

# Jamaican Youth through Empowerment & Training Project

# JET



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# Jamaica's Digital Skills Indicator

While digital technologies are spreading rapidly, there continues to be a mismatch between education and industry which poses an ongoing challenge for the future of work. Higher education and vocational training programs and systems are not structured to respond in real-time to the shifting demands of private sector companies operating in the digital economy. It is estimated that the average lifespan of a learned skill is estimated to be five years and even shorter for technical skills, which means that a skill learned today will be about half as valuable in just five years or less. This is why in a context of rapid technological development and highly changing collaborative environments, it is important to think about employability and upskilling strategies for a resilient labor market, placing people and the work they do at the center of the strategies employed.

***To address this, is the objective of the “Unleashing the Potential of Jamaican Youth through Empowerment & Training Project”, also called JET.***

By providing low-income employed and under-employed Jamaican youths with data for awareness of job opportunities and the skills that are required for available jobs. And contributing to the design of curricula and training with the specific digital and soft skills, to help them find employment, income, and entrepreneurial opportunities.

The project's objective is to leverage open-source data to create a model identifying labor market trends in Jamaica, with a view to rapid development and creation of relevant skill programs and be able to respond to real-time labor market needs. For what we are using an Employment & Skills Monitor, to identify trends, social insights, and leading indicators. The monitor is an AI platform specialized in active listening to citizens that has been created to work in the framework of the SDGs.

***This report contains scanning and analysis of local and global trends in digital skills for the Jamaican labor market, to assess public and private institutions in terms of youth training for their data-driven decision-making.***

The analysis can further support assessment for training models and curriculums used to prepare Jamaican youth (ages 17-34 years old) transition the low-income workforce into knowledge economy-related jobs, as well as to support digital entrepreneurship activities. The main sectors of focus are those where the challenges and opportunities for innovation are greatest: tourism, manufacturing, and food processing, to name a few.

# The methodology

**Data Source and Collection:** The first step of this project was to identify the web sites, social media platforms and job lists to be analyzed in order to identify labor market conditions, wanted skills, and job offer descriptions in Jamaica, remote opportunities and other similar markets in the Caribbean.

**The queries:** Defined and built the queries to be used for each data source to guarantee the relevance and quality of the data. These helped us analyzed the data in real-time, collected from all available sources for over 12 months.

**The AI model:** developed and adapted to the scope of the project, for searching and categorizing in real-time the information, that evolves with the conversations adapting to any language, dialect, or slang, including specifically the Jamaican patois.

**The Dashboards and Reports:** In order for the analyzed information to be translated into training and capacity building for the Jamaican labor force, we use dashboards with real-time analysis of the collected data from the defined sources. The dashboards filter the data by data source, gender, and intent. And with those dashboards we are able to put together the reports with insights.

## Data Sources

**The tool uses datasets from different countries, such as:**

**Jamaica:** It includes all the information regarding digital skills in the context of labor, in the Jamaican territory.

The next datasets include all the information regarding digital skills in the context of labor, in its territory, focusing just in remote offers.

- *United States*
- *United Kingdom*
- *Antigua & Barbuda*
- *Bahamas*
- *Barbados Remote*
- *Dominica*
- *Saint Lucia*
- *Saint Vicent & the Grenadines*
- *Trinidad & Tobago*

The team worked on identifying economic sectors and digital skills, that we could use as main sources of digital information and data about the labor market and digital skills that impact Jamaica at different scales. For this datasets, ten (10) different categories are used for the analysis. Each category englobes topics related to it. The categories and their seeds (what each category includes), is listed below:

**The tool uses datasets from different countries, such as:**

### **Digital foundation skills**

Access the internet; basic IT; basic digital; connect to the internet; turn on a device; connect to wifi; connect to wi-fi; connecting to wifi; connecting to wi-fi; wifi connection; wi-fi connection; keep password safe; use a touch screen; use a mouse; use a keyboard; operating system; operating systems; basic functions.

### **Software Management**

Microsoft word; processing software; microsoft office; office suites; office suite; spreadsheet; outlook; word processor; google docs; powerpoint; presentation software.

### **Social media**

Content creator; content creation; social media manager; social media strategist; content moderator; head of social media; content moderation; content executive; social media executive; digital content; social media specialist; content specialist; social media consultant; community manager; social media assistant; social media creator; social media planner.

### **Data analytics**

Big data; data visualization; data cleaning; data analysis; data analyst; data mining; dataset; datasets; data management; knowledge discovery; statistical modelling.

### **Programming, Web and App Development**

Python; matlab; developer; programmer; programmers; programming; javascript; app developer; software developer; Web developer; coding; synthax; C language; C++; C#; R language; Kotlin; Go language; Scala; Rust language; PHP; app development; software development; web development; API; coder; coders.

### **Digital image and video editing**

Video editing; Digital image; image processing; image manipulation; digital photo; digital photography; airbrush; retouch; retouching; graphic software; digital video; cropping; editing software; photoshop; lightworks; shotcut; openshot; image enhancement; photolab; video processing; lightroom; adobe premiere; digital media.

## **Digital Business**

Digital business; e-commerce; digital marketing; search engine optimization; web positioning; cost per click; customer acquisition; customer experience; e-business; e-marketing; click-through rate; content marketing; content strategy; conversion rate; optimization; customer journey; digital enterprise; marketing automation; digital strategy; product owner; startup; entrepreneur.

## **Cybersecurity**

Cybersecurity; virus; viruses; firewall; firewalls; password; IT security; passwords; malware; crimeware; spyware; hacker; hacked; hacking; hackers; antivirus; antiviruses; data breach; email fraud; cybercrime; cyberterrorism; phishing; spoofing; digital attack; attack vector; data theft; denial of service; encryption; ransomware; spam; anti-virus; cloud storage.

## **Design**

Graphic design; prototype; prototyping; UX design; graphic designer; visual design; web design; user interface; user experience; design.

## **Artificial Intelligence**

Machine learning; artificial intelligence; algorithm; algorithms; virtual reality; augmented reality; automation; automated; robotics; robots; robot; cluster analysis; deep learning; game theory; supervised learning.

The categories have been defined as topics of interest by subject-matter experts, as well as through a bottom-up analysis of the data. And data is categorized automatically, with human quality controls.

