

This document highlights the key events that led to the Arab spring during 2011 through influence diagrams to assess the social media use. The documents also incorporates the use of SSM and systems dynamics to provide a set of recommendations the government can follow if such event were to happen again. A conclusion of the report and reflection of learning follows thereafter.

Impact of social media in the arab springs

Final Report

Nathan Horner - 1030552

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INTRODUCTION

From the previous report I have been able to clear define the problem situation

“The study of social media use during the Arab spring across a number of countries. I intend to model the rise in social media users and relate them to the events that unfolded and the impact this made. I then intend to provide recommendations to governments on how to best manage the use of social media during these events if they occur again”

I intend to use information gathered in the background research contained within the interim report to produce influence diagrams for each specified country. This will highlight the problems that each country had when social media was used. From the influence diagrams I intend to use the information gathered and in combination with information obtained through reading materials such as the Arab social media report from the Dubai school of business. My justification for using this source in particular is due to how quickly it reported on events and the access the Dubai school of business had on data in the areas I have stated. I also intend to use other more eastern sources throughout the final report. Once I have identified the main problems all 5 countries had in common in controlling and using social media during the protest periods I will then model these problems in iThink in order to better understand them, my justification for modelling this information in the software package IThink is merely down to the fact that I have had previous experience with the software and feel that the model will be created more efficiently and to a better standard so that the reader can understand and rely on quantitative data. I then intend to use Soft Systems Methodology to attempt to model a solution to the problems. Once these solutions are derived they shall be put into formal recommendations to the governments of the stated countries.

JUSTIFICATION FOR THE USE OF VARIOUS SOURCES

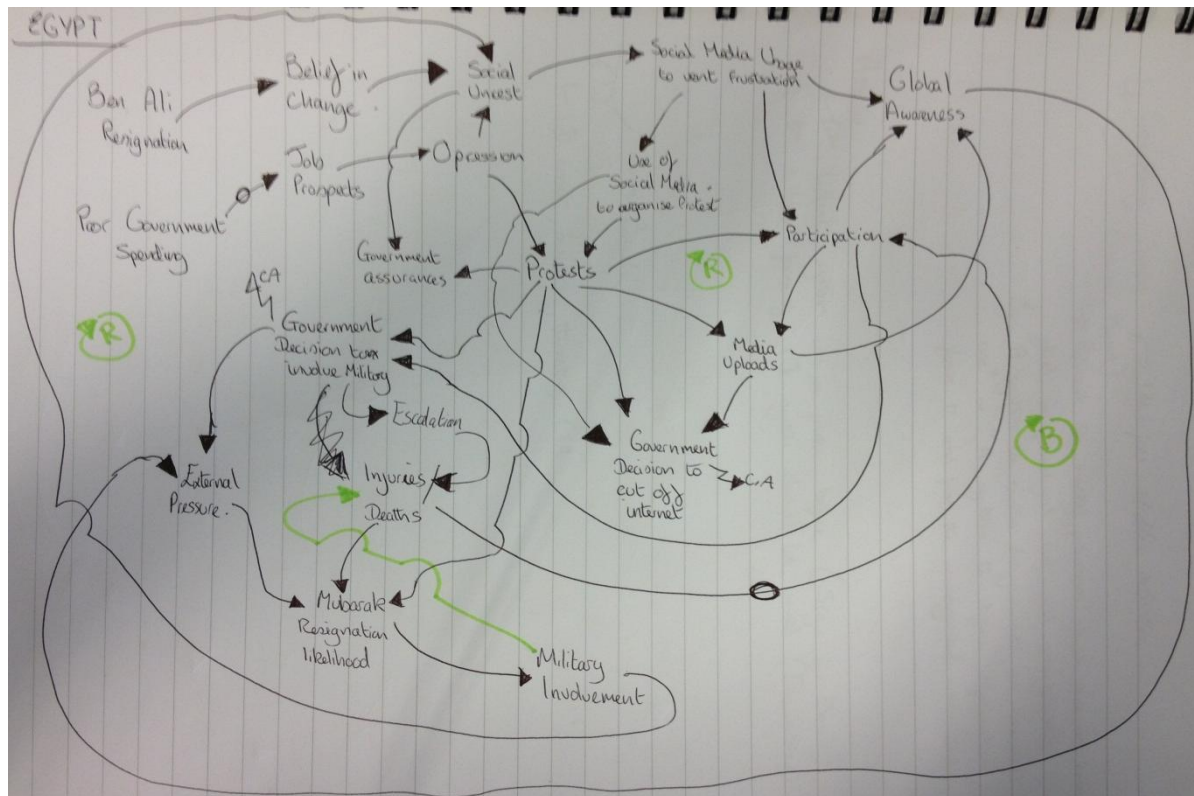
I chose to use a variety of sources throughout my research gathering and the creation of models within this document. I tried to use credible journals from all regions, I chose the use as the Stanford paper to provide the western take on the Arab spring movement. For the raw data on the number of facebook users and twitter users during the Arab spring I used the Dubai school on business from the Arab social media report. This provides an eastern viewpoint on the Arab spring but also provides more valuable and accurate data as they were closer to the source. For the neutral stance I chose to focus on using the guardian’s interactive timeline of events of the Arab spring. I felt this source fitting as it is deemed by many as a neutral source as the publisher had nothing to gain from taking anything but a neutral standpoint on the situation. This source has been useful in mapping the events of each nations struggle.

After all of the violence and bloodshed within the MENA (Middle East North Africa) regions during the occurrence of the Arab spring, people are now starting to wonder what and why it went wrong for both parties involved at particular times during the Arab spring and if social media was a catalyst for it going so severely wrong. For the final instalment of the report my intention is to identify the problems through modelling the use of social media during the protest events through the use of influence diagrams. Once these influence diagrams have highlighted the problems I intend to model the problems using a system dynamics software package called iThink, by modelling these problems in iThink it will model the outcomes of these problems and highlight the link between social media. Once I have modelled the problem in iThink I intend to take a systems thinking approach to derived solutions to these problems. For this I intend to provide SSM models of the main solutions throughout the chosen MENA regions of the Arab spring. From this solution I can present my recommendations at the end of the document which the governments can use to control these situations should they ever arise again. As most of the sources I intend to use throughout this report are from a western viewpoint I intend to carry out a survey targeting students from the MENA regions to get their eastern perspective on the social media use in the Arab spring.

