Employment Credentials in Ethiopia - Public Framework

This document establishes the framework of issuing Employment Credentials on PRISM in the Ethiopian employment market according to the Catalyst proposal "*Employment Credentials on PRISM*" (Project ID: **900095**)

Employment Credentials refer to Proof of Employment (PoE) credentials issued by an employer or a third party representing employer and employee. The receiver and holder of the credential is the employee or another stakeholder who provides a method to prove employment. The issuer of the credential is Fairway who establishes a proof of employment on behalf of the employer. As this system develops and gets utilized in the market, the aim is that the credentials will be issued directly by the employers themselves utilizing Fairway technology.

Issuing a Proof of Employment Credential:

- The issuer is Fairway, a technology provider offering recruitment services and documenting for businesses. Job seekers and businesses both have an account in Fairway. Fairway technology is utilized to create a match between a business and a job seeker.
- The credential data is constructed from the information existing in the Fairway platform inside a job seeker profile and adding the date of agreement and parties accordingly
- The proof of employment achieved through a verified match between a job seeker and a business and a proof of job agreement provided
- The credential is issued by a payload that can be created based on the employee requesting a credential and adequate parameters for the credential being set in place.
- The PoE Credential can be revoked by the Fairway platform in the case of resignation or a layoff.
- While the scope of this project is to create the credentials directly with Fairway technology, the future development is set to include the possibility of issuing the credential with employer DID instead of Fairway. Currently the target businesses are Ethiopian businesses and institutions, which many don't yet

have know how and incentive to create their own DID for issuing credentials. Therefore the scope of this project is limited to Fairway technology having its own DID for Credential issuing that is operated through parameters within Fairway technology serving all the stakeholders. However, this implementation requires the employee themselves to own a DID on PRISM where the credential can be issued.

- The scope of the future development includes providing employers their own DID to directly issue credentials and these possibilities are already built in to the frontend

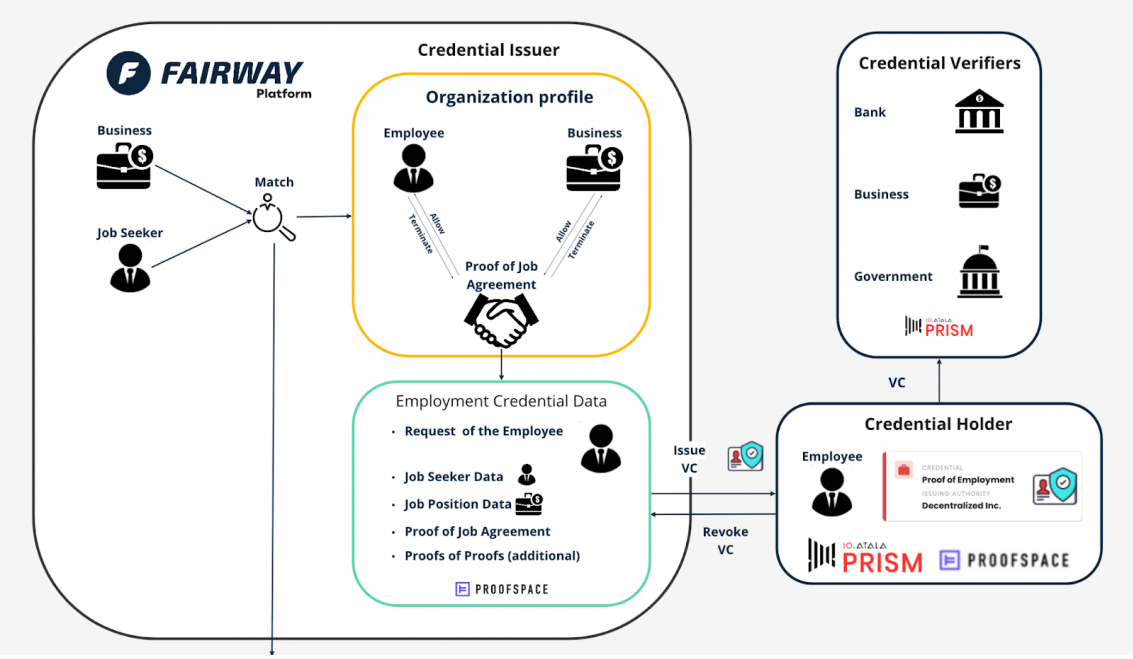


Figure 1. This revised figure illustrates the process of Employee issuing a PoE Credential

Research for the Credential Requirements

PoE Credentials provide employees the ability to own and manage verifiable data of their current and past employment and to utilize that information in the other areas of their life. These credentials have a purpose to bring additional value and empower the end user. Therefore it is important that we investigate thoroughly the potential use cases of this data and understand the market in which they are utilized.