# Demographic indicators

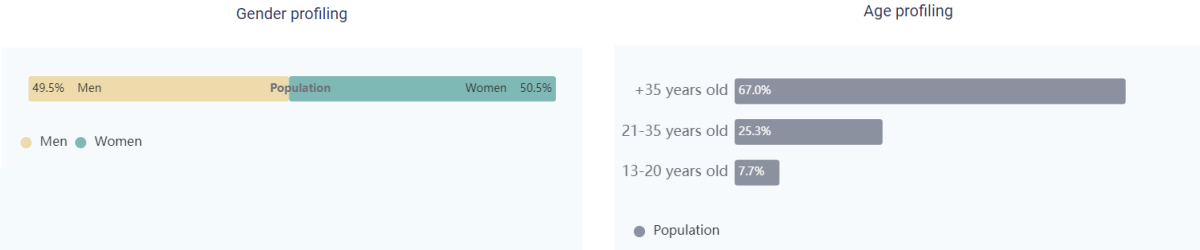
**Data Source and Collection:** The first step of this project was to identify the web sites, social

The monitor is represented by

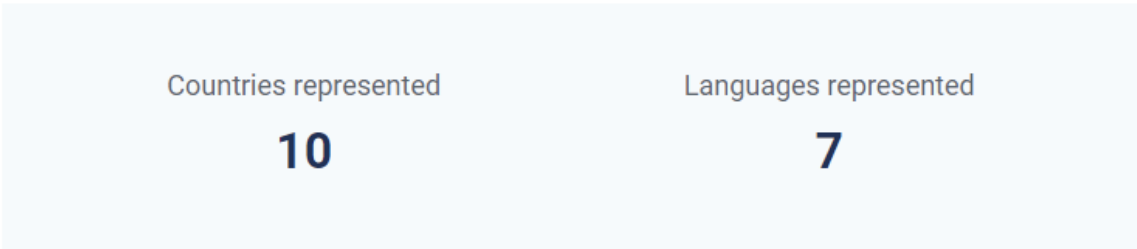


Total number of analysed documents and authors in the selected location and time period.

Comparison of the percentage of male and female, in the selected location and time period. The tool recognizes that female and male are not the only genders, and the data is calculated using the gender profiling algorithm in the documents with detected demographics.



## Countries and languages



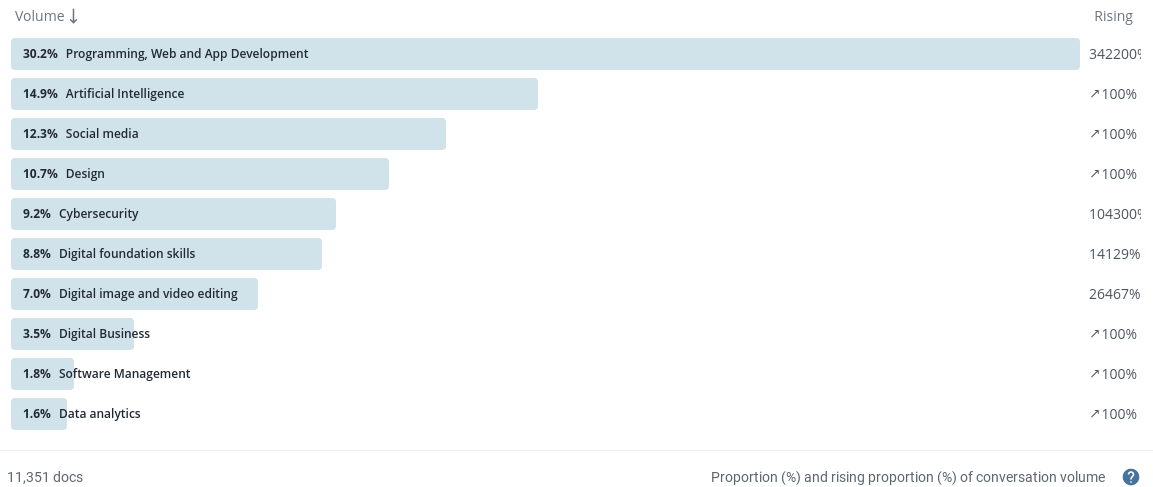
Total number of languages and countries analysed.

# Jamaica's Digital Skills



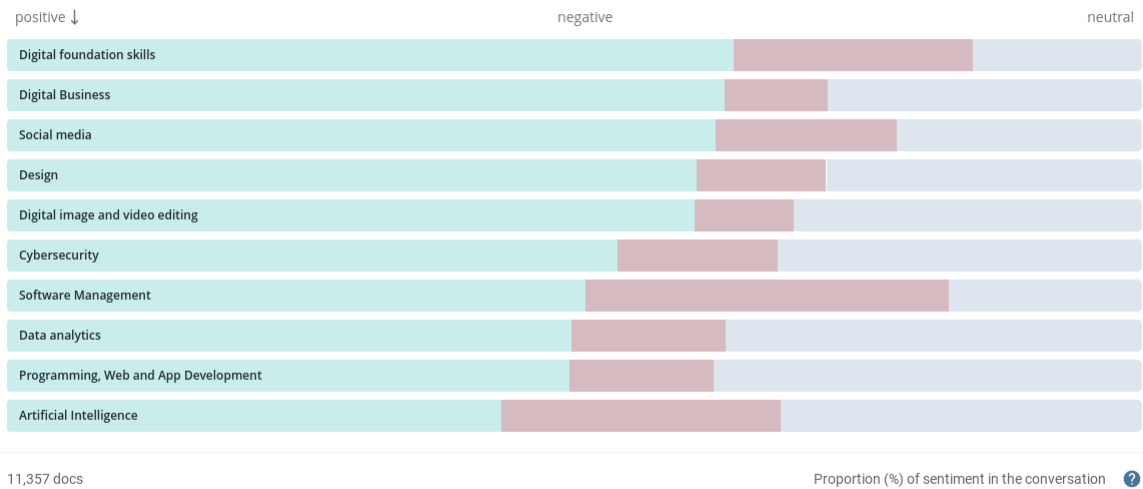
To begin the analysis, we will look at the Employment and Skills Monitor, which provides real-time insights into citizens' needs, opinions, and concerns around societal changes and challenges, such as the ones faced by the job market. We will begin by understanding which aspects are of greatest concern in Jamaica, and identifying trends, by detecting growing conversations in the monitor. The graph below gathers data from July 2021 to August 2022, and helps to visualize the main trending's in Jamaica. In respect to this, the main trends were ranked as follows: Programming, Web and App development (30.2%), Artificial Intelligence (14.9%) and Social media (12.3%).