I created 4 influence diagrams on each chosen countries involved in the Arab spring. Below are the images of those influence diagrams and an in depth explanation. From these diagrams I was able to highlight the key issues from each country's influence diagram which needed to be incorporated into the generic Arab spring influence diagram. My justification for modelling only 4 countries I had chosen was because when analysing the data I had collated I found that if I was to produce an influence diagram on Tunisia it would be almost identical to another countries influence diagram. This made the creation of an influence diagram redundant, however it further proved that there was an underlying pattern of how countries approached the Arab spring situation and possibly influenced each other through the use of social media or other forms of media, essentially following a blueprint.

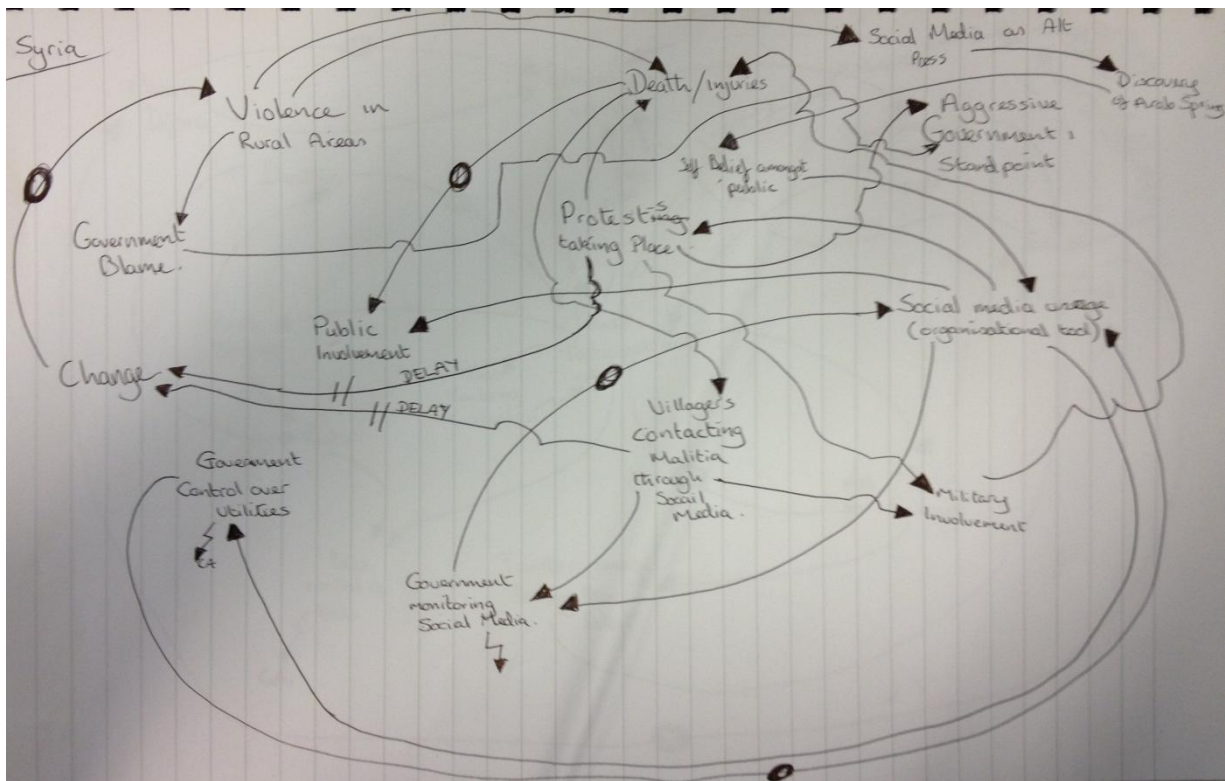
INFLUENCE DIAGRAMS OF CHOSEN COUNTRIES

EGYPT



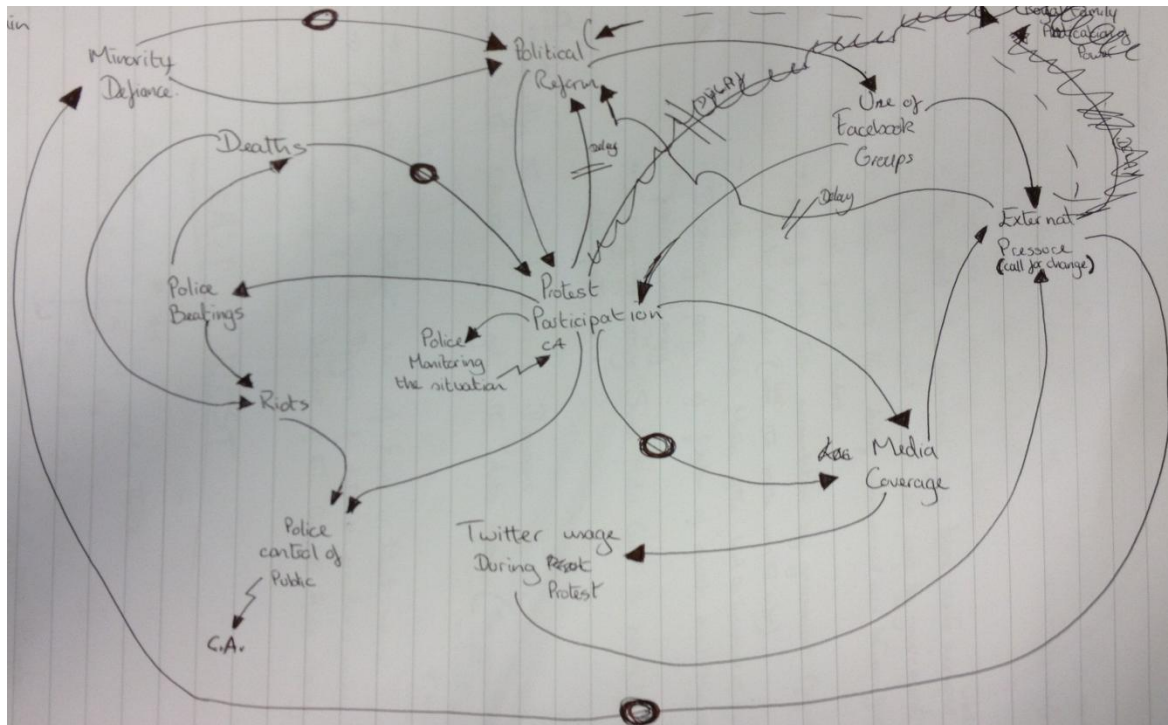
The influence diagram of the Egypt is a visualisation of the events and their contributing factors of what caused the uprising. As you can see from the diagram I have identified the social media uses and what they impacted for instance and increase in the use of social media spread global awareness which in turn forced immense external pressure on the Egyptian government. I have also identified social unrest as a generic influence which has many factors associated with it. From the diagram I also identified that repercussions of an increase in military involvement and putting them into an already heated environment, things are going to escalate and eventually fatalities occur, this is what happened in Egypt's case. This is an aspect of the influence diagram (military involvement) which I feel needs to be addressed in the final influence diagram. Focusing on the social media aspects of the diagram you can see that social media was used in a unique sense as well as the documented sense for example an increase in the social unrest caused an increase in the number of Egyptians resorting to social media to vent their frustration with the current government. As you can see from the diagram, this influenced the decision to use social media to organise protests over the social media platform. (Samin, 2011)

