
Identification and Registration of Refugees: Model-Based Planning at the Dutch Police

MIEKE STRUIK*, FEMKE SICKLER†, ERIK PRUYT‡

Dutch National Police

23 March 2016

Abstract

The refugee crisis in the Middle East drives people to Europe and to the Netherlands hoping to find a safe haven. Once in the Netherlands, traditionally a welcoming country for people in distress, these asylum-seekers have to report to the authorities. People are then accommodated, identified, registered and it is decided whether they are genuine refugees and are allowed to stay, or alternatively that they have to leave the country. This is called the asylum procedure. In this paper a system dynamics model of the asylum procedure is developed to explore the system by means of different future scenarios with a focus on the effects for the Dutch National Police. The effects of the recent agreement between the European Union (EU) and Turkey are explored, and so are the intended extra safety measures. The main conclusion is that the system is inadequate to cope with the current refugee crisis. If the crisis keeps its current proportions - and no changes are made to the system - it will take several years to eliminate the backlogs.

Keywords: Asylum procedure, identification, illegal, scenario, police, refugee crisis, Netherlands

I. INTRODUCTION

Europe is facing a migration crisis. Millions of people fleeing from the wars in Africa and the Middle-East travel to Europe in search of a safe haven. Some reach the Netherlands in search for asylum in order to be able to stay until it is safe to return to their home country or to build a new life in the Netherlands. The procedure for asylum application in the Netherlands (NL) is split up in two steps.

First, new arrivals are identified according to their traveling documents. Identification is performed by the Dutch National Police. The refugees are searched and their luggage is checked for suspicious possessions, followed by taking a photograph and their fingerprints. The fingerprints are compared to the European system EURODAC to help enforce the Dublin agreement. This agreement states that if someone has already applied for asylum in another European country, he or she should complete the procedure in that country. A match in EURODAC means that the person is sent back to the country of first application. All information is stored in a computer system and a physical file is kept that also contains confiscated possessions such as identity papers, data carriers or other items that are either suspect or important for identification.

*Dutch National Police - mieke.struik@politie.nl

†Delft University of Technology - f.m.sickler@student.tudelft.nl

‡Delft University of Technology - e.pruyt@tudelft.nl

Second, the identified persons enter the asylum procedure. This procedure is carried out by the Immigration and Naturalisation Service (IND). It starts with the formal asylum application and a short interview after which the asylum-seeker is accommodated by the Central Agency for the Reception of Asylum-seekers (COA). At the COA accommodation they await the rest of the procedure, which under normal circumstances takes about 8 days. Currently however, waiting times are increasing substantially due to the large number of asylum-seekers [1]. After the IND concludes the procedure, the asylum-seekers are either acknowledged as refugee and allowed to stay in the Netherlands for a limited period (usually 5 years), or they are not acknowledged or for another reason not accepted and have to leave the Netherlands. Some of the rejected asylum-seekers leave the country, sometimes assisted by a (governmental) organisation while others stay illegally in the Netherlands. This process is illustrated in figure 1.

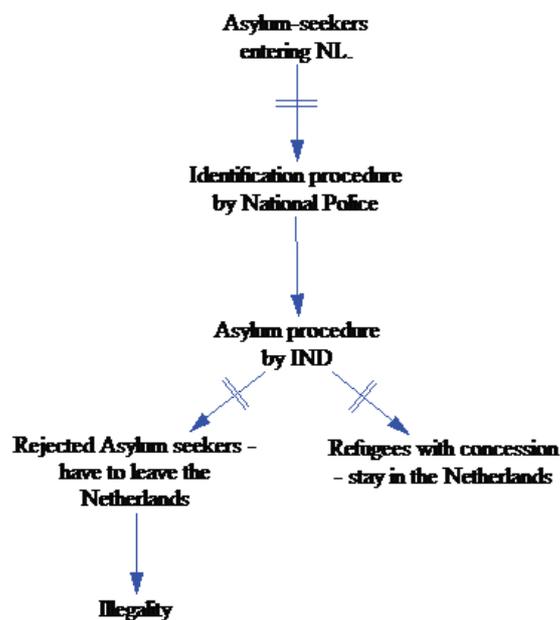


Figure 1: Conceptual model of the asylum process

The refugee crisis places pressure on the Dutch National Police. The police are not only in charge of the identification procedure, but also simply because the growth of the total population due to immigration results in more police work. Additionally, the increasing numbers of illegal people (e.g., rejected asylum-seekers that do not leave the Netherlands) results in extra effort for the National Police.

Based on the number of asylum-seekers arriving in the Netherlands we can estimate the

increase in people illegally residing in the Netherlands. We can investigate the increase in criminality, and the extent of exploitation of these illegals. This enables us to give advice on how to diminish the number of illegals and on fighting the associated crime. The possibility that criminals or terrorist are among the asylum-seekers entering the Netherlands induce the National Police to extent the identification procedure with extra security measures. The effects of these measures on the ongoing procedure are studied as well as the workload on the police.

In this paper, we aim at making a descriptive system dynamics model of the Dutch asylum procedure, and use it to stress test the system for higher or lower inflows of asylum-seekers into the Netherlands. The Dutch government has formulated several possible scenarios, which are used to tune the policy and budgets. We will investigate the performance of the identification process for each of these scenarios. This will enable us to foresee shortage of personnel or the build-up of waiting lists.

The recently negotiated agreement between Turkey and the European Union on managing the refugee crisis will have a significant effect on the number of people asking for asylum in the Netherlands. Possible effects of this agreement on influx scenarios are studied.