## Digital needs in Jamaica



Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 19/07/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising...  
view all

## Sentiment analysis



Source: Digital Skills Monitor. Data collected from: Jun 30, 2021 to Aug 8, 2022. Downloaded: 30/08/2022. Powered by Citibeats. This chart represents: Proportion (%) of sentiment in...  
view all

To better understand the opinion of the voices gathered, we reviewed the data from a sentiment analysis perspective, which is used to determine whether a given text contains negative, positive, or neutral emotions. This helps us to visualize data, comparing the opinions and feelings that citizens shared on the datasets analyzed.

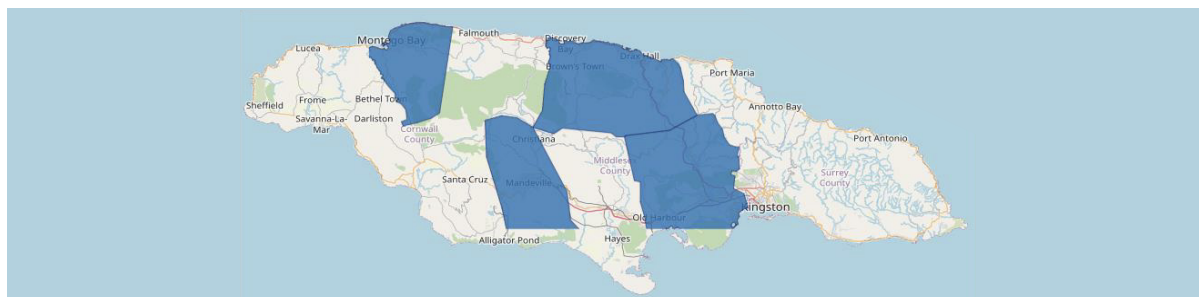
Some of the great findings include that the most positive reaction is towards digital business (64.6%), followed by digital foundations (63.9%) and social media (62.2%).



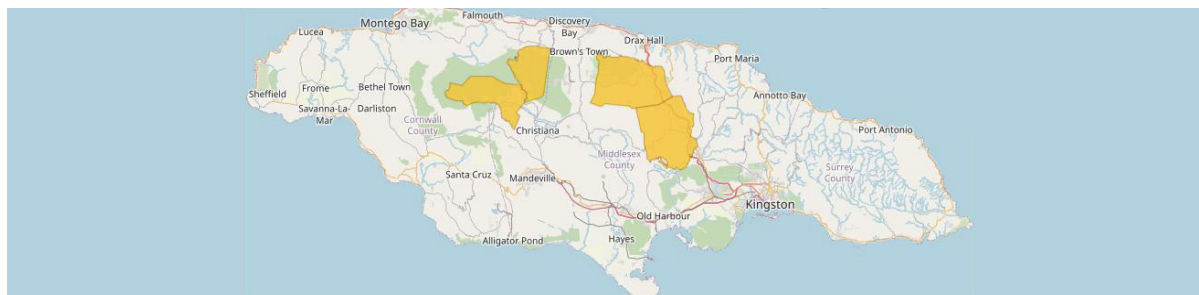
# Jamaica's subregional analysis

It is also important to look at trends, which allow us to anticipate future developments of the data. For the same period (July, 2021 - August, 2022), the top 3 categories for digital needs in Jamaica were analyzed from a parish perspective, to identify trends at the sub-regional level.

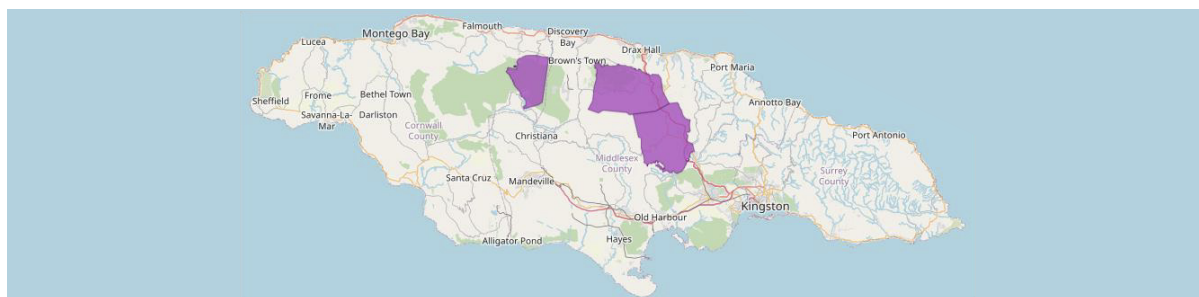
The graph below illustrates how the citizens of four of the 14 parishes in Jamaica - St. James, St. Ann, Manchester and St. Catherine- are mainly expressing training needs in programming, web and app development.



Citizens in the southern sections of Trelawny, central and eastern sections of St. Ann and northerly sections of St. Catherine, are rather highlighting training needs in Artificial Intelligence.



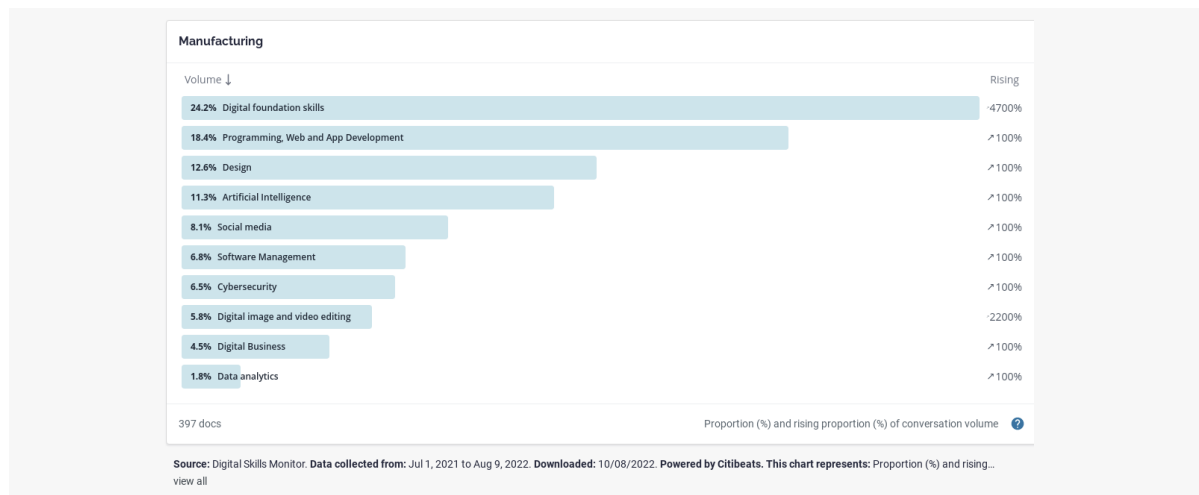
The distribution of the conversation on social media across the island is concentrated in small sections of St. Ann and St. Catherine.



