U.S. Visa Application for Visa Waiver Program (VWP) Member Passport Holders

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Introduction

- Visa application process
- Has three participants
- Have to model communications and synchronizations between the three
- Deployed to Camunda engine

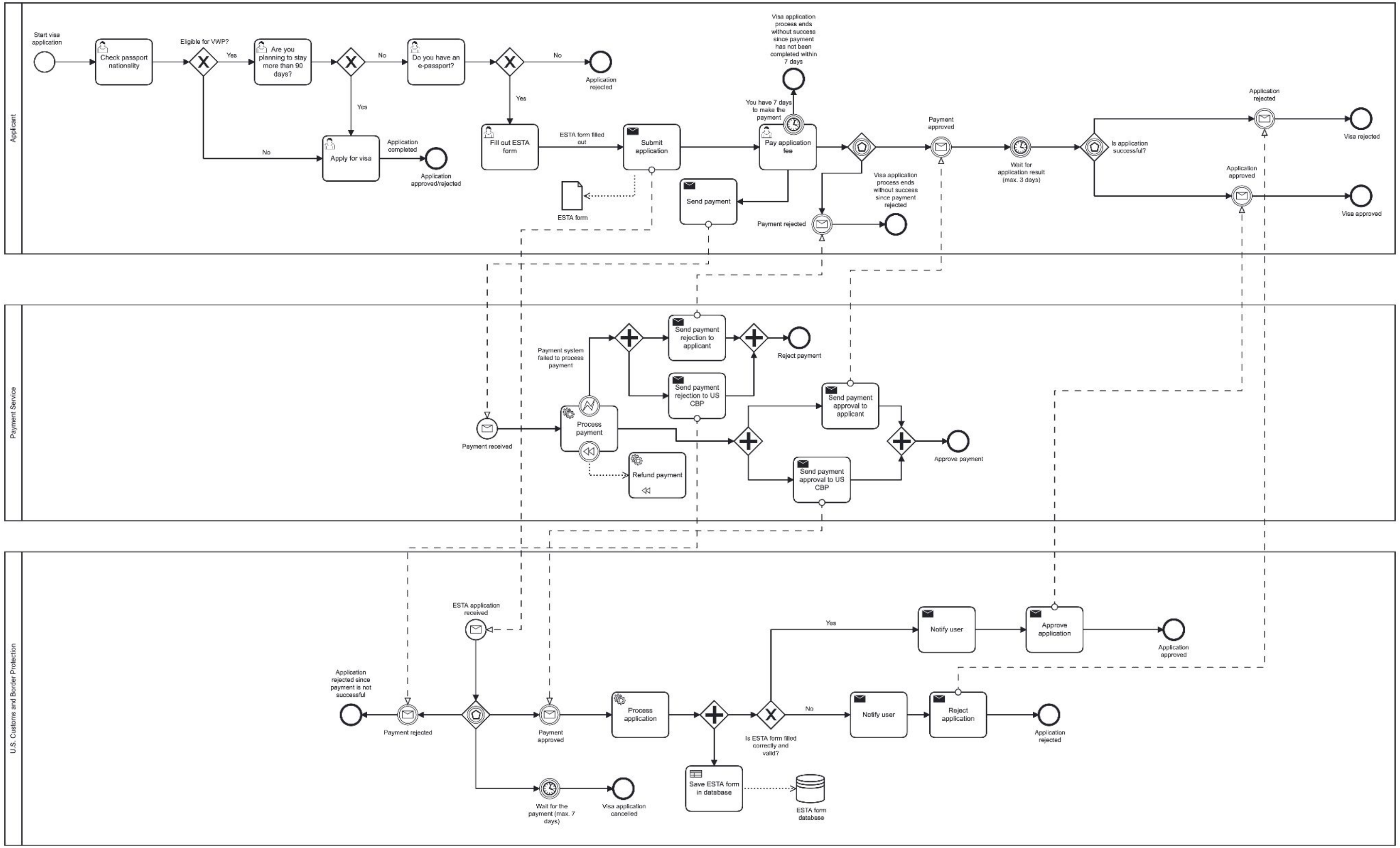
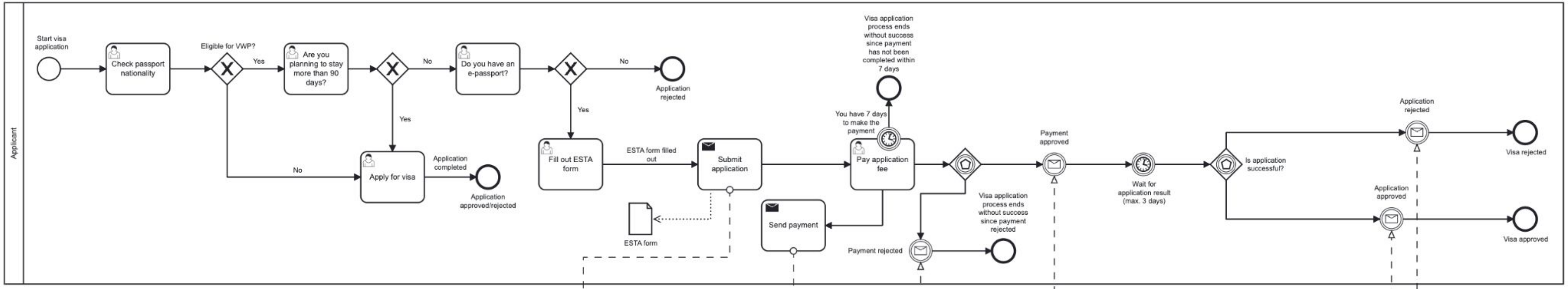