The remainder of the paper is organized as follows. First, we discuss the methods used. Then we briefly present the simulation model developed at, and used by, the Dutch police. Finally, we use the model to test whether the current identification and registration system is effective across different planning scenarios.

II. METHODS

For this research, a system dynamics model was made. System dynamics (SD) is a method(ology) for modelling and simulating the dynamics of complex systems in view of better understanding the overall system, acquiring insights in the link between the underlying structure and behaviour of the system, discovering potential future system dynamics, identifying high-leverage policies, testing their policy robustness, and planning systemic interventions [12].

The specific purpose of this simulation model is to describe the process of asylum requests in the Netherlands in order to test possible scenarios regarding the arrival of new asylum-seekers. A process description was obtained from Lucas [8] complemented with personal communication with experts in the field. The model initial values, stocks and flows are calibrated according to data published by the Dutch governmental institutions involved in the process, namely COA (Central Agency for the Reception of Asylum Seekers [1]), IND (Immigration and Naturalisation Service, [3]), DTenV (Repatriation and departure service [4]), Vluchtelingenwerk Nederland (Dutch Council for Refugees [14]) and Lucas [8].

The SD simulation software Vensim was used to build the model and perform the simulations. The simulation time horizon is 3 years using time steps of a month, starting on January 2016. The scope of the model is bounded to the Dutch asylum procedure. In this model, we assume that all asylum-seekers are included and that they all follow the same procedure; there is no distinction between individuals based on country of origin, age, or other individual differences. Variables defined as reciprocal ratios are assumed to be constant over time. In the model the asylum process is driven by the number of man hours available for identification and for the asylum procedure. The quality of both procedures is assumed to be constant.

III. DESCRIPTION OF THE MODEL

In figure 2 a stock and flow diagram of the simulation model is shown. Highlighted in orange, are the variables determining the flow though the identification process. These are the variables

describing the workload of the Dutch National Police with regards to the identification process. In green, the parameters describing the processing rate of the IND procedure are shown. This procedure determines whether the asylum-seekers will get a permit. Lastly, in blue the stock parameter of the number of illegals in the Netherlands is indicated. This is an important parameter for the enforcement that the police will face with regards to people staying illegally in the Netherlands and the associated illegal housing, labour, etc. Table 1 shows the data used for the model.

IV. MODEL TESTING

A reality check of the model was performed based on data available from December 2014 through February 2016. A comparison between this historical data and the model data is illustrated in figure 3.

In 2015, about 57.000 asylum-seekers were reported in the Netherlands [3]. This number is represented by the stock “Number of refugees in identification and registration process”. This means that on average about 4.750 asylum-seekers entered the Netherlands per month. This number was used to as the inflow of asylum-seekers for the period of this reality check. For this check we assume that all asylum-seekers report to COA, since in the IND data only reported people are included. Figure 3 shows the number of asylum-seekers per month in the identification a registration process. Month 0 represents December 2014, month 14 represents February 2016.

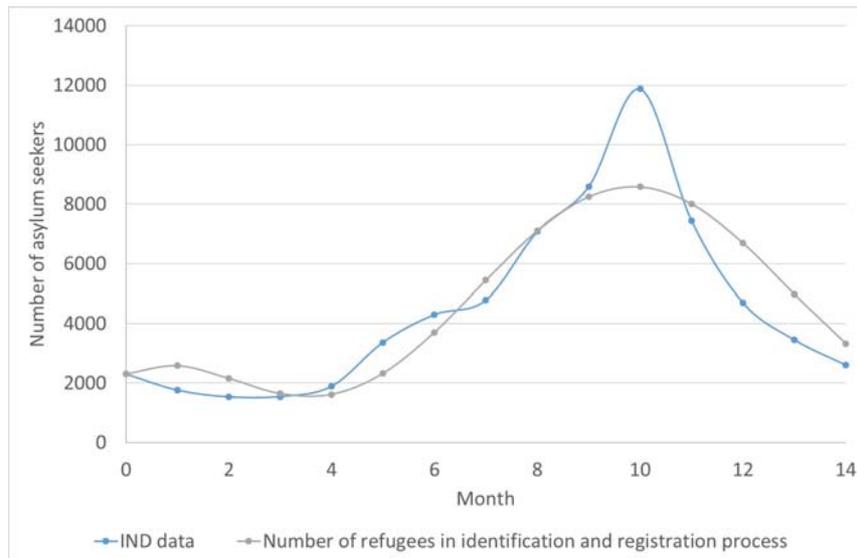


Figure 3: Reality check of the model based on historical data

Figure 3 illustrates that model corresponds well with the data. The seasonal fluctuations are represented and although the model underestimates the highest peak in October 2015, it does correctly anticipate the peak. Furthermore, the model shows that, given the size of the inflow, the duration of the procedure had to increase to more than 6 months. Again, this corresponds to the real waiting times asylum-seekers were facing at that time [2].