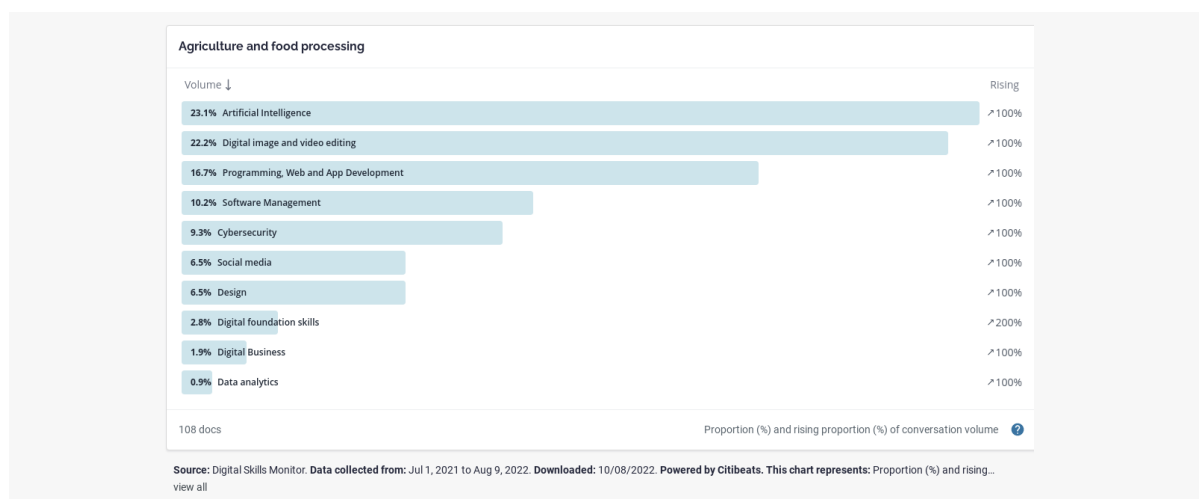
# Skills by sector

We analyzed the categories of digital skills in different economic sectors, to visualize which skills have a higher demand in each sector, according to the citizens voices.

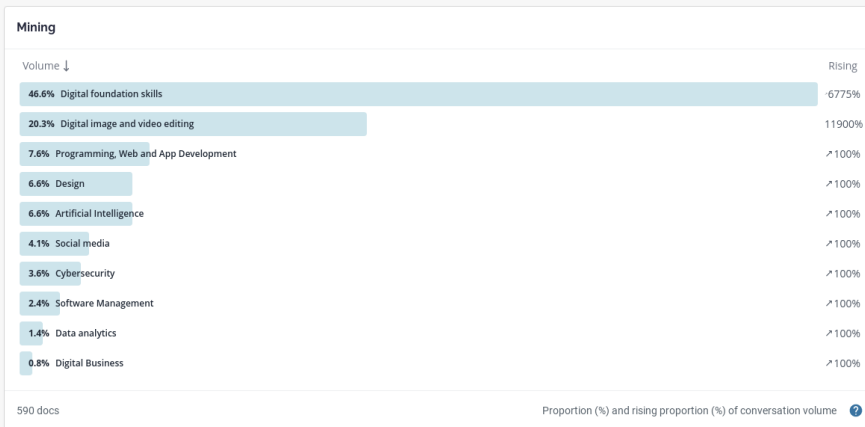
Starting with manufacturing, the trends in the sector revealed more citizen conversations towards digital foundation skills (24.2%) followed by programming, web and app development (18.4%), and design (12.6%).



The Agriculture and Food Processing industry has its greatest trend in conversations around Artificial intelligence (23.1%) followed by digital image and video editing (22.2%) and programming, web and app development (16.7%).

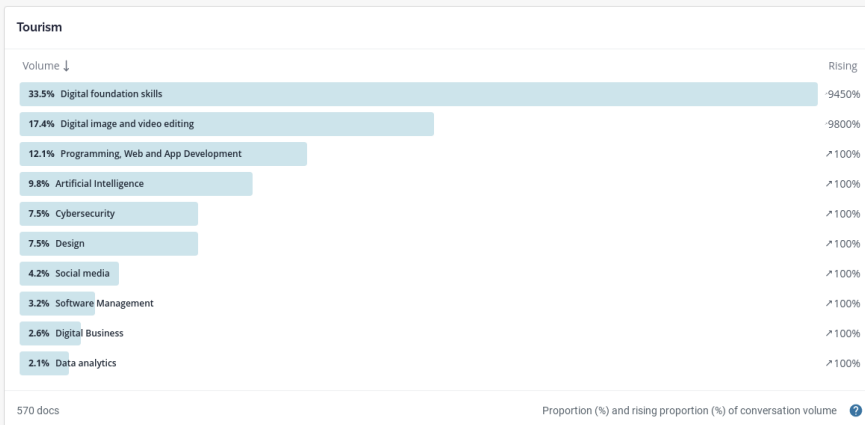


The Mining sector showed its greatest voices raised in digital foundation skills (46.6%) followed by digital image and video editing (20.3%) and programming, web and app development (7.6%).