Applicant
Start visa application
Check passport nationality
Eligible for VWP?
Yes
No
Are you planning to stay more than 90 days?
No
Yes
Apply for visa
Application completed
Application approved/rejected
Do you have an e-passport?
No
Application rejected
Yes
Fill out ESTA form
ESTA form filled out
Submit application
ESTA form
Visa application process ends without success since payment has not been completed within 7 days
You have 7 days to make the payment
Pay application fee
Send payment
Payment rejected
Visa application process ends without success since payment rejected
Payment approved
Wait for application result (max. 3 days)
Is application successful?
Application rejected
Visa rejected
Application approved
Visa approved
Payment Service
Payment received
Process payment
Payment system failed to process payment
Send payment rejection to applicant
Send payment rejection to US CBP
Reject payment
Refund payment
Send payment approval to applicant
Send payment approval to US CBP
Approve payment
U.S. Customs and Border Protection
ESTA application received
Application rejected since payment is not successful
Payment rejected
Payment approved
Wait for the payment (max. 7 days)
Visa application cancelled
Process application
Save ESTA form in database
ESTA form database
Is ESTA form filled correctly and valid?
Yes
Notify user
Approve application
Application approved
No
Notify user
Reject application
Application rejected

Figure 1: Complete BPMN model of the process.

Applicant


Applicant
Start visa application
Check passport nationality
Eligible for VWP?
Yes
No
Are you planning to stay more than 90 days?
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Do you have an e-passport?
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Application rejected
Apply for visa
Application completed
Application approved/rejected
Fill out ESTA form
ESTA form filled out
Submit application
ESTA form
Send payment
Visa application process ends without success since payment has not been completed within 7 days
You have 7 days to make the payment
Pay application fee
Payment rejected
Visa application process ends without success since payment rejected
Payment approved
Wait for application result (max. 3 days)
Is application successful?
Application rejected
Visa rejected
Application approved
Visa approved

Figure 2: Applicant participating to the process.