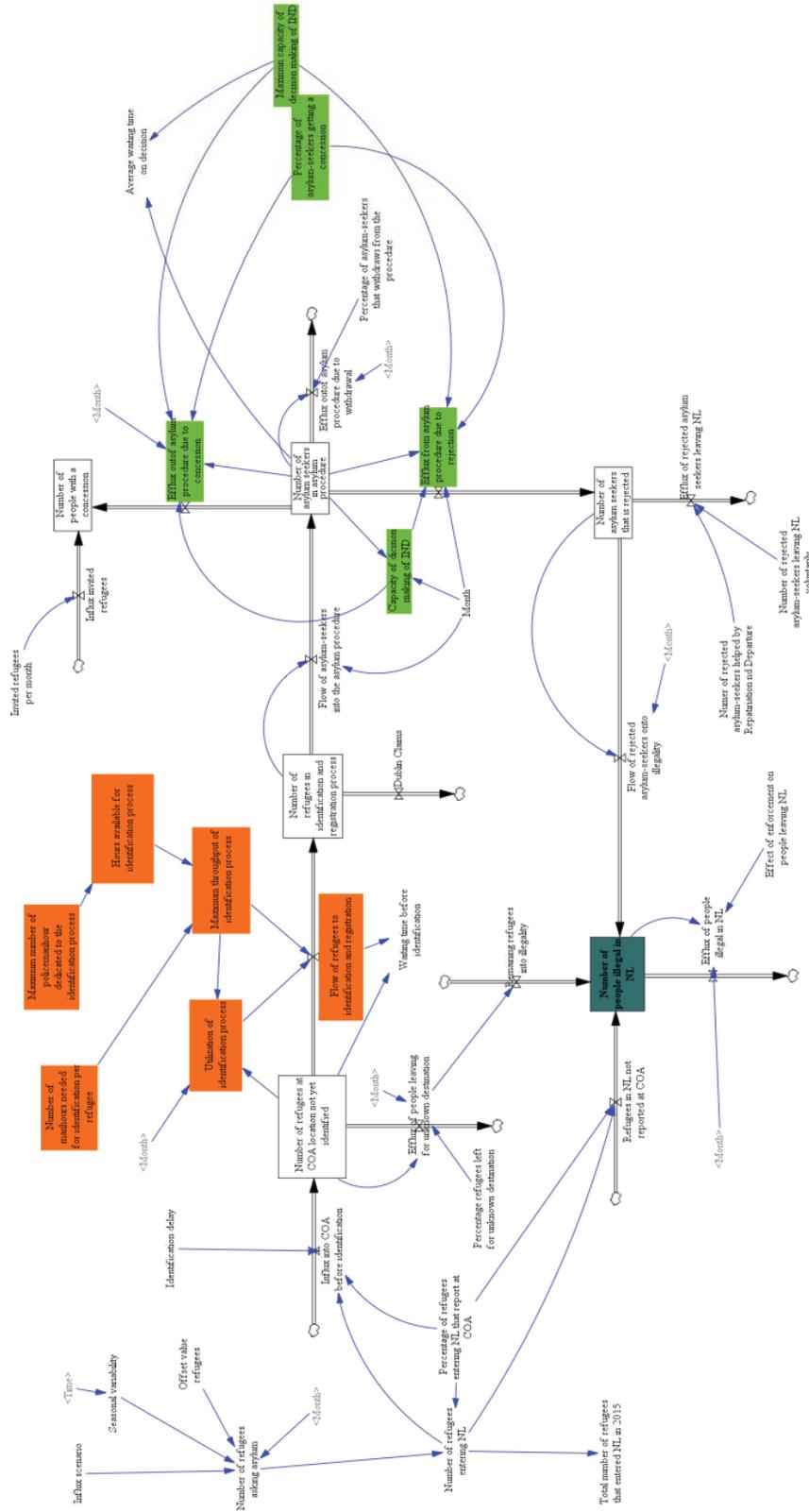


Figure 2: Stock flow diagram of the simulation model of the Dutch Asylum procedure

Table 1: Data used in the model

Parameter	Value	Units	Source
Dublin Claims	1.000	People/Month	[3]
Effect of enforcement on people leaving NL	0,01	Dmnl	Assumed
Identification delay	0,1	Month	Personal communication with experts
Invited refugees per month	42	People/Month	[3]
Maximum European Solution	0,5	Dmnl	Assumed
Maximum number of policeman hour dedicated to the identification process	65.000	Hour/Month	[8],Personal communication with experts
Maximum capacity of decision making of IND	3.600	People/Month	[8] [3]
Number of manhours needed for identification per refugee	3,5	Hour/People	[8] Personal communication with experts
Number of rejected asylum-seekers leaving NL voluntarily	350	People/Month	[11]
Number of rejected asylum-seekers helped by Repatriation and Departure	260	People/Month	[11]
Offset value refugees	1.500	People/Month	Long term average [9]
Percentage of asylum-seekers getting a permit	0,75	%	[3]
Percentage of asylum-seekers that withdraws from the procedure	0,01	%	Assumed
Percentage of refugees entering NL that report at COA	0,9	%	Assumed
Percentage refugees left for unknown destination	0,005	%	Personal communication with experts
Number of asylum-seekers in asylum procedure	30.000	People	[3], [1]
Number of asylum-seekers that is rejected	1	People	Not relevant
Number of people illegal in NL	30.000	People	[6]
Number of people with a concession	1	People	Not relevant
Number of refugees at COA location not yet identified	4.000	People	Assumed
Number of refugees in identification and registration process	2.800	People	[3]

V. SCENARIOS OF INFLUX OF ASYLUM-SEEKERS INTO THE NETHERLANDS

Official Dutch governmental scenarios on the number of asylum-seekers arriving in the Netherlands in 2016 range from 60.000 to 90.000 persons. These scenarios are modelled to determine the consequences for the system. Key Performance Indicators (KPI) are:

- **Utilization of the identification process:** The National Police have dedicated a maximum number of man hours and infrastructure to the identification procedure. This KPI describes the utilization compared to the maximum; the value can only vary between 0 and 1.
- **Average waiting time on decision by IND:** Just like the National Police, the Immigration and Naturalization service have a maximum capacity in terms of employees and infrastructure dedicated to the asylum procedure. Overloading of the system will induce waiting times.
- **Number of people in the Netherlands with a concession:** Asylum-seekers that are officially recognized as refugee will get a concession to stay in the Netherlands. The concession is usually granted for 5 years. The validity of the permit outreaches the modulation time. People with a concession are therefore assumed to be in the Netherlands during the modulation time.
- **Number of people illegal in the Netherlands:** The number of people staying illegally in the Netherlands is a known unknown. No reliable estimates exist on how many of the rejected asylum-seekers will stay in the Netherlands illegally. However, there are estimates on how many of these people leave the Netherlands, whether or not assisted by (non) governmental organisations. In our model we assume that the number of people staying illegally are all asylum-seekers that do not get a residence permit minus the number that are estimated to leave the country. Additionally, 10% of the people arriving in the Netherlands are estimated not to report to the authorities and thus become illegal residents.

In the results presented below, the model assumes there is no change in policy compared to 2015. The results represent the model outcomes of 4 scenarios; they are based on the expected influx of refugees per year. Two variables determine the total influx: first an offset value of 1.500 asylum-seekers per month. This is a long-term average of asylum-seekers coming to the Netherlands. The second variable is a season dependent variable representing the extra asylum-seekers coming to the Netherlands due to the war in the Middle East. The scenarios are named after the variation in this variable. Scenario 60.000 means that the influx amounts to 60.000 asylum-seekers per year, or 5.000 per month in the season dependent variable, in addition to the offset value of 1.500 asylum-seekers per month. This input is depicted in figure 4.

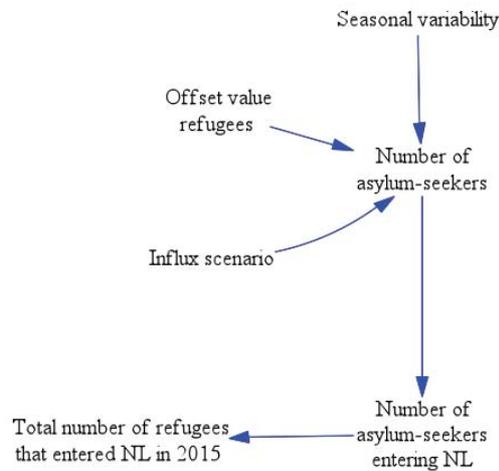


Figure 4: Submodel of the influx of asylum-seekers

Figure 5 shows the utilization of the identification process for 4 scenarios. Utilization is limited at maximum of 100%, which means all available manhours and infrastructure are used. The Identification system is well equipped for an influx of about 60.000 people. All asylum-seekers can be helped immediately and even a buffer remains for unexpected influx peaks.

The maximum capacity of the identification process is periodically reached at an influx between 80.000 and 85.000 people. At peak season, not everybody can be identified at the moment they report to the Dutch authorities, resulting in waiting lists. The scenario of 90.000 asylum-seekers, results in the waiting time growing to almost 5 days for the first registration.

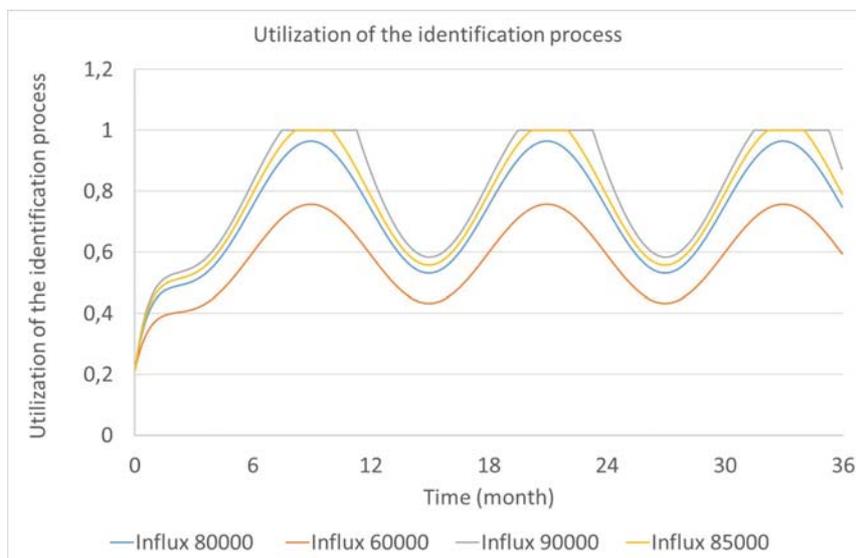


Figure 5: Utilization of the identification process

For all scenarios, the duration for the IND to reach a decision for each asylum application increases, as shown in figure 6. The man hours and infrastructure of the IND dedicated to asylum files is insufficient to keep up with the rate of new arrivals. This means that as soon as the influx of asylum-seekers decreases, it will still take years before all remaining files will have been decided upon. The influx in 2015 caused a backlog of 30.000 files. The model predicts that even if the season dependent influx is set to 0 from January 2016 on, it will take till October 2016 to empty the backlog.