The Fairway team conducted research on the Ethiopian employment market and discussed with various stakeholders to understand the potential use cases and data requirements for these credentials better.

At this stage the employment credentials will be issued in the Ethiopian market. The stakeholders in the market that would participate in the sharing of this information are government institutions and private companies such as:

- Private businesses who require a proof of previous Employment as part of the recruitment process
- Banks and financial institutions who provide loans and financial services according to the work history of the applicant
- Universities to require proof of employment for specific programs such as work history in the field before attending to a master's program
- The Ministry of Labor to track labor statistics and market intelligence to advice political decisions and to oversee labor market participants' compliance to local law and standards as well as support businesses and institutions such as labor unions by exchanging data with them
- Ministry of Education to track the needs in the employment market and utilize the information in education
- Ministry of Innovation and Technology, who provides technology services and education to the workforce and supports the labor market with technology
- Job Creation Commission who has similar roles
- Other government institutions overseeing employment history and providing social security

Fairway team conducted meetings and research with various stakeholders to understand their specific requirements.

- Fairway met Mandeep Birdi of IOG on multiple occasions to discuss this topic in length. Mandeep is overseeing a lot of the development related to Atala PRISM and identity management and has an extensive work history in identity management space in IOG and other companies in Africa and internationally. The discussions with Mandeep led to an idea of adding different proofs of identity verification within the Employment credential. Employment Credentials themself can contain information whether the person holding the credential has been KYC'd by an approved institution, or if their criminal background has been checked. This idea will be developed further after the project, but as a consequence of the research we recommend tying multiple credentials together in this manner to create more comprehensive data for specific use cases.
- Fairway also arranged a meeting with the Labor information director of Ethiopia to discuss the information the ministry of labor is collecting from the labor market and how to create employment credentials that would best serve the needs of Ethiopian institutions. This conversation also led us to study

Labor Procalamations in Ethiopia such as this https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/109825/136386/F-1056558301/ETH109825.pdf

- Within the research of requirements a discussion with the Ministry of Innovation and Technology was arranged. Employment credentials data and future development will be strategically aimed to help with sharing of resources for the Ministry and Employment Credentials through Fairway

Proof of Employment Credential Framework

The information required to be displayed by the PoE credential and the source of the information:

Information	**Source**	**Verifier**	**Requester**
Full Name of the Holder	Fairway CV	The Recruiter	Labor Proclamation
Age (Born)	Fairway CV	The Recruiter	Labor Proclamation
Address	By request	The Recruiter	Labor Proclamation
Work Card number (optional)	Added later	The Recruiter	Labor Proclamation
Citizenship	By request	No source yet	Labor Proclamation
Disabilities (optional)	By request	No source yet	Labor Proclamation
University	Fairway CV	Fairway/PRISM/ Recruiter	Ministry of Labor Recommendation
Job Position	Fairway Job Posting	Fairway	Recommendation
Level of position	Fairway Job Posting	Fairway	Recommendation
Contract type	Fairway Job Posting	Fairway	Recommendation
Length of Hire	Fairway Job Posting	Fairway	Recommendation
Verified KYC	Fairway Partners	Fairway/Partner	Utility

The technical implementation of PoE credential issuing:
Employees will be given a digital certificate as proof of employment containing the following information.