Applicant (closer look)

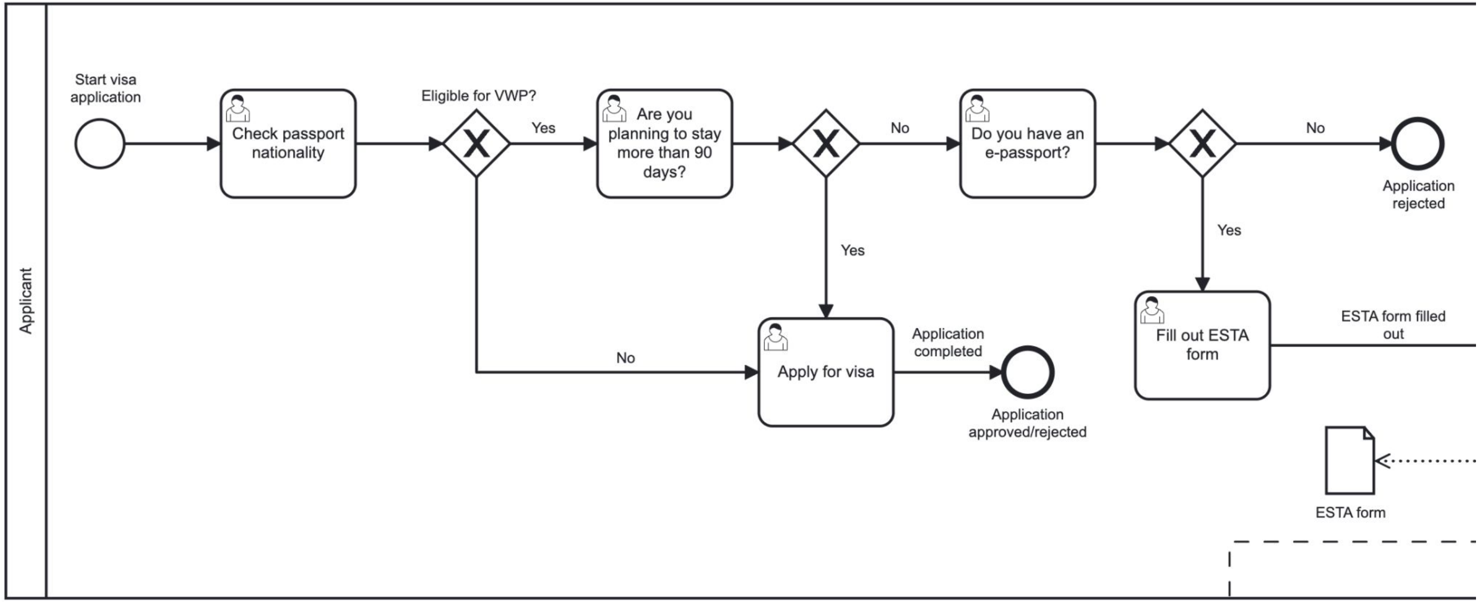


Figure 3: Applicant participating to the process.

Applicant (closer look)