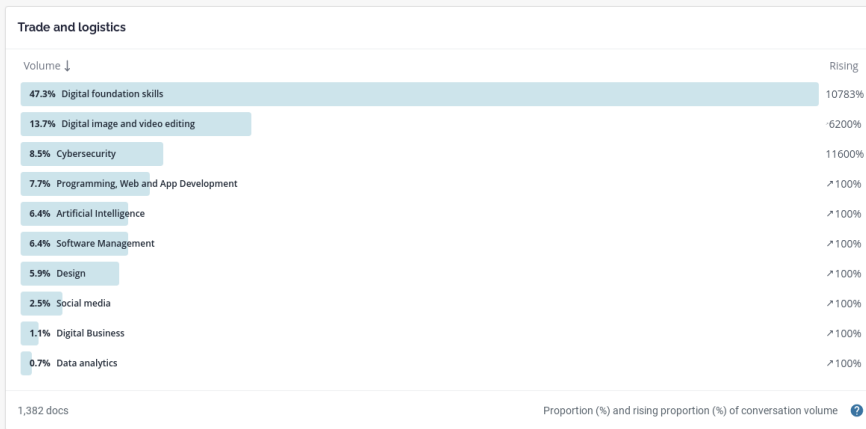
Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 10/08/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising...  
[view all](#)

Trends in the Tourism sector revealed its greatest need in digital foundation skills (33.5%), followed by digital image and video editing (17.4%) and programming, web and app development (12.1%).



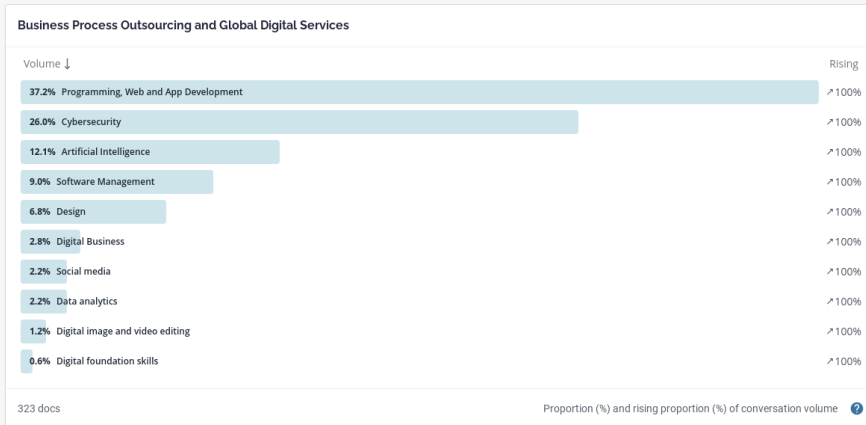
Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 10/08/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising...  
[view all](#)

For the Trade and Logistics sector, digital foundation skills (47.3%) were its greatest niche of skills, followed by digital image and video editing (13.7%) and cybersecurity (8.5%).



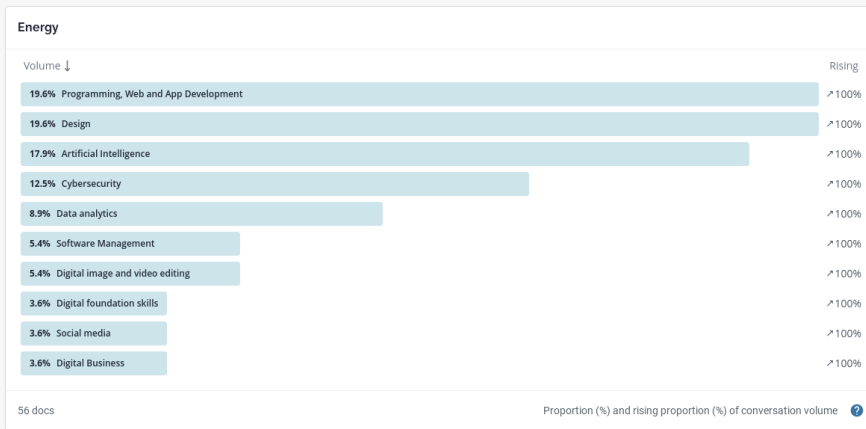
Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 10/08/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising...  
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The Business Process Outsourcing and Global Digital Services sector has its greatest need in citizens conversations involving also Programming, Web and App development (37.2%) followed by cybersecurity (26%) and artificial intelligence (12.1%).



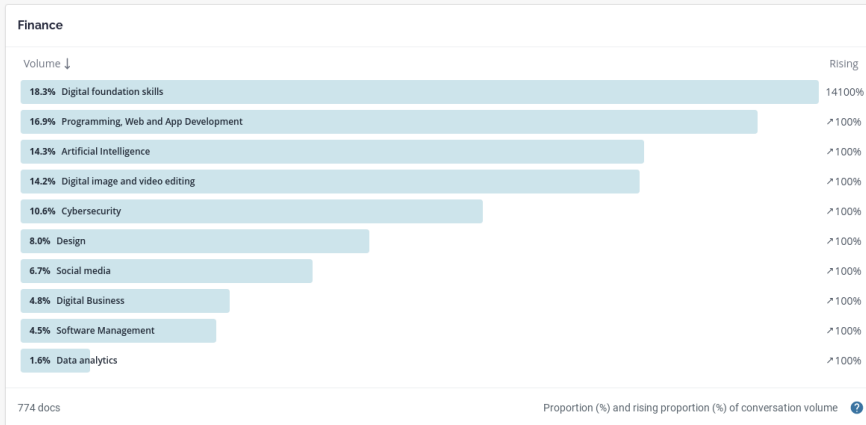
Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 10/08/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising...  
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The greatest needs in the Energy sector are related to programming, web and app development (19.6%) and design (19.6%) followed by artificial intelligence (17.9%).



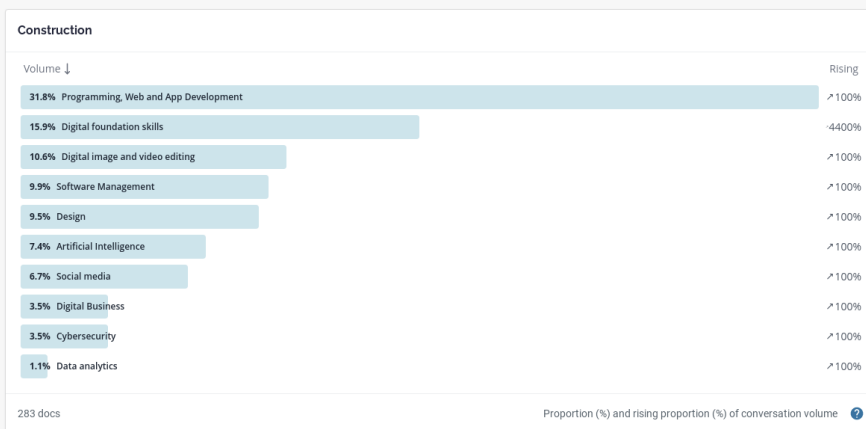
Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 10/08/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising... view all

Finance industries demonstrated their greatest niche in trending conversation around digital foundation skills (18.3%), programming, web and app development (16.9%) and artificial intelligence (14.3%).