Employee DID	Atala PRISM/Proofspace – instructed
Employer DID (optional)	Atala PRISM/Proofspace – instructed
Fairway DID	Existing
Hash Proof	a2c15381f6a64c2800282c78b1d281979ec1ce0f3da0f748d0dd438b00c3539c
Encoded Credential	eyJpZCI6ImRpZDpwcmlzbTo2ZmY4MmRmOTg1ZWZlMjEyODgxMDliMGZkYjYzNjQ4NzA4YzMxM2FiNzlkMDQzYmY5NzE4M2RlZTRmNzA1OTk1Iiwia2V5SWQiOiJpc3N1aW5nMCIsImNyZWRlbnRpYWxTdWJqZWN0Ijp7ImVtcGxveWVlIG5hbWUiOiJSYWtlYiBZb25hcyIsIk9jY3VwYXRpb24iOiJFY29ub21pYyBBZHZpc29yIiwiRW1wbG95ZXIiOiJBZGRyZXNzL0xvY2F0aW9uIiwiRGF0ZSI6IkRlYywxMywyMDIyIiwiaWQiOiJkaWQ6cHJpc206OTk4M2JlZmU5Yjk5YmNmY2NiNjNhMzVlZDJhYjM5MjEyMjc0MzUxNzA4NWU0YmI1NGIzMmY0YmExMjI4OGZkNjpDajhLUFJJN0NnZHRZWE4wWlhJd0VBRktMZ29KYzJWamNESTFObXN4RWlFQ1RWeFZoRnBJSjJGbkZDYjVtNnFxLW5mdTR2eWpndkttV2hRMU13ZGYzcncifX0.MEUCIDN6xINV9Lb7ZKQ4ch9XASKrbuslKHb67h5fFl0t-SWvAiEA2pN66eBXc13VoZNng8HRYzCzolyPYvLPx_PSd8HVb4c

An example code of PoE credential issuing:

```
{
  "credInfo":
  {
     "holderName":"Rakeb Yonas",
     "occupation":"Economic Advisor",
     "employer":"National Oils",
     "date":"Dec,13,2022",
     "address":"Address/Location"
  }
}
```

Figure 2. User specific data on Fairway web client given to Proofspace through API

Meanwhile, Fairway user is prompted to Scan QR Code that we configured with all the input, output data of the Credential issuing process on Proof Sace Dashboard, including the webhook links to Fairway API and web client.