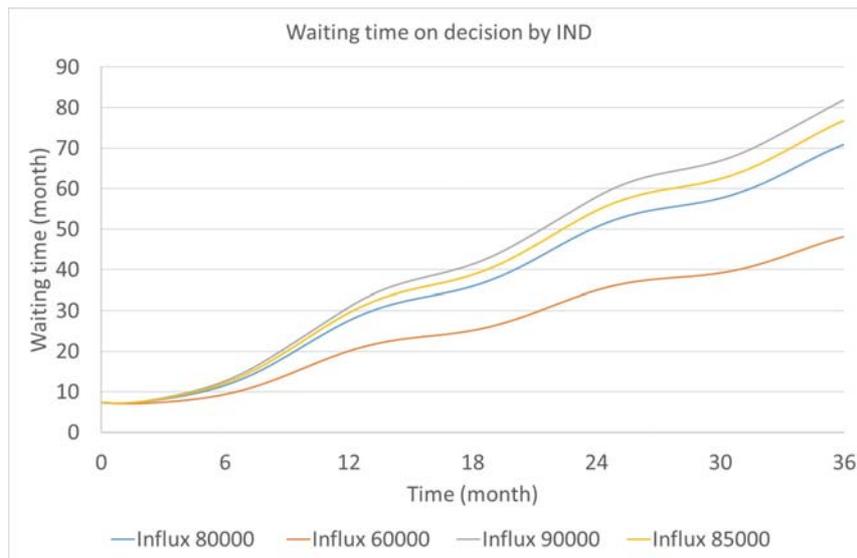


Figure 6: *Waiting time on decision by IND*

For all scenarios, the number of people getting a temporary residence permit increases, as shown in figure 7. These are the people who are officially recognized as refugees and who obtain a temporary residence permit - usually for 5 years. For all scenarios, the increase is the same due to the limited capacity of the IND. The number of people obtaining a permit cannot increase faster than the processing rate of the IND. For all scenarios, this is the limiting constraint. Due to the long waiting time, there will be a lag for this KPI. It will take several years before all files are decided upon, and the increase in the number of refugees getting a concession will stabilize or even decrease.

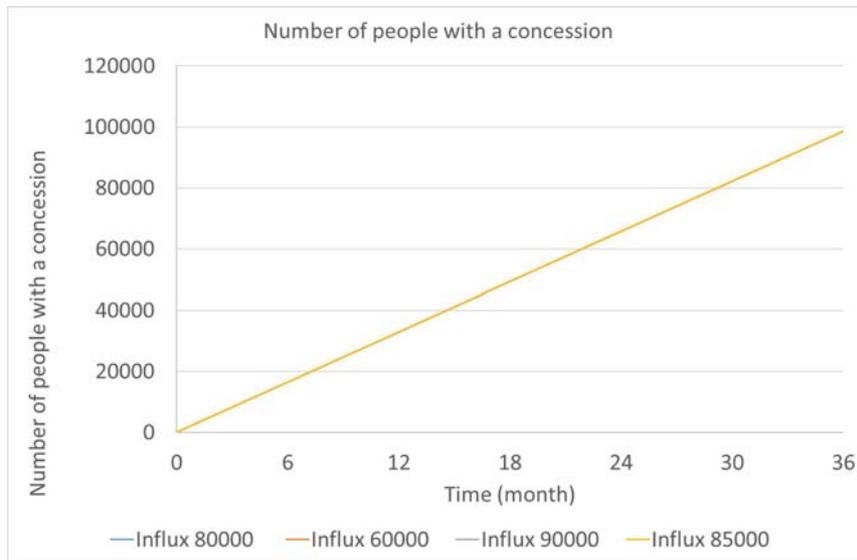


Figure 7: Number of refugees with a concession

The influx of asylum-seekers will result in an increase in the number of illegal residents in the Netherlands (i.e., asylum-seekers who are not recognised as refugee in the Netherlands, but who do not leave the country). Since it will take years to handle all backlogged files, the number of illegals, like the number of people with a permit, will keep on growing long after the influx of asylum-seekers will have decreased, as shown in figure 8.

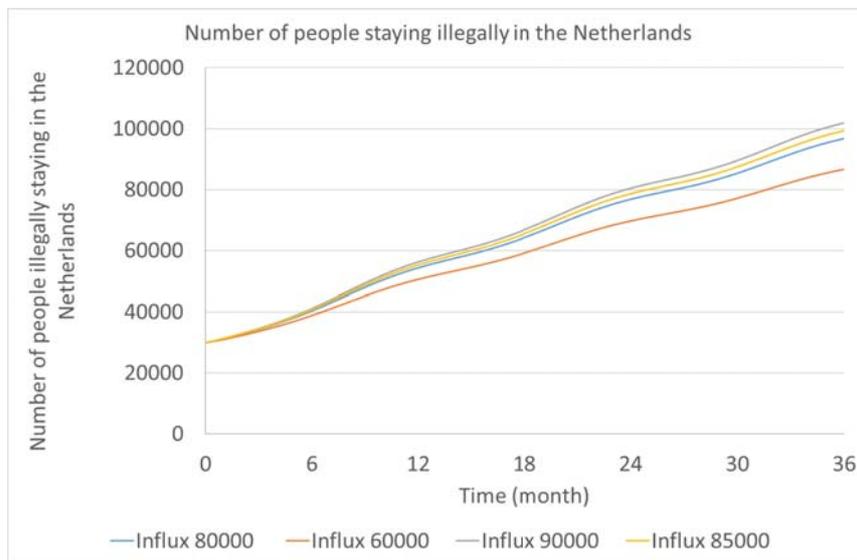


Figure 8: Number of people staying illegally in the Netherlands

VI. THE EU-TURKEY DEAL

Asylum-seekers traveling from the Middle East to Europe travel across the Aegean Sea assisted by smugglers and human trafficking. This is a very dangerous route, as in 2015 alone almost 3700 people died trying to cross the Aegean Sea from Turkey to Greece in small rubber boats [11]. This dangerous route is also the reason for the strong seasonal variability in the asylum applications. In summer, it is less dangerous to travel than in winter. These unnecessary deaths in combination with an attempt to reduce the flow of asylum-seekers to Europe have brought the EU and Turkey to come to an agreement. We have modelled the likely effects of this agreement on the influx of asylum-seekers in the Netherlands.