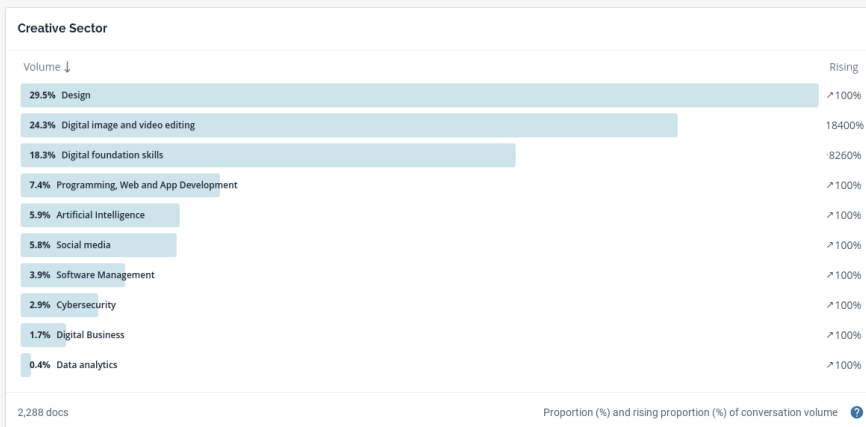
Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 10/08/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising... view all

In the Construction sector it distributed as it follows, programming, web and app development (31.8%), digital foundation skills (18.3%) and digital image and video editing (10.6%).



Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 10/08/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising... view all

In the creative sector, Design (29.5%) was the greatest need with digital image and editing (24.3%) and digital foundation skills (18.3%) following.



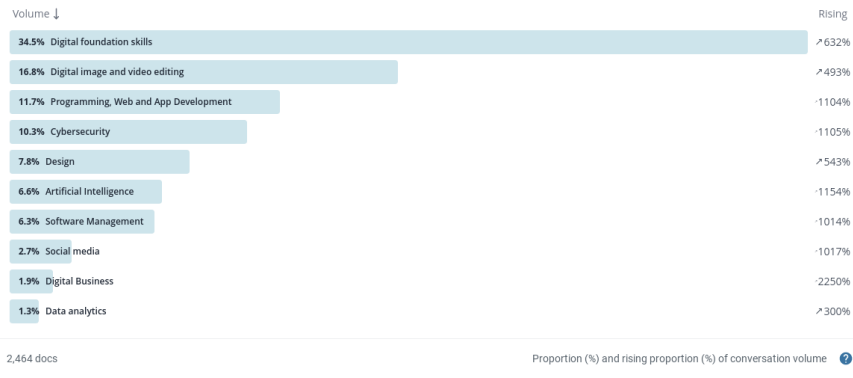
Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 10/08/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising... view all

The data sources used to collect the data are divided mainly into:

- **Web content:** websites, news articles, blogs, Reddit, forums, etc.
- **Twitter.**
- **Facebook pages:** Jamaica Labour Market Information System, Career Jamaica, Finding jobs for Jamaicans, Job Seekers/Employers (Jamaica), etc.

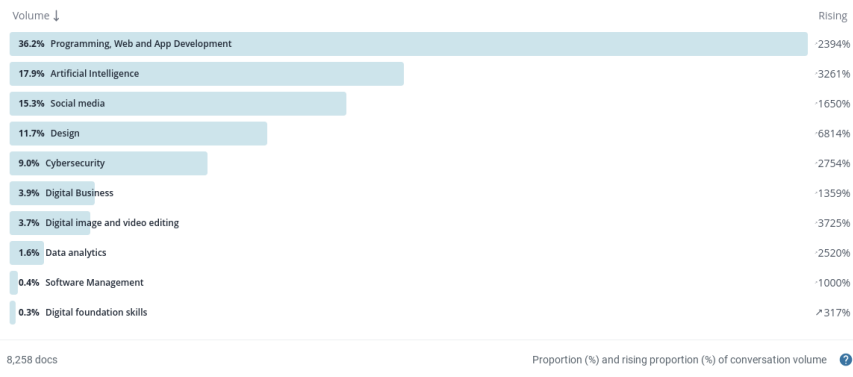
The data reviewed belongs to the same time gap and was segmented by the different sources.

### Web content



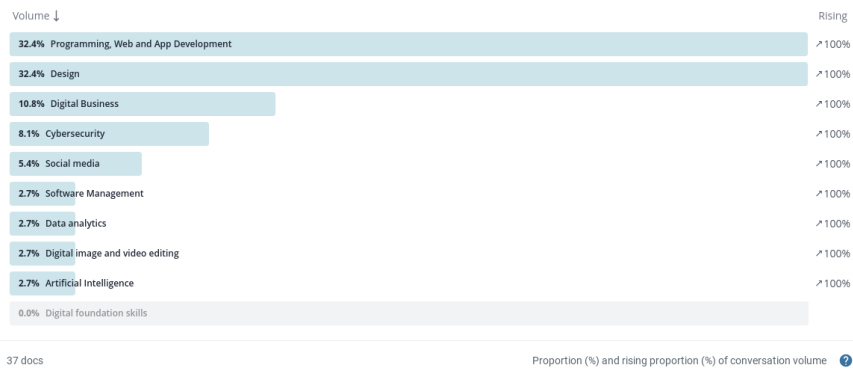
Source: Digital Skills Monitor. Data collected from: Aug 10, 2021 to Aug 10, 2022. Downloaded: 25/07/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising...  
[view all](#)

### Twitter



Source: Digital Skills Monitor. Data collected from: Aug 10, 2021 to Aug 10, 2022. Downloaded: 25/07/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising...  
[view all](#)