SYRIA



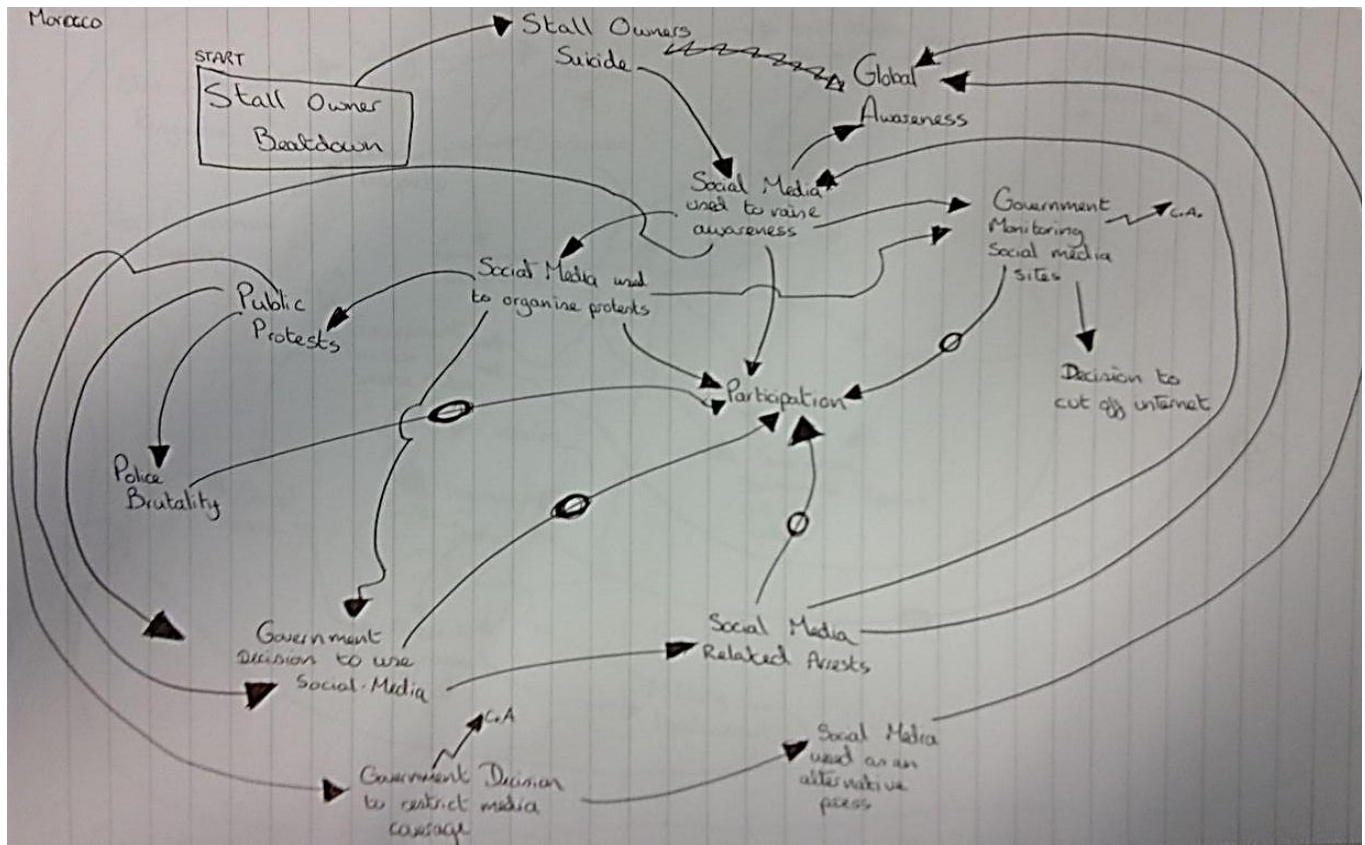
The situation in Syria was far worse in a sense that it was more violent as you can read in the interim report many thousands have lost their lives in a bid to restore order to their country, violence and death widely occurred throughout the Arab spring so it only seems fitting that it was an indirect influence on the people of the MENA regions use of social media. As a result of this social media was used in a variety of ways such as alternative press raising awareness venting frustration organisational and communication tool. All of these uses appear in all of the influence diagrams at one point or another so I felt the need to simplify them to just social media uses for the final influence diagram. However as you can see in the above diagram social media was used very resourcefully by the people of Syria. As Syria's government had total control over what was published on any platform of press, the people of Syria had no idea of what was going on when chaos engulfed their country. Many people took to social media platforms such as twitter and facebook to alert people not to go to certain areas and to notify people of friend's whereabouts. This had an influence on the people discovering the Arab spring movement and gave them self belief that they could do the same in their country and revolt against the powerhouse that was the Syrian government. (Blight et al , 2012)

