. Following validation, the consultant will be expected to train IMPACT HQ staff on the construction, modification, and maintenance procedures of the final product. |
| **Application deadline** | **9 September 2021, 11:59 PM CEST** |

**Background on IMPACT Initiatives and its humanitarian cash and markets research**

IMPACT Initiatives is a humanitarian NGO based in Geneva, Switzerland ([impact-initiatives.org](http://www.impact-initiatives.org)). The IMPACT team comprises specialists in data collection, management and analysis, GIS, and remote sensing based in its Geneva headquarters and in its 26 countries of operation. The organisation’s main initiative is REACH ([reach-initiative.org](http://www.reach-initiative.org)), which was established in 2010 as a joint initiative of two international NGOs aiming to promote and facilitate the development of information products that enhance the humanitarian community’s decision-making and planning capacity. REACH facilitates information management for aid actors through three complementary services: (a) needs and situation assessments facilitated by REACH teams; (b) situation analysis using satellite imagery; (c) provision of related database and mapping facilities and expertise.

One of the central pillars of REACH’s humanitarian data collection is to support cash and voucher assistance (CVA) and other market-based programming in humanitarian crises, through a workstream that includes rapid market assessments in response to situational developments, deep-dive market studies, and ongoing market monitoring to enable trend analysis. Throughout the COVID-19 pandemic, lockdowns and movement restrictions have caused unprecedented disruption to global markets and supply chains. While marketplaces themselves remained operational in most humanitarian contexts, restrictions on both cross-border and internal movement produced widespread shortages of key commodities, which in turn led to short-term availability issues and price increases at all levels of the supply chain. Furthermore, large-scale business closures and movement restrictions in many countries disproportionately affected the livelihoods of the most vulnerable, who were often dependent on earning daily income yet unable to engage in income-generating activities from their own homes.

Although the full economic cost of these measures has yet to be tallied, it is crucial for humanitarian actors to be able to quantify their effects on vulnerable households’ ability to afford basic commodities to understand how much and what type of help is needed to rebuild. Throughout the COVID-19 pandemic, REACH has been reorienting and partially harmonizing its Joint Market Monitoring Initiatives (JMMIs) to meet the challenges posed by the pandemic, with the result that it can now draw on a body of time-series market data collected across 16 diverse humanitarian crises throughout 2020 and 2021. REACH now intends, through this consultancy, to create an interactive visualisation of key market data collected globally throughout 2020, a task which may involve the compilation of data from various previously published outputs and manipulation of this data to ensure it can be compared across all countries.

**Objective**

**The main objective of this consultancy will be to develop an interactive online dashboard that displays trends in market data collected in humanitarian contexts throughout 2020 and 2021, with the aim of better understanding the microeconomic impact of the COVID-19 pandemic on crisis-affected countries.** On the front end, this dashboard will visualise key indicators over time in a way that clarifies how prices, exchange rates, market functionality, etc. have changed over time in each monitored country. On the back end, it will rely on compiling and reanalysing market data from disparate sources to ensure that indicators from multiple countries can be displayed comparably side by side.

Front end:

1. **Design:** The design will be based on initial parameters and desired elements provided by IMPACT and developed in a collaborative effort between the developer(s) and IMPACT, with wireframes approved by IMPACT as part of the process. Desired elements will include:
	* Interactive cross-crisis graphs of market prices for key commodities, fully flexible in terms of timeframes, commodities displayed, and countries displayed
	* Interactive cross-crisis graphs of market functionality and accessibility indicators that are sufficiently comparable across countries
	* Side-by-side tabular displays of similar market functionality and accessibility indicators that cannot be directly compared across countries
2. **Speed:** The information product must be fully accessible to humanitarian actors working in less developed countries who may access the dashboard using older computers and unstable internet connections. The dashboard should therefore be optimised in terms of resource usage and required bandwidth/resolution and should be reasonably backwards-compatible with older browsers.
3. **Analytics:** The use of analytics, and easy access to those analytics by IMPACT HQ staff, must be provided for in the code.