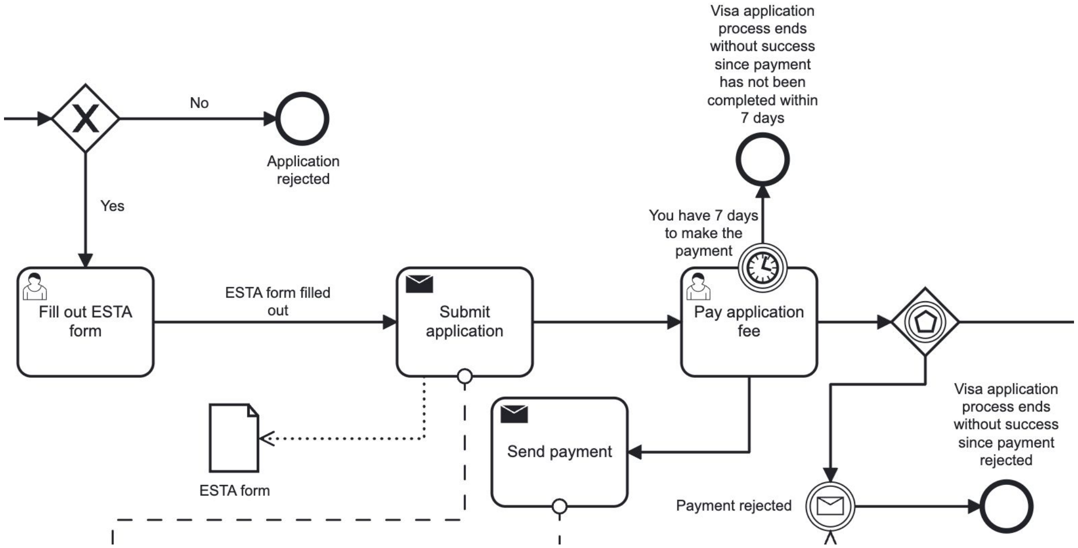

No
Application rejected
Yes
Fill out ESTA form
ESTA form filled out
Submit application
ESTA form
Send payment
Visa application process ends without success since payment has not been completed within 7 days
You have 7 days to make the payment
Pay application fee
Visa application process ends without success since payment rejected
Payment rejected

Figure 4: Applicant participating to the process.

Applicant (closer look)

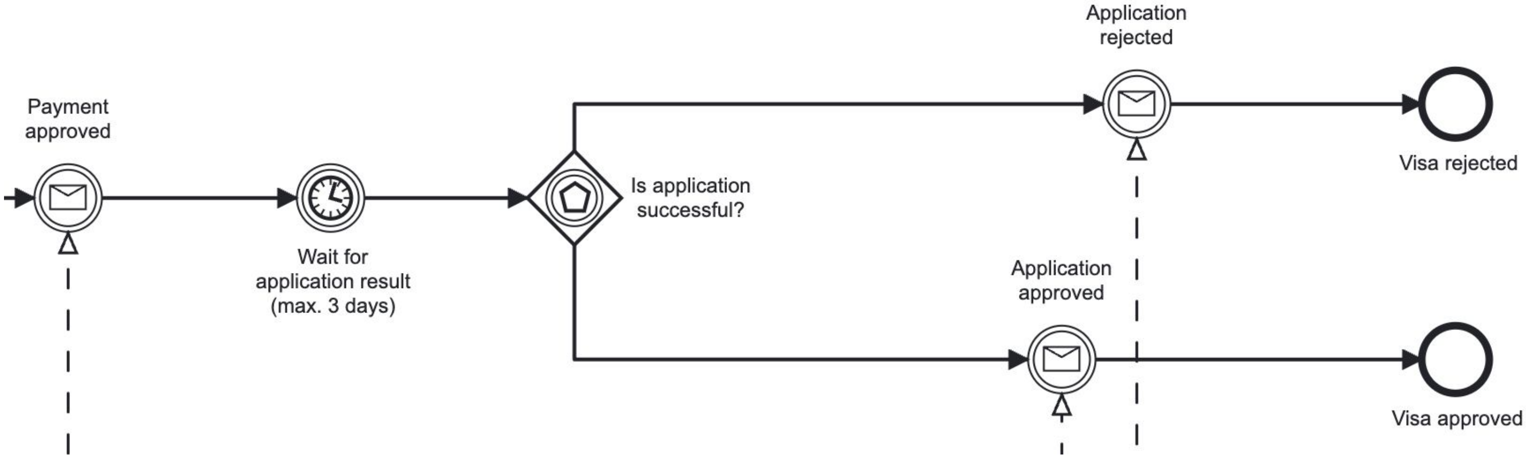


Figure 5: Applicant participating to the process.