BAHRAIN



The influence diagram I created for Bahrain I was able to identify the common occurrence in the external pressure that was exerted by other government across the world which had affiliations to each country to control their countries situation and avoid media coverage such as the controversy of Bahrain holding the Formula one race during the period of unrest. Like many other MENA regions involved in the Arab spring, Bahrain also opted to use social media to organise protests using Facebook to achieve this like so many other countries opted to do. Bahrain like Egypt also opted to use the micro blogging phenom twitter to communicate and report events during protests. The influence diagram shows how the police monitoring the problem situation and then taking the decision to control the situation when protest numbers swelled. The diagram also shows the negative effects this resulted in and the impacts of the decision to the overall protests, such as an increase in the police using excessive force caused an increased in deaths and evoked an increase in riots throughout the country. This succeeds in reducing the number of people participating in the protests however it creates an event which is potentially worse than protests, rioting which costs the government more to police and it costs the public as their business' are looted and destroyed. The diagram also depicts how the likelihood of reform can be solely affected by the increase of external pressure, however this is depending on how great the stake of the external governments' interest in said MENA region is. The aspect of the diagram in which I intend to put forth to the generic influence diagram is the relationship between increased police/military involvement, rioting and the power of external government's pressure in Arab spring situations. (Ghannam, 2011)

MOROCCO

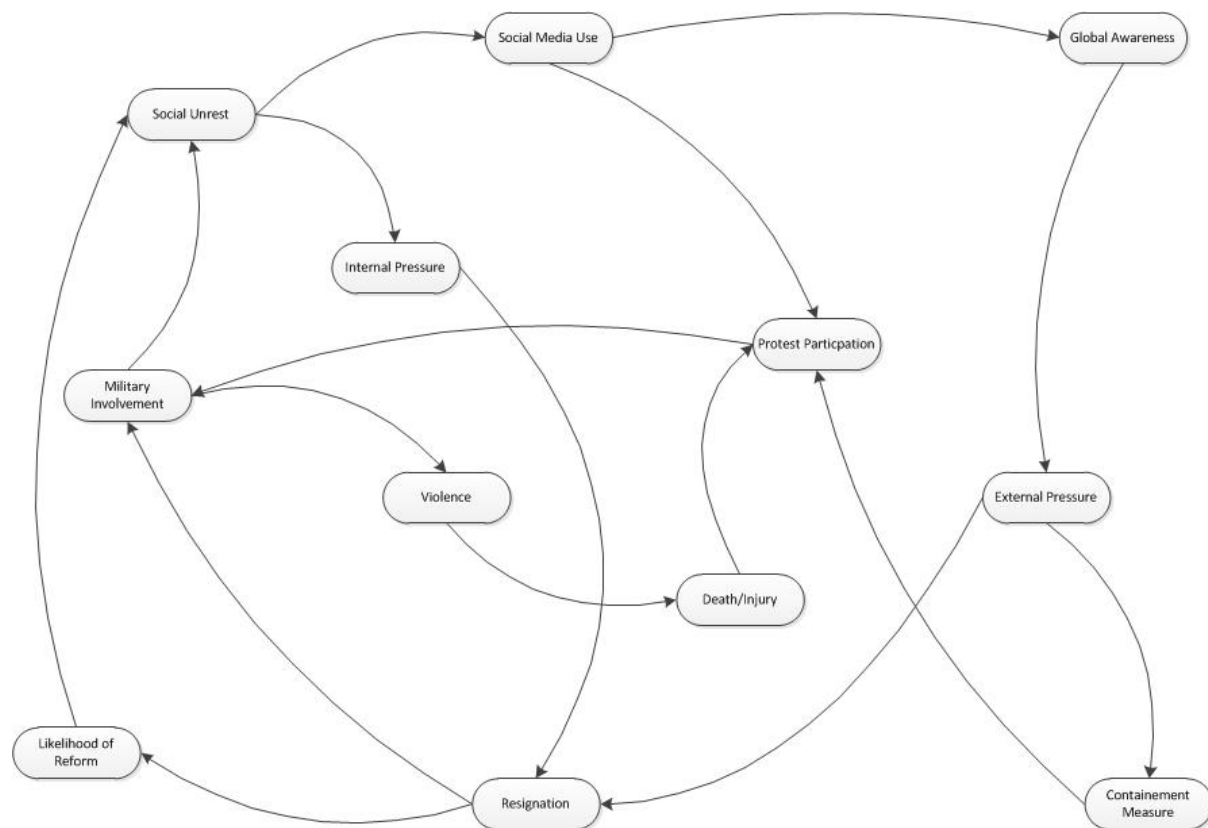


The influence diagram created for Morocco found a pattern began to emerge in the protest and participation influences, they all stem from a form of social media or awareness. I felt that it would be fitting to merge the two together to form protest participation which stems from social media in a generic influence diagram for the entire MENA regions. The aspect of the diagram in which I highlighted as of use to put forth to the final influence diagram was the measures each government took to try and contain the situation in their respective countries. The ways in which they tried to prevent the use of social media or whether or not they used social media to diffuse the situation. Again as you can see from the diagram you can see a pattern emerging that whenever the government took the action to restrict the media coverage of the protests to save face with the UN and external pressures the people resorted to using social media as an alternative press. As you can see from the diagram, as a result of the people doing this, it inadvertently affected the rise in global awareness. The diagram also shows how when the government used social media it decreased participation of the protests as they were able to get their point out to the people over a common platform. (Howard et al, 2011)

INFLUENCE DIAGRAM COMPILATION

During the design phase I created many diagrams to model the influence of the protests to better identify the role and impact of social media. From these influence diagrams I was able to create a generic model of influence which was better used to highlight the key problems with the use of social media. (See fig.6)