This submodel of the Turkey deal is shown in figure 9. In this submodel we assume that the maximum effect is a reduction of the influx of asylum-seekers and the seasonal variability by half. However, the Turkey deal will only have its full effect if all countries fully implement the agreement. The degree of commitment is essential for its result. Therefore we introduced a commitment variable called the I-Gap. If the I-Gap is large (max 1), then the Turkey deal has little or no effect, if the I-Gap is small, the Turkey deal has a large effect. The I-Gap is modeled as a sigmoidal relationship.

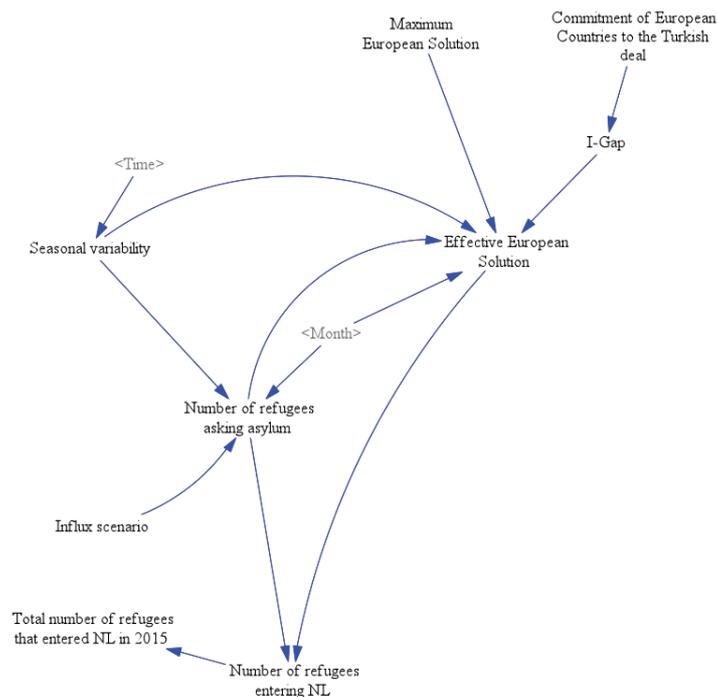


Figure 9: Submodel of the Turkey deal

The data represented in figures 10, 11, 12 and 13 is based on “scenario 60000”, the 0% commitment graphs are equal to the 60000 scenario in figures 5 to 8. The Turkey deal can ease the pressure on the identification process. As illustrated by figures 10, 11, 12 and 13, commitments between 75% and 100% will significantly decrease the average utilization. Also, the seasonal variability will be reduced, and thus the peak load will appear just after the summer of every year.

Personnel management will therefore become easier with a more stable staff.

However, even with a full commitment of all parties to the Turkish deal, the IND will not be able to keep up with the asylum procedure. The rate of people getting a temporary residence permit remains limited by the maximum processing rate of the IND. Therefore waiting times for a decision will still increase, albeit less steeply. The same is true for the number of people staying illegally in the Netherlands; this group will still increase despite the high commitment, although not as much as without the deal.

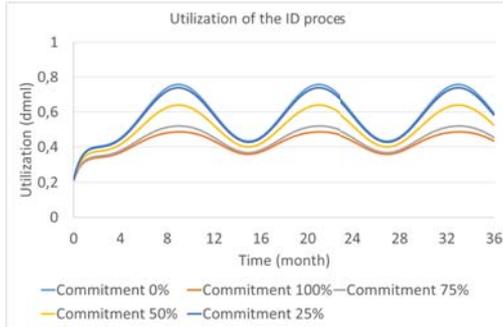


Figure 10: Turkey Deal: Utilization of the ID proces



Figure 11: Turkey Deal: Waiting time on decision by IND

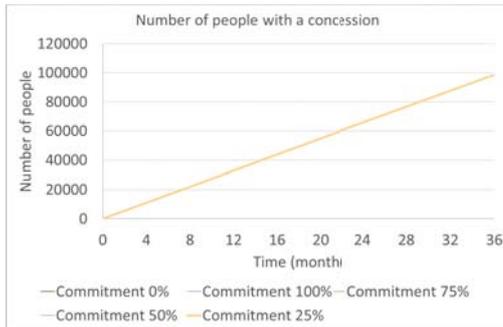


Figure 12: Turkey Deal: People with a concession

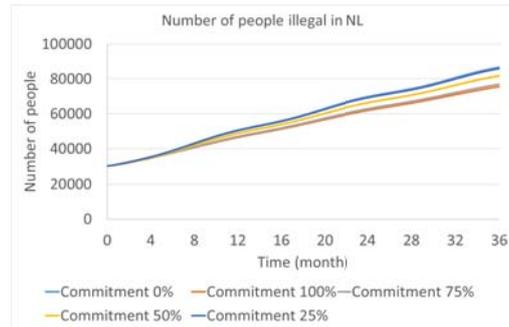


Figure 13: Turkey Deal: Number of people illegal in NL

VII. SECURITY MEASURES

Recently, more security measures have been proposed for the screening of asylum-seekers, on the one hand to prevent potential terrorist from entering the country, and on the other hand to get better information related to human trafficking. In this procedure, asylum-seekers in the identification process are observed. Individuals are further investigated if suspicious items are found while checking their luggage, or if they behave strangely. Further investigation comprises a short interview as well as an attempt to extract information from mobile phones or other data carriers. This sub-model is depicted in figure 14.