Payment Service

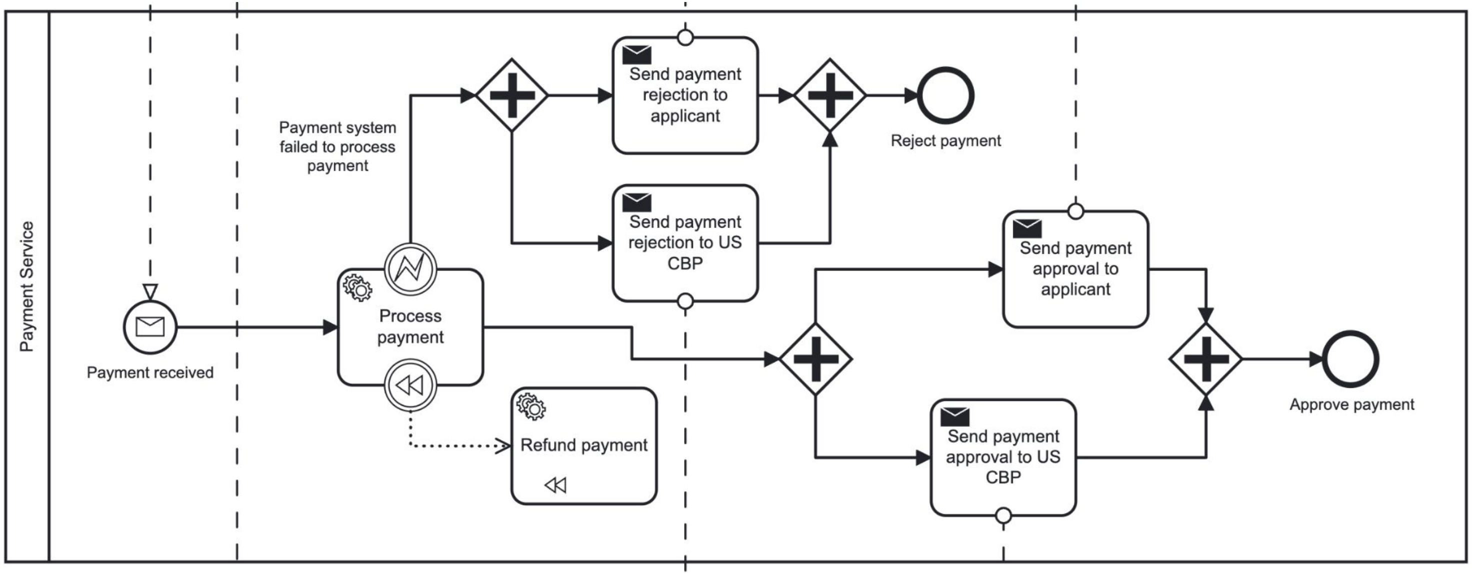
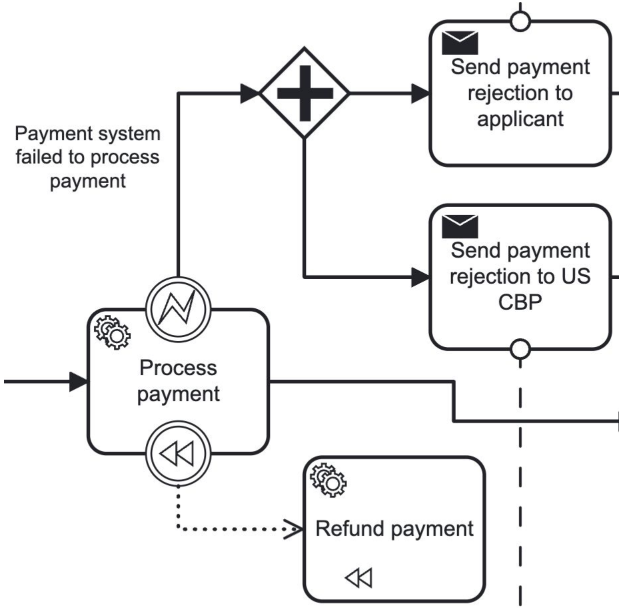

Payment Service
Payment received
Process payment
Payment system failed to process payment
Refund payment
Send payment rejection to applicant
Send payment rejection to US CBP
Reject payment
Send payment approval to applicant
Send payment approval to US CBP
Approve payment

Figure 6: Payment service participating to the process.