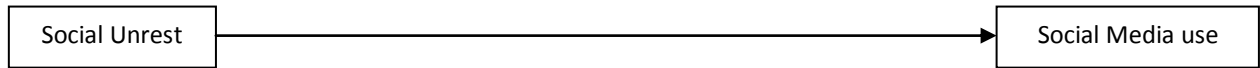
Fig.6



For the influence diagram I was able to derive the influences from a mainly from the guardians interactive timeline for information on the events for each country. It proved useful in identifying precisely what each country steps were after each major event; the timeline gave this information from both a government and citizen standpoint. In Egypt's case I found that from the influence diagram I found that even after the protests had garnered enough momentum, they resorted to cutting off the internet during the protest period, thus having no effect whatsoever on halting the advancement of the protest. If anything it had an adverse effect as in by cutting off internet and communications lines for the entire nation, the government themselves had no forms of communications so controlling the protest became difficult and police forces became disjointed in the efforts to control certain situations. The Egyptian economy also faltered throughout the entire period of unrest, tourism and exports were down and by shutting off internet access didn't help these matters from improving. The influence diagram also highlighted certain factors that affected the injury and death rate during the protest. Each relationship in the influence diagram is explained below. [ref]

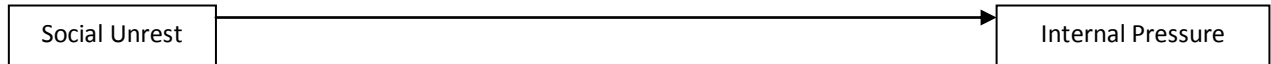
INFLUENCE DIAGRAM ANALYSIS

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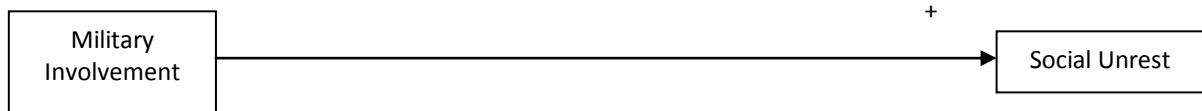
An increase in social unrest across the MENA regions led to an increase in social media use ranging from communication, socialisation and organisation

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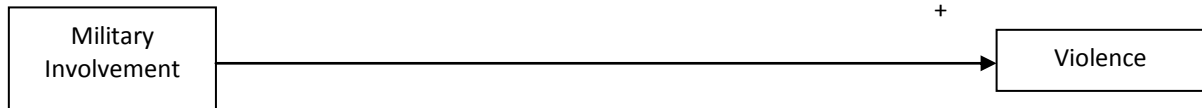
An increase in the social unrest amongst the citizens of the MENA regions increased pressure within the government to address the situation.

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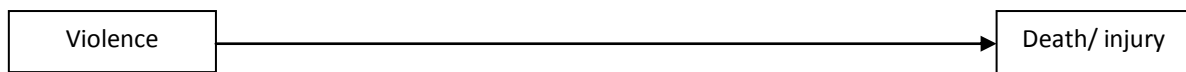
An increase in military involvement to ease the situation cause more social unrest when the situations turned violent.

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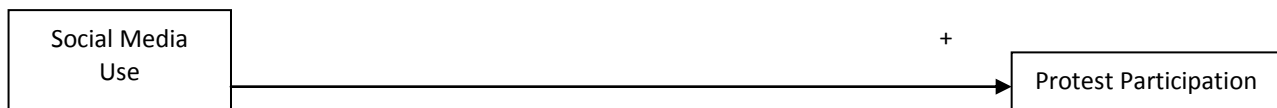
An increase in the military involvement led to an increase in violence during the protests

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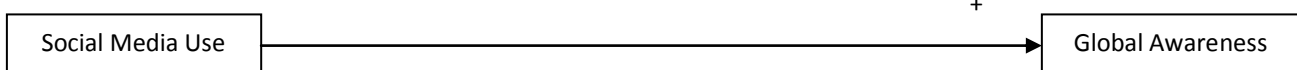
An increase in the violence that ensued over the course of the protests increased the death and injury rate over the protest period in the MENA regions. (Aday et al, 2012)

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An increase in the social media use in the MENA regions increased the protest participation during the Arab spring period.

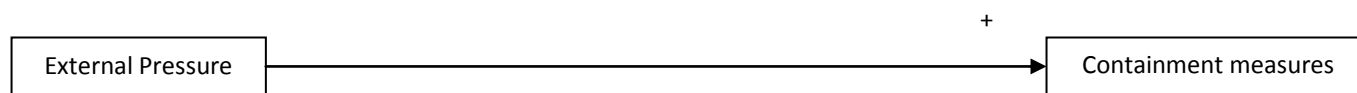
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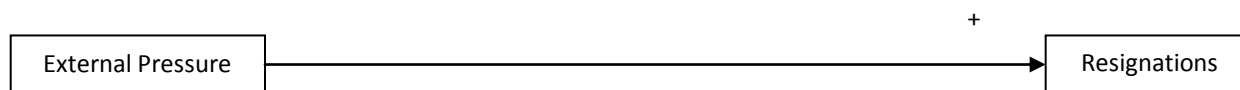
An increase in the social media use in the MENA regions raised global awareness. This was due to the 6 degrees of separation that is accredited to social media in the 21st century.



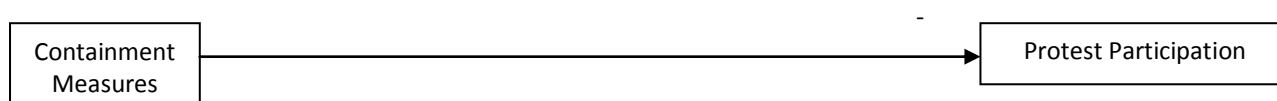
An increase in global awareness on the situation arising within the MENA regions caused external governments such as USA and Russia to put pressure onto the MENA region governments to sort the nation's affairs.



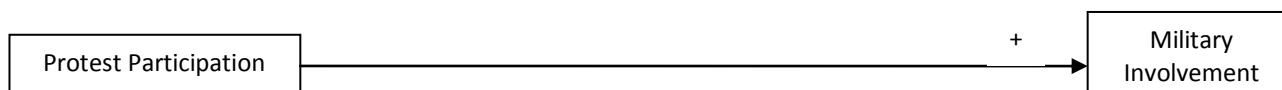
An increase in external pressure increased the containment measures that governments took to control the situations. A decrease in external pressure would decrease the need for such containment measures.