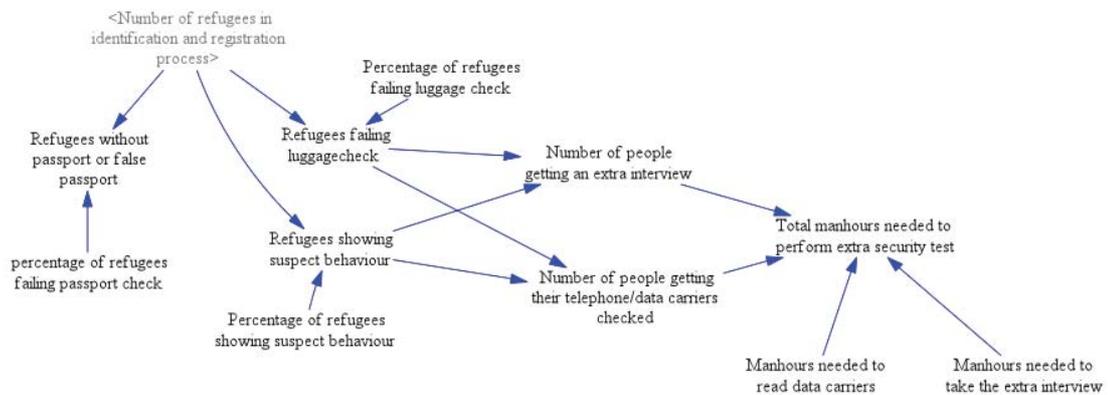


Figure 14: Submodel of the extra security measures

These additional security measures require extra man-hours in the identification process. Figures 15 and 16 show the consequences of these additional security measures for the utilization of the identification process, under different circumstances. We estimate that reading and processing the data from mobile devices takes 2 hours per device and taking an interview costs one hour per person. The time needed for these additional tasks is subtracted from the time available to the identification process.

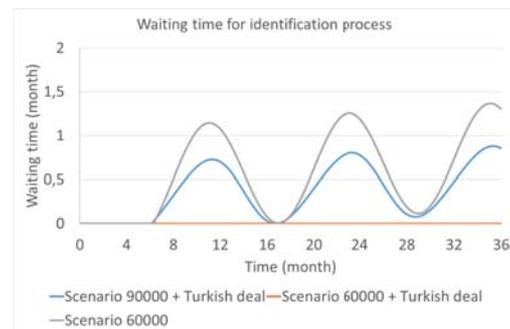
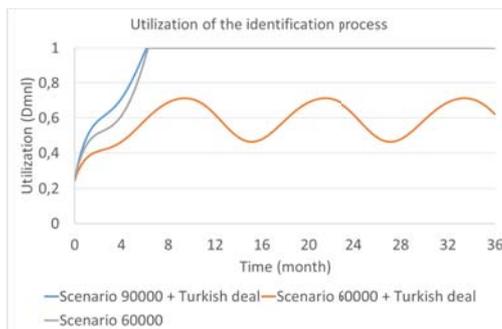


Figure 15: Consequences of the extra security measures **Figure 16:** Consequences of the extra security measures

The extra security measures represent a heavy burden on the manpower of the identification process. The capacity of the identification process seems to be sufficient only in case of the scenario where 60.000 people enter the Netherlands and the Turkey deal is maximally effective. In all other scenarios, capacity falls short. Resulting in increased waiting times for identification process. Figures 16 illustrates the waiting times for the identification process. The procedure results in two waiting lists: one before the identification process, and one before the decision by the IND. In the topmost scenario of an influx of 90.000 and no effect of the Turkey deal, waiting times increase to almost 1,5 month.

VIII. NOTES ON PEOPLE STAYING ILLEGALLY IN THE NETHERLANDS

From our model we can infer that, depending on the scenario, the number of people staying illegally in the Netherlands will range from 75.000 to more than 100.000 after 3 years . Estimates from the literature, based on police data, indicate that about 10% of these people commit a crime [6]. Most likely, these people do not commit more than one crime per person per year, because once caught they are recognised as illegal and deported. Over a 3 year period, it is expected that 7.500 to 10.000 crimes will be committed by this group equivalent to 2.500 to 3.300 crimes per year.

People staying illegally in the Netherlands are dependent on illegal labour and housing. An important factor determining the location of illegal housing is the percentage of non-western immigrants in a residential area [5][7]. Illegal labour is probably organised around these illegal housing areas, and so will criminal offences.

Enforcement on illegality can therefore best be focused on residential area's with a relative high percentage of non-western immigrants. Figure 17 shows a map of such areas in the Netherlands [13].



Figure 17: Map of the Netherlands indicating in which residential areas there is a high percentage of non western migrants. Darker red colors indicate a higher percentage

IX. CONCLUSIONS AND RECOMMENDATIONS

It is uncertain how the refugee crisis in Europe will unfold. Different scenarios are used by the Dutch authorities to prepare for the future. In this paper we have used system dynamics modelling and simulation to study the consequences of these scenarios on the Dutch registration and asylum application system.