Back end:

1. **Development:** The dashboard must be created using either a standard, widely used data visualisation application, preferably Tableau or Power BI, or a standard, widely used programming language, preferably R (Shiny), Python, or JavaScript, and can ideally be coded and maintained using existing IMPACT technical capacity without the purchase of additional software licenses or special installations on the server. The developer(s) must have access to any licenses required to fulfil their technical proposals.
2. **Database:** All necessary data will be provided in the form of CSV files. The database must be fully anonymised (i.e. including no columns containing sensitive data about enumerators or respondents). No additional database software or platforms should be required for the maintenance of the database.
3. **Documentation:** All relevant processes, procedures, and other knowledge required for a new IMPACT staff member to fully understand the design, implementation, and maintenance of the product, as well as to complete a full monthly update cycle, must be fully documented and presented to IMPACT in soft copy in conjunction with the end-of-project training session.
4. **Training:** As an integral part of the project, the consultant must reserve one working day at the end of the project to fully train one or more IMPACT staff members to take over the deliverables, covering all topics required as part of the documentation and providing direct demonstrations of how to modify their elements.
5. **Server:** Dashboards created in Shiny, Tableau, or Power BI will be hosted on IMPACT’s organisational accounts for those three services. Other types of dashboards will be hosted on a server provided by IMPACT HQ and hosted in Switzerland. IMPACT has the capacity to install database engines and front-end/back-end options as needed.
6. **Security:** Direct server access will not be allowed for external developers due to the sensitive nature of some of the data stored. Developers will be required to delete and/or destroy any and all copies of relevant non-anonymised IMPACT data in their possession following the closure of the project.
7. **Data protection:** IMPACT requires full compliance with the European General Data Protection Regulation (GDPR) of 2018 for all information products, regardless of format or location of upload. For information products uploaded to the IMPACT HQ server, all aspects of the front end and back end must also fully comply with the Swiss Data Protection Act of 2020.

**Consultancy specifications**

## Audience

The **primary target audience** for this information product will be global and regional humanitarian actors, including donor agencies, UN agencies, international NGOs, and think tanks, who will be able to use these cross-crisis comparisons to understand the differential effects of COVID-19 on markets in humanitarian crises worldwide, to inform strategic decisions about resource allocation, to draft policy recommendations, and to develop preparedness plans for future outbreaks, epidemics, and pandemics.

## Core components

The developer(s) must display the competency to create an information product with the following core components, with modifications possible following mutual agreement between the developer(s) and IMPACT:

1. Decision support interface
	1. Data display
		1. Visualisations to include time-series graphs with various aggregations, side-by-side comparisons of key indicators, and dynamic user-defined data tables displaying reanalysed cross-comparable data
		2. Different types of data that cannot be directly compared (e.g. price index analysis and market functionality analysis) will be integrated in a more limited fashion
	2. Data selection
		1. Data points can be individually selected, displaying tooltips providing additional context
		2. Data displayed in visualisations can be filtered by multiple user-defined attributes including country and region of interest, time period, and responses to key indicators, with visualisations updating dynamically to reflect user inputs (e.g. changing the vertical range to accommodate only the data points currently displayed)
		3. Side-by-side tabular comparisons can dynamically be made between countries for any indicators (e.g. market functionality) that cannot be comparably displayed on the same graph
	3. Analysis
		1. Data will be reanalysed as needed on the back end to ensure data from disparate crises and economic contexts can be displayed in a cross-comparable way

## Types of data to be incorporated

The dashboard must consolidate market data from 18 separate monthly market monitoring assessments launched in 16 countries worldwide. Each market monitoring assessment is expected to be internally standardised from month to month, but the dataset structure and variable names are expected to differ from country to country. It is therefore expected that the data from each country will need to be reanalysed and/or repackaged, ideally using standardised automated processes and minimal manual restructuring, in order to be displayed in a cross-comparable manner. For example, prices in different countries will need to be converted to a single reference currency using monthly exchange rates provided by IMPACT; trend lines will need to be normalised to account for different baseline prices in different countries; and commodity names and units will need to be standardised across countries. It will not be possible to fully standardise every indicator, and the limitations on doing so will be accounted for in the overall dashboard design and in decisions about which indicators to display or not display.