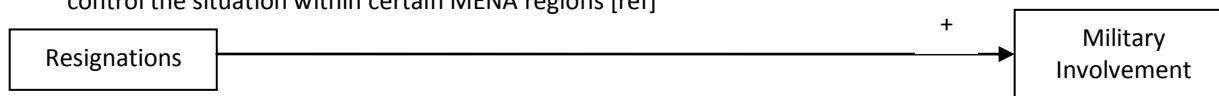
An increase in external pressure led in some cases to an increase in external pressure within MENA regions.



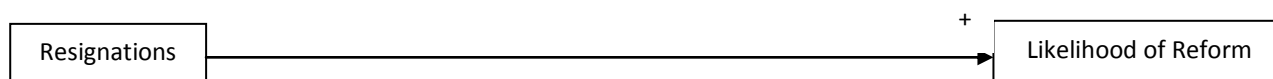
An increase in the containment measures which the governments took led to a decrease in the amount of people that took part in the protests.



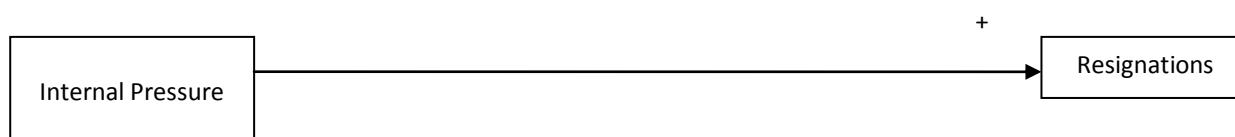
An increase in the protest participation led to an increase in military involvement. This was an attempt to control the situation within certain MENA regions [ref]



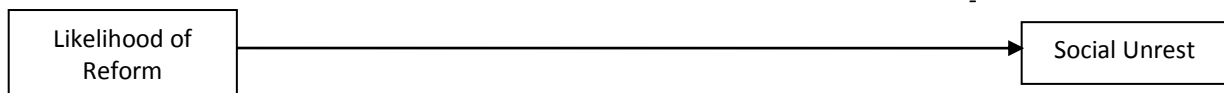
An increase in the number of resignations across the MENA regions saw an increase of the militaries involvement whilst the countries got their head of state positions in order; an example of this is in Egypt [ref]



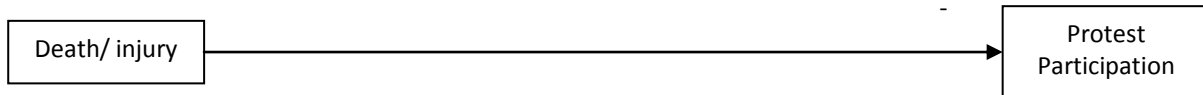
AN increase in the number of resignations saw an increase in the likelihood of reform felt by the people of the MENA regions involved in the Arab spring.



An increase in the internal pressure also saw an increase in the number of resignations, government figures tried to resolve the situations internally by forcing resignations on senior officials in an attempt to show the people of the MENA regions that progress was being made.



An increase in the likelihood of reform saw a decrease in social unrest amongst the MENA regions involved in the Arab spring. However this would only become solidified if the likelihood became actual reform.



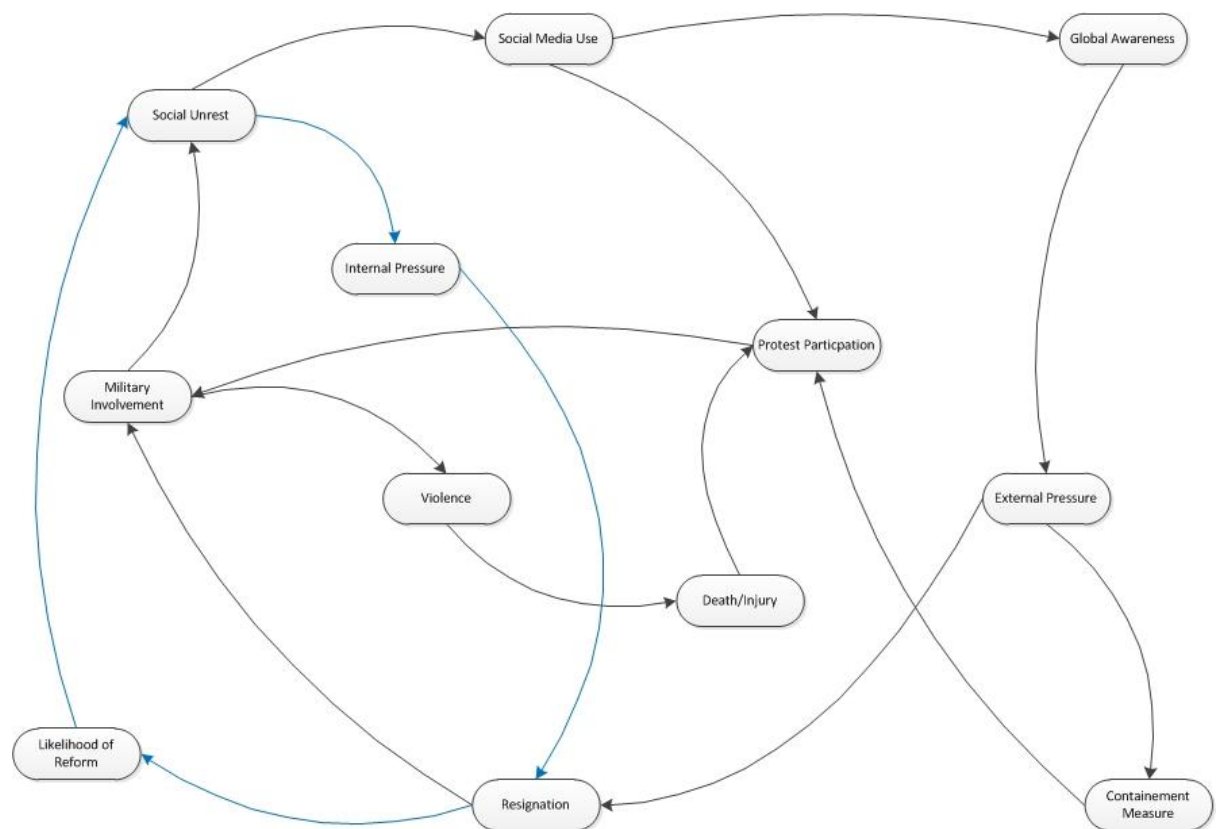
An increase in deaths during the protest period saw a vast decrease in the number of people participating. The people involved in the protests were not from a military background they were average citizens so many became afraid for their life.