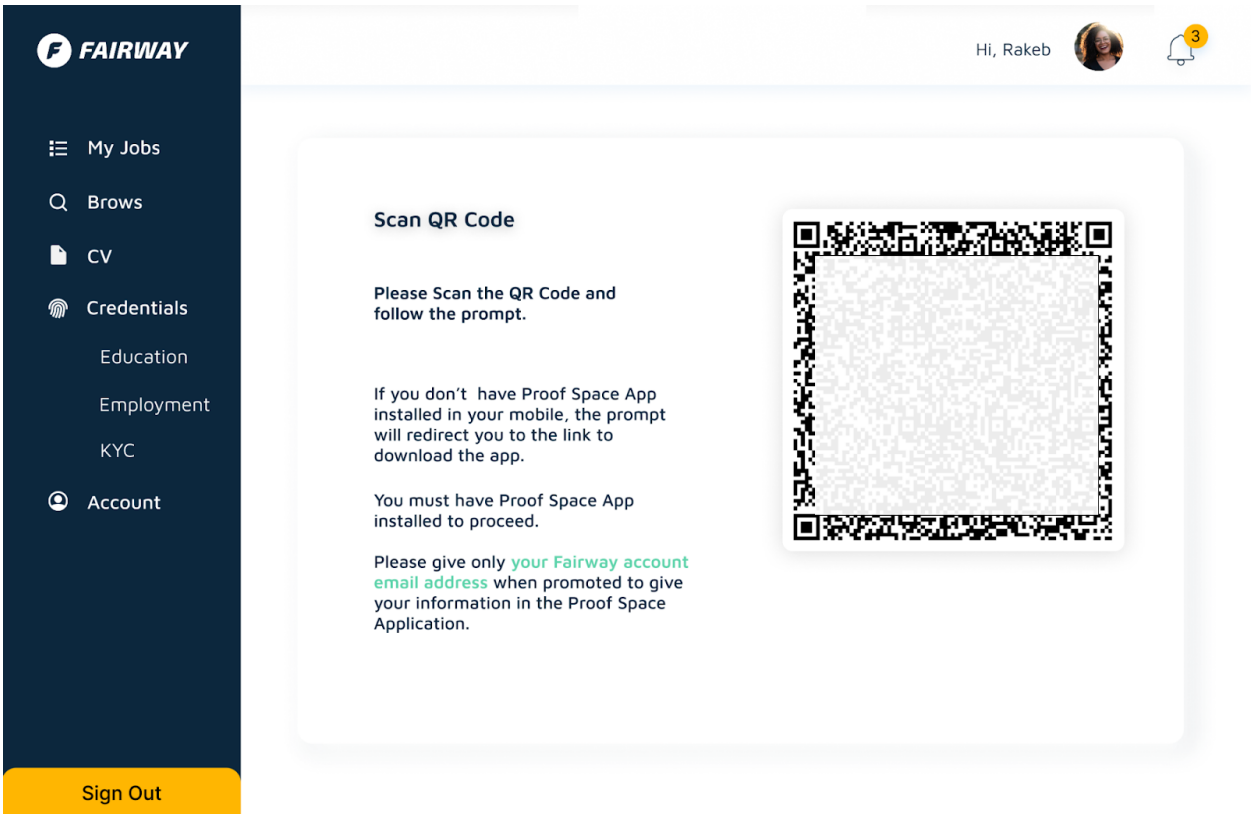
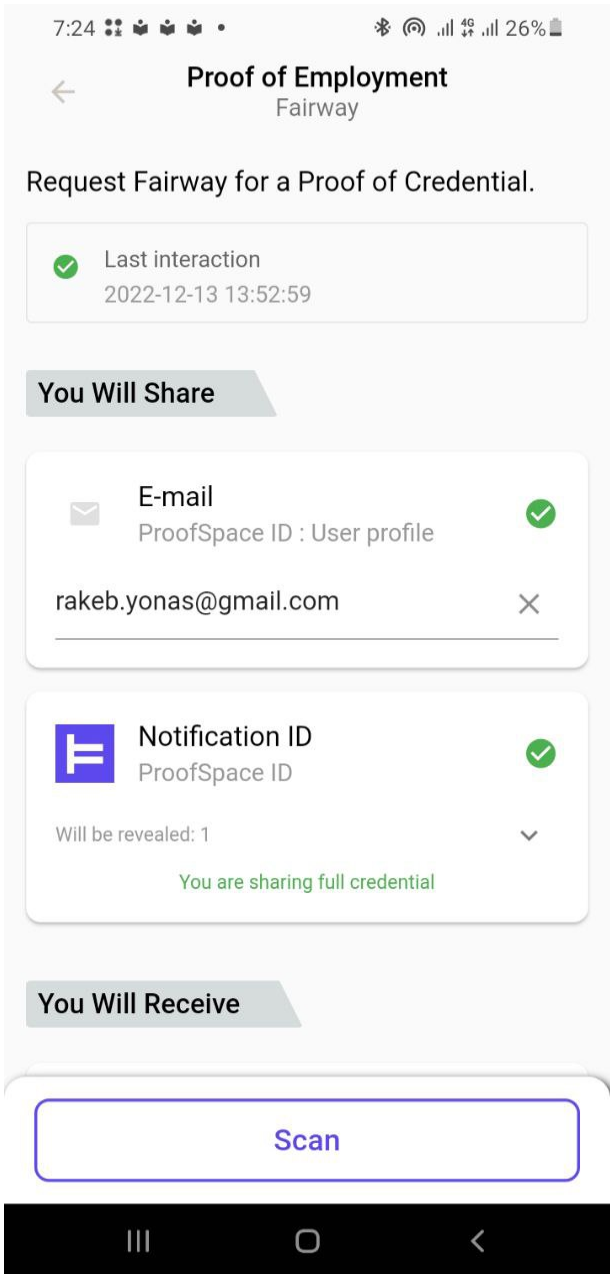


Figure 3. User Scans the QR Code which takes to Proofspace App.

At this stage, if the user doesn't have Proof Space App on their smartphone, then they would be prompted to install it with the link provided.

In the case of a user who has Proof Space App installed, the link will open the app and pause a prompt very much like the images here.