## Working relationships

The IMPACT HQ Senior GIS Specialist and Global Cash and Markets Assessment Specialist will be the IMPACT focal points for the development of this dashboard. The developer(s) will be expected to lead on all technical tasks related to developing both the front end and back end of the dashboard, in close consultation with the two IMPACT HQ focal points. The developer(s) will be expected to maintain regular communication with the IMPACT HQ focal points throughout the duration of the project in the form of weekly email updates, monthly activity and expenditure reports, and remote technical meetings as necessary to provide specific information/clarifications or solve specific problems. IMPACT HQ will facilitate all communication with stakeholders, donors, and other humanitarian actors in the event that such communication is needed.

**Expected deliverables**

The developer(s) shall provide IMPACT with the following deliverables:

1. *(validated within 18 working days)* **Final dashboard** with all functionality outlined in the specifications above and in follow-up clarifying meetings, in the form of:
	1. A test instance uploaded to the developers’ own web server demonstrating the dashboard’s full functionality for review and validation purposes.
	2. A .zip file containing all finalised code and supplementary files, organised using a file structure that can be directly uploaded to the IMPACT server with full functionality.
	3. Full access to, and a transfer of ownership of, the master dataset on which the dashboard runs.
2. *(validated within 20 working days)* Full documentation of all code or working files created, including instructions for common modifications, maintenance tasks, and analytics review that IMPACT HQ may need to undertake.

**Please note that all deliverables will be subject to a minimum of two rounds of review and validation by IMPACT HQ before being finalised, which must be incorporated into the project schedule. All comments from IMPACT HQ must be addressed before any deliverable will be considered validated. The validation process must be completed before the project’s final deadline.**

**Project kickoff and deadlines**

This assignment is planned to be accomplished within **20 working days**, starting by 20 September at the latest. Both the front end and back end of this information management product must be finalised and validated by IMPACT HQ by 15 October 2021 at the latest. All validated deliverables must also be fully handed over to IMPACT staff by this date, including the master database used in the dashboard, the submission of full documentation (to be reviewed and approved by IMPACT), and the conduct of a training and handover session for relevant IMPACT staff.

**Application requirements**

**Applicants are requested to outline their proposed approach in the following documents:**

1. Technical offer written in English, outlining the proposed services in detail and the team involved in the development, justifying relevant choices of dashboard platform/language and demonstrating competency in the following key areas:
* Full life-cycle engagement with web applications for large-scale humanitarian or development projects
* Development of customised web-based dashboards
* Building user-updateable content management systems
* Cutting-edge user experience design and data visualisation skills
1. Financial offer, outlining the budgetary outlay required to implement these services. Budget should be set in USD and inclusive of any tax.
2. Workplan, itemised by task and indicating the corresponding amount of working days and manpower required for each and confirming availability for the period outset.
3. At least two examples or two references or referrals from previous clients attesting to their previous experience working on similar projects, as well as any previous work demonstrating relevant experience.
4. Supplier’s questionnaire as per annex.

**Complete applications must be received by 9 September 2021 at 11:59 PM CEST to be considered.**

**Additional details**

**Language:**

* All work for this project must be conducted in English, and all deliverables for this project must be fully in English as well. While the developer(s) are invited to propose and design deliverables that can in the future be modified for display in more than one language, this is not a requirement, and the developer(s) will not be required to complete any translations as part of this project.

**Applicants:**

* Independent consultants as well as companies can both apply. Evidence of an appropriate registration as an independent consultant or registered company will need to be provided with the supplier’s questionnaire.
* The consultancy will be fully remote with regular remote meetings with IMPACT HQ.