INFLUENCE DIAGRAM BREAKDOWN

From the influence diagram I identified 7 loops either balancing or reinforcing in nature, below are the images of each loop and a brief explanation of the loop. They each have been given an identifying colour to set them apart from the rest of the model.

1ST LOOP IDENTIFIED

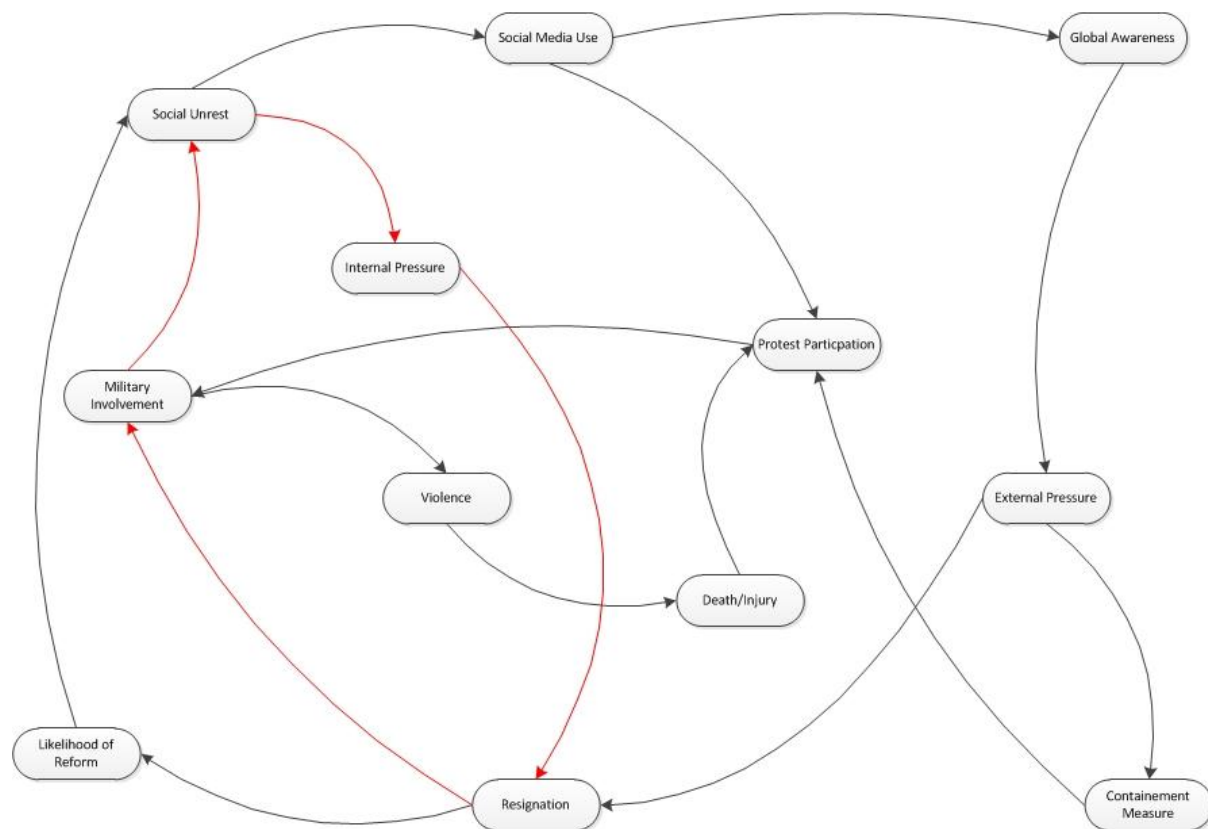
The first loop I was able to indentify within the general influence diagram by highlighting the relationship arrows blue.



From the loop I was able to identify that an increase in social unrest led to and increased in internal pressure. This led to the increase in resignations and as a result increased the likelihood of reform. An increase in the likelihood of reform decreases social unrest within the nation. I was able to determine this from the vast amount of resignations that occurred during the Arab spring most notably the resignation of the Egyptian president Mubarak. (Anderson, 2011)

2ND LOOP IDENTIFIED

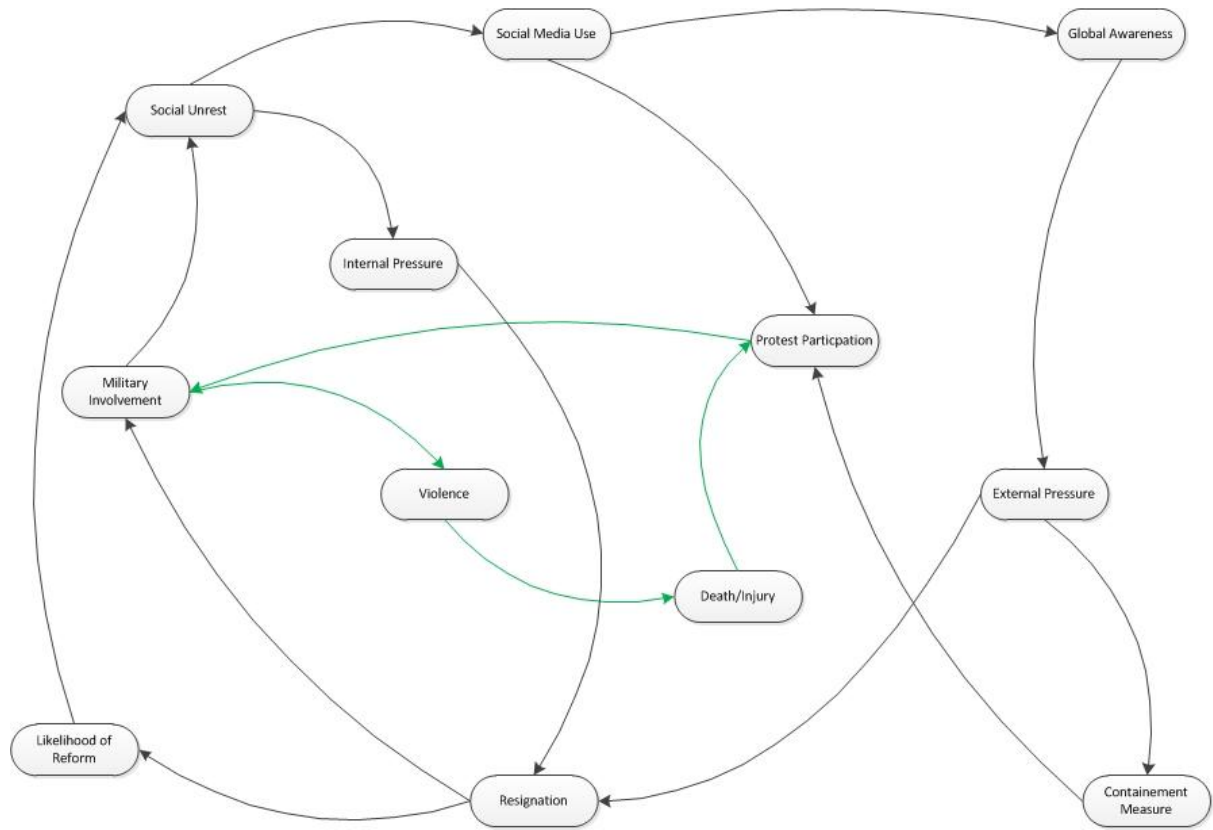
The second loop I identified in the model was that of the military involvement within the Arab spring highlighted in red.