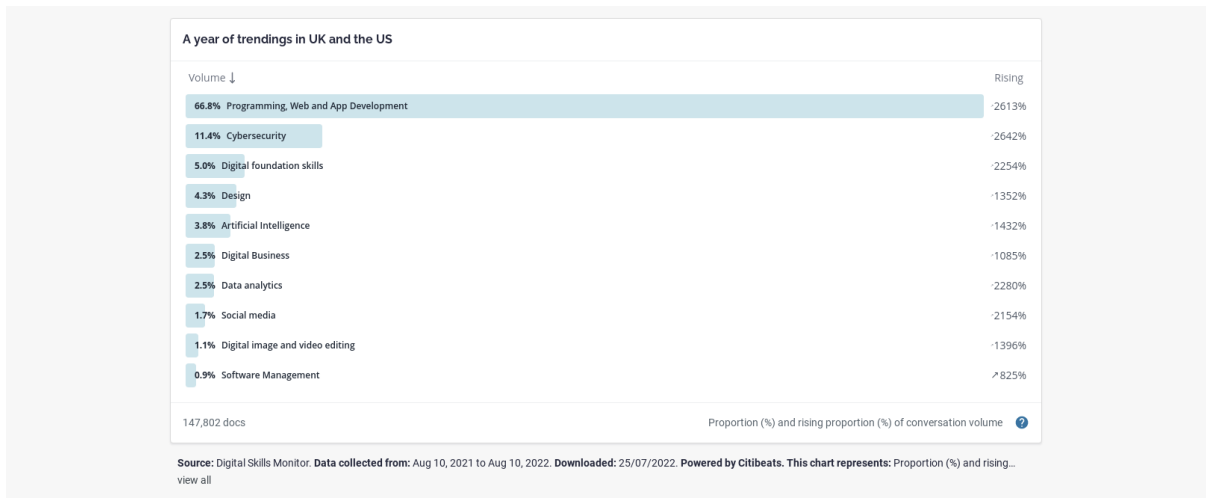
### Facebook



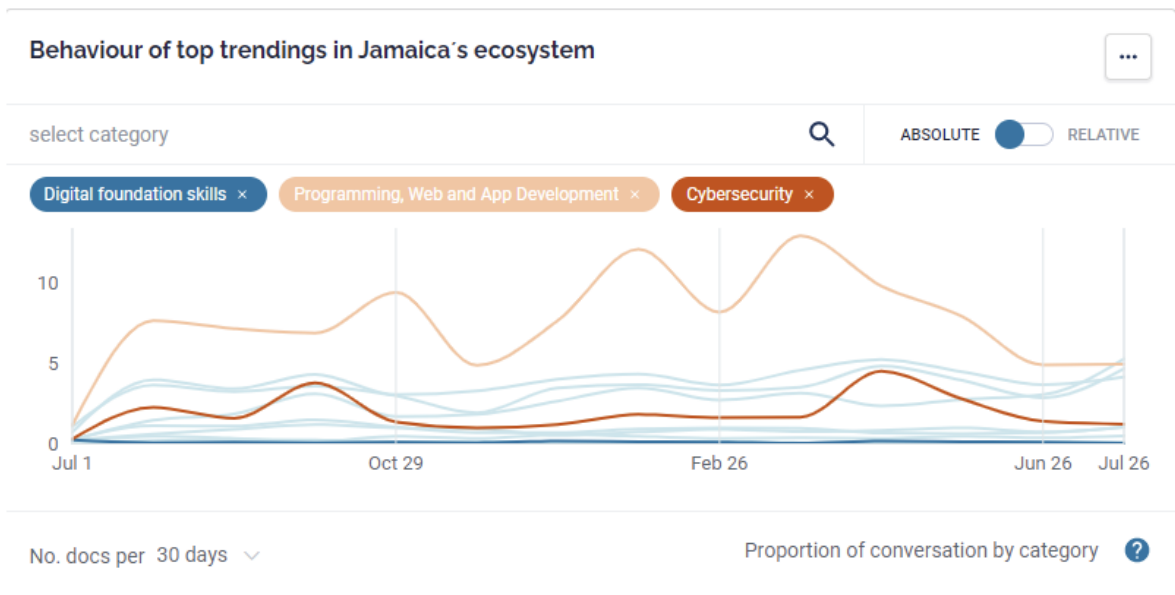
Source: Digital Skills Monitor. Data collected from: Aug 10, 2021 to Aug 10, 2022. Downloaded: 25/07/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising...  
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# From a Global Perspective

We have also collected data for countries with important Jamaican migrant communities to assess remote opportunities for Jamaican youth, including United States, United Kingdom and neighboring Caribbean countries, in order to identify other digital skills needs that could be emerging in those countries. This data showed that the greatest conversation trend in United States and United Kingdom were in Programming, Web and App development (66.8%) followed by Cybersecurity (11.4%) and Digital Foundation skills (5%). Which arises more needs in Cybersecurity and Digital Foundation skills, compared to Jamaica.



Then, we took the top 3 categories and looked at their behavior in Jamaica in the past 3 months.



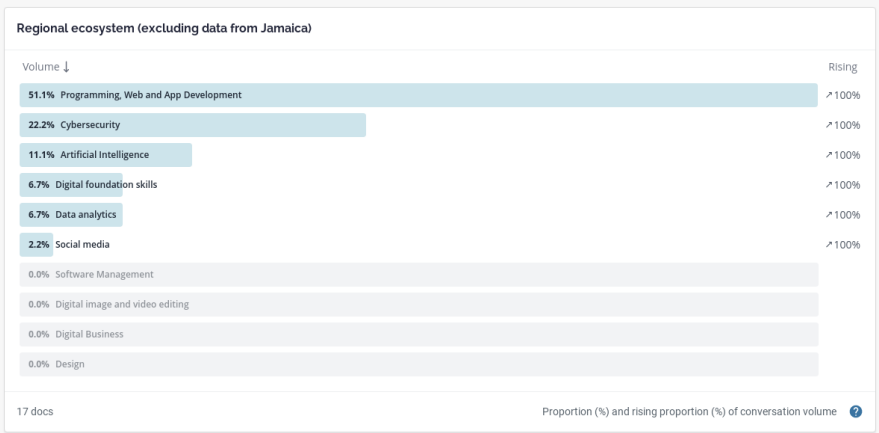


# The regional ecosystem



Data was collected across the Caribbean to ascertain a regional perspective in the context of CSME and regional migration. However, the data below focused primarily on remote offers.