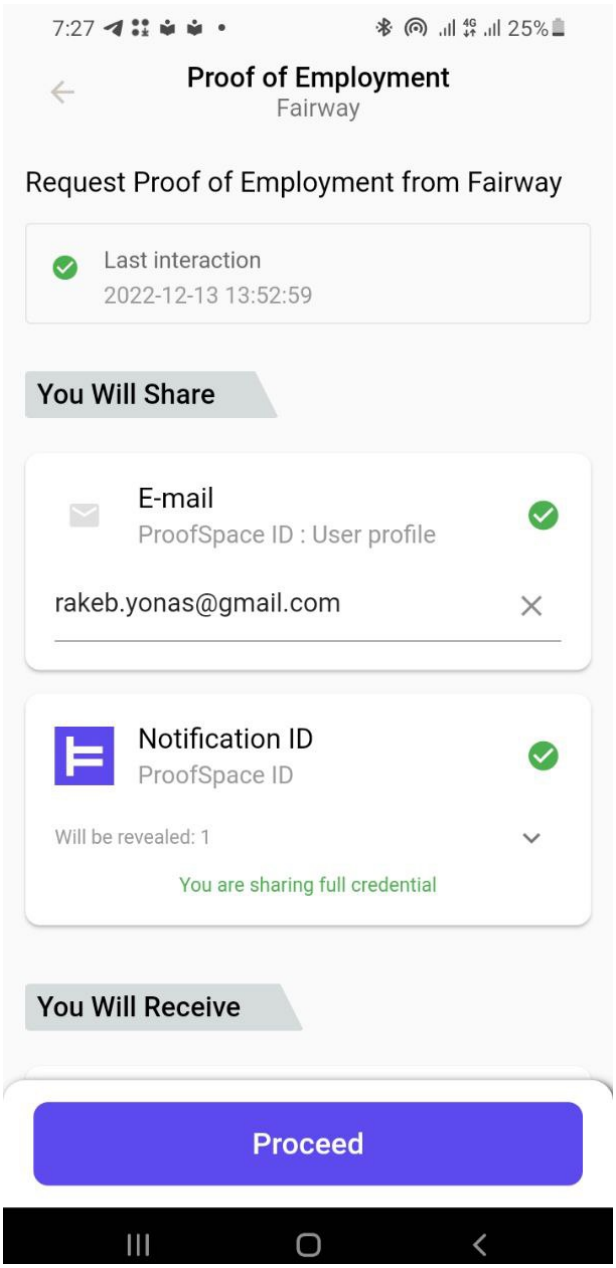


Figure 4.1 Input prompt. *Figure 4.2 Prompt to proceed to creating PoE.*

After the Credential Issuing and Verifying process is completed, the Fairway web client receives credential data that looks like below from Fairway API.

```
{
"holderSignedCredentialCanonical":
"eyJpZCI6ImRpZDpwcmlzbTo2ZmY4MmRmOTg1ZWZlMjEyODgxMDliMGZkYjYzNjQ4NzA4YzMx
M2FiNzlkMDQzYmY5NzE4M2RlZTRmNzA1OTk1Iiwia2V5SWQiOiJpc3N1aW5nMCIsImNyZWRlbn
RpYWxTdWJqZWN0Ijp7ImVtcGxveWVlIG5hbWUiOiJSYWtlYiBZb25hcyIsIk9jY3VwYXRpb24iOiJ
FY29ub21pYyBBZHZpc29yIiwiRW1wbG95ZXIiOiJBZGRyZXNzL0xvY2F0aW9uIiwiRGF0ZSI6IkRl
YywxMywyMDIyIiwiaWQiOiJkaWQ6cHJpc206OTk4M2JlZmU5Yjk5YmNmY2NiNjNhMzVlZDJhYj
M5MjEyMjc0MzUxNzA4NWU0YmI1NGIzMmY0YmExMjI4OGZkNjpDajhLUFJJN0NnZHRZWE4w
WlhJd0VBRktMZ29KYzJWamNESTFObXN4RWlFQ1RWeFZoRnBJSjJGbkZDYjVtNnFxLW5mdTR
2eWpndkttV2hRMU13ZGYzcncifX0.MEUCIDN6xINV9Lb7ZKQ4ch9XASKrbuslKHb67h5fFl0t-SW
vAiEA2pN66eBXc13VoZNng8HRYzCzolyPYvLPx_PSd8HVb4c",
"holderCredentialMerkleProof":{
  "hash":"a2c15381f6a64c2800282c78b1d281979ec1ce0f3da0f748d0dd438b00c3539c",
  "index":0,
  "siblings":[]
}
}
```


Figure 5. Fairway API returns the Credential data received from the Proof Space.

Database Design Diagram

Figure 6 Database Design Diagram