The loop is a reinforcing in nature and depicts that an increase in social unrest led to an increase in internal pressure. This led to an increase in resignations. As previously stated in the interim report after certain states were forced to include their military regiments as they thought it would be the best solution to ease the protests and social unrest. However this had an adverse effect and as a result further increased the social unrest as things escalated. This is a prime example in which i came across in countries such as Egypt and Bahrain. (Breuer et al, 2012)

3RD LOOP IDENTIFIED

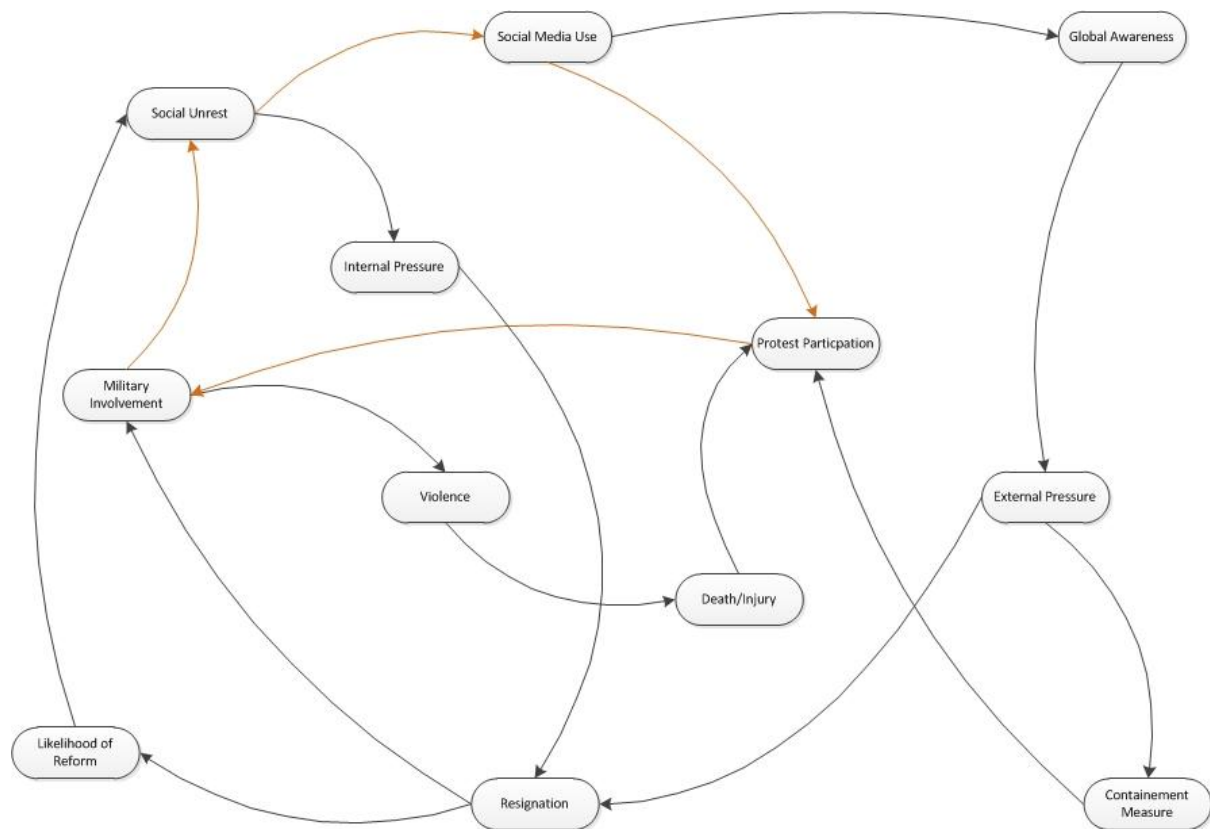
The third loop I was able to identify within the influence diagram was the correlation between the military involvement and the deaths and injuries within the MENA regions highlighted green.



The loop is balancing in nature; it shows how an increase in violence that occurred during the protests led to and increases in injuries and deaths such as those which occurred in Syria (Blight et al, 2012). This led to an decrease in the number of people which took part in the protests as they would fear for their safety. This would result in the decrease the military involvement over time and also decrease the violence that occurs as a result of the dwindling numbers of the protest. However this loop could possibly follow the fixes that fail system archetype. As there can be a relationship between the increase in deaths and injuries would also increase the military involvement

4TH LOOP IDENTIFIED

The fourth loop in light brown identifies the influence that military involvement has on protest violence and subsequently death and