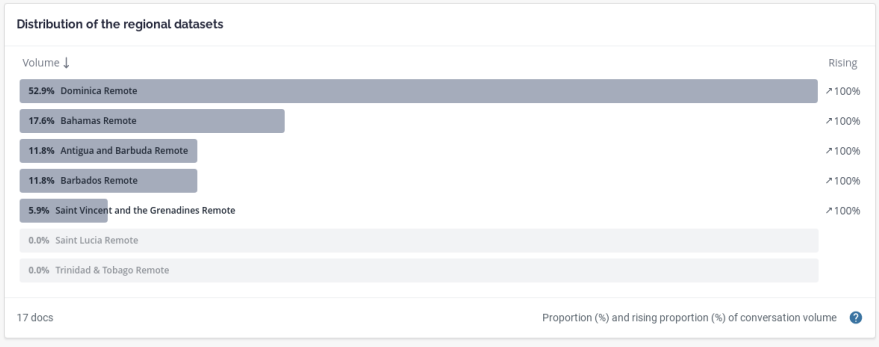
- *Antigua and Barbuda*
- *Bahamas*
- *Barbados Remote*
- *Dominica*
- *Saint Lucia*
- *Saint Vincent & the Grenadines*
- *Trinidad & Tobago*



Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 25/07/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising... view all

The data revealed that programming, web and app development (51.1%) was also trending across the Caribbean, followed by Cybersecurity (22.2%) and Artificial Intelligence (11.1%).

Now we can see the distribution of the datasets used:



Source: Digital Skills Monitor. Data collected from: Jul 1, 2021 to Aug 9, 2022. Downloaded: 25/07/2022. Powered by Citibeats. This chart represents: Proportion (%) and rising... view all



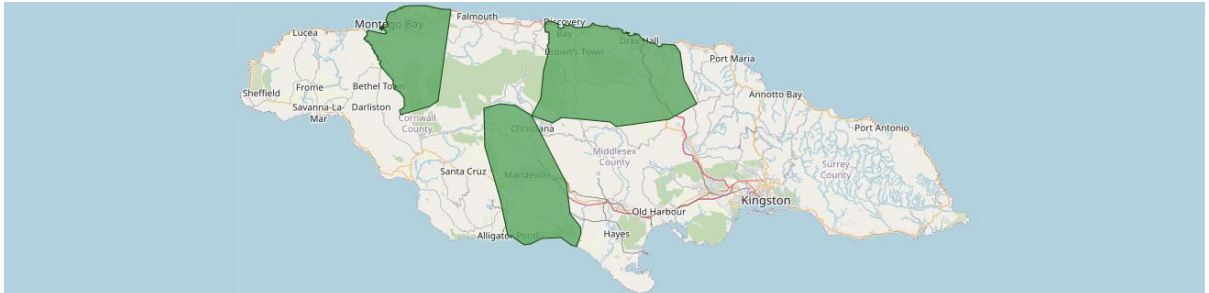
The data gathered over the period (July 2021 to August 2022) gives us the best overview of the trends in digital skills in Jamaica, the Caribbean and the US and UK. This information will not only be validated utilizing further on the ground qualitative and quantitative analysis among Small medium enterprises but it will guide the training program and curriculum under the JET project to provide relevant training and economic opportunities for youth.

Additionally, the information will be disseminated and shared with project partners to help understand the market and trends. As the platform created to analyze this data is updated in real time, periodic monitoring and reports will be created to assess changes in the market.

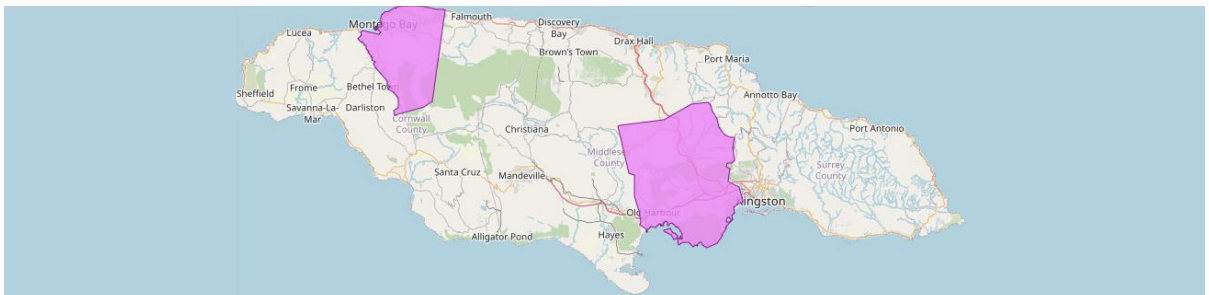
To understand the perceptions and needs of people is key to designing and responding to those needs through strategies, operations, and growth. In the report we listened to the distribution of the conversation in the analyzed categories, and will follow the evolution over time. We aim to listen and use the analysis of the citizens' needs to enrich the outputs of the JET project.

# Appendix

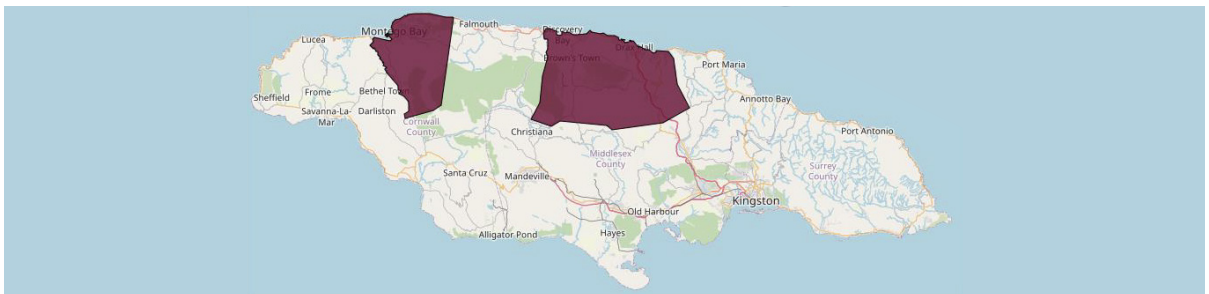
This is the data distributed by regions in Jamaica for the rest of the categories, considering data from July 1st, 2021 until August 2022.



Cybersecurity



Design



Digital Business



Digital Image And Video Editing

# Jamaican Youth through Empowerment & Training Project