Error Handling & Compensation

- If an error occurs during processing the payment, a message is sent to both the applicant and U.S. Customs and Border Protection saying that payment rejected.
- The process payment task triggers a compensation event.
- The compensation event refunds the payment.



Payment system failed to process payment
Send payment rejection to applicant
Send payment rejection to US CBP
Process payment
Refund payment

Figure 7: Error handling and compensation in the payment service.

U.S. Customs and Border Protection

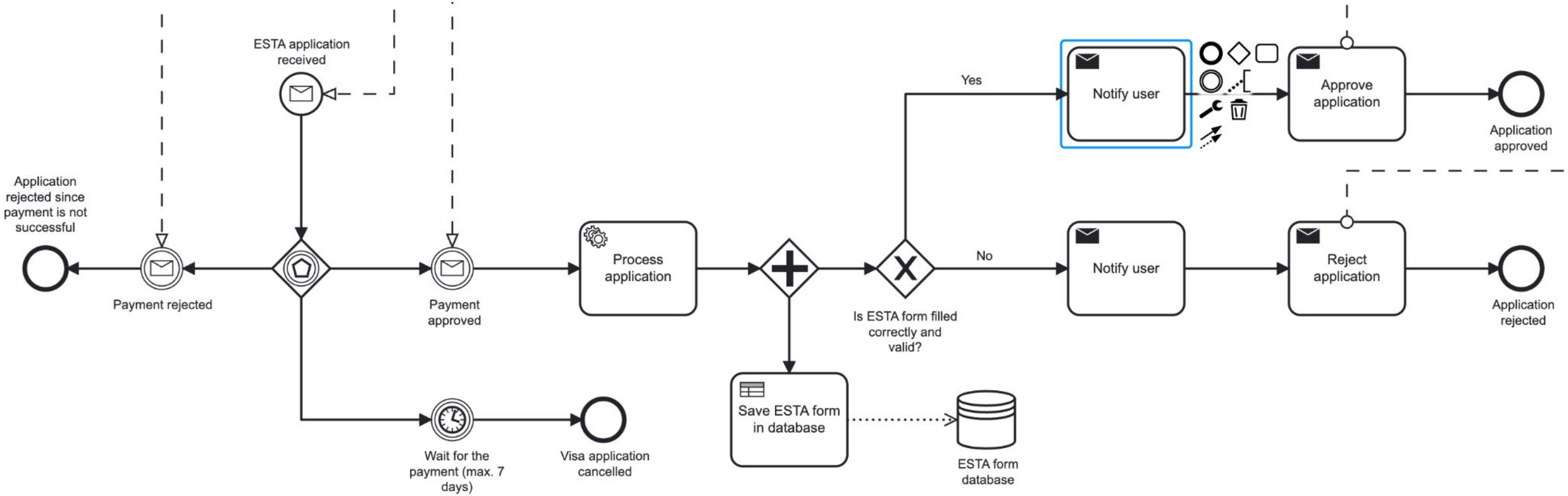

ESTA application received
Application rejected since payment is not successful
Payment rejected
Payment approved
Process application
Wait for the payment (max. 7 days)
Visa application cancelled
Save ESTA form in database
ESTA form database
Is ESTA form filled correctly and valid?
Yes
No
Notify user
Approve application
Application approved
Notify user
Reject application
Application rejected

Figure 8: U.S. Customs and Border participating to the process.

Back-End Implementation

- Containerized application landscape: PostgreSQL, Camunda and services deployed as Docker containers.
- Back-end logic in Java (as expressions) and C# (as externally-implemented tasks).
- Connection between .NET and Camunda through the Camunda.Worker NuGet package.

Time for Demo!

Any questions?