Overall, it can be concluded that the system is not equipped for dealing with the current influx of 60.000 asylum-seekers per year. Especially the processing rate of the IND is too low, causing the delay of the procedure to increase from weeks to years. In October 2015 (see figure 3) the Dutch Minister of immigration Dijkhoff announced that there are no plans to increase the capacity of the

IND [10]. Hence, we kept the IND capacity constant in the model. The fact that asylum-seekers remain for a significant amount of time in the procedure has consequences for the Dutch National Police. While still in the asylum procedure, the asylum-seekers are no full members of society. In case they come into contact with the police as a victim or as a suspect, special rules apply in the justice system to these people, which results in more time per case for the police.

Generally, one can wonder if it is desirable to allow for such long waiting lists. As stated before: as long as they are in the procedure, asylum-seekers are not full members of society. They are not allowed to work, and housing is usually temporarily so they have to move regularly. Living in such circumstances for years stands in the way of proper integration into the Dutch society.

The police identification system is only sufficient for scenarios that do not exceed the current influx. Even the intended extra safety check already pushes the system into the overtime area. We therefore recommend these extra safety checks to be performed by extra policeman, dedicated to this process, otherwise large waiting lists for identification will emerge. Especially during the peak season.

The identification procedure is a very labour-intensive procedure, which requires many man-hours of the Dutch National Police. We nevertheless believe that this procedure should be maintained and the quality should be guarded. Sloppiness in the procedure will increase the risk of unwanted people - like criminals or terrorists- entering the Netherlands. Also, sloppiness will increase the possibility of partial identification of asylum-seekers, so they cannot be found or identified later on. These omissions are very hard to correct in retrospect. This would result in a "rework cycle", which is well known to result in even bigger delays. The number of people staying in the Netherlands illegally will increase, and so will the associated criminality. However, these cases are not randomly distributed across the Netherlands. The enforcement can be concentrated in those areas with opportunities for illegal housing and labour.

A number of possible future scenarios have been explored in this paper. These explorations will help us to anticipate on changes. They do not allow for us to influence the scenarios. This refugee crisis is predominantly caused by a strong push-factor: the war in Syria. This strong push factor is something we cannot control and it is unlikely to stop sometime soon.

So, we have no influence on the scenario that will develop, but we can prepare ourselves to make sure that we can handle any foreseeable situation. In this case that means: identifying everyone so we know who is in the country. Take care of adequate accommodation and means of living. Registering everybody properly so a fair and right decision can be made to grant asylum or not. And to make sure that people who are not permitted to stay in the Netherlands, do not end up in illegality and crime. This model can help to prepare the Dutch National Police for its task in the asylum procedure

REFERENCES

- [1] Centraal Orgaan Opvang Asielzoekers. Central agency for the reception of asylum seekers. <https://www.coa.nl/nl/over-coa/cijfers>. [Online; 03/2016].
- [2] K. Dijkhoff. *Letter from minister of Justice and Security*. Ministry of Justice and Security, 2016.
- [3] Immigratie en naturalisatiedienst. Immigration and naturalisation service. <https://ind.nl/organisatie/jaarresultatenrapportages/rapportages/Paginas/default.aspx>. [Online; 11/03/2016].

-
- [4] Dienst Terugkeer en Vertrek. Dienst terugkeer en vertrek cijfers. <https://www.dienstterugkeerenvertrek.nl/organisatie/cijfers-eninfographics/index.aspx>. [Online; 03/2016].
- [5] Staring R. Leun J. v. Boom J. d. Heijden P. v. & Cruijff M. Engbersen, G. *Illegale vreemdelingen in Nederland. Omvang, overkomst, verblijf en uitzetting*. RISBO Contractresearch BV/ Erasmus, 2002.
- [6] P. V. Heijden. *Schattingen illegaal in Nederland verblijvende vreemdelingen 2012-2013*. WODC, 2015.
- [7] San M. v. Engbersen G. Cruijff M. & Van der Heijden P. Leerkes, A. *Wijken voor illegalen*. SDU uitgevers, 2004.
- [8] G. E. Lucas. *Protocol identificatie en labeling*. irectoraat-Generaal Vreemdelingenzaken, 2016.
- [9] Vluchtelingenwerk Nederland. Vluchtelingenwerk nederland - cijfers. <http://www.vluchtelingenwerk.nl/feiten-cijfers/cijfers>. [Online; 03/2016].
- [10] NOS. Dijkhoff: geen extra ind-medewerkers. <http://nos.nl/artikel/2064116-dijkhoff-geen-extra-ind-medewerkers.html>. [Online; 20/10/2015].
- [11] International Organisation of Migration. Irregular migrant, refugee arrivals in europe top one million in 2015: Iom. <https://www.iom.int/news/irregular-migrant-refugee-arrivals-europe-top-one-million-2015-iom>. [Online; 03/2016].
- [12] E. Pruyt. Small system dynamics models for big issues: Triple jump toward real-world complexity. <http://simulation.tbm.tudelft.nl/smallSDmodels/Intro.html> (freedownload). [2013].
- [13] Centraal Bureau Statistiek. Percentage niet westerse allochtonen. http://www.cbsinuwbuurt.nl/#wijken2014_percentage_niet_westerse_allochtonen. [Online; 03/2016].
- [14] Vluchtelingenwerk. Dutch council for refugees. <http://www.vluchtelingenwerk.nl/feiten-cijfers/cijfers/bescherming-nederland>. [Online; 03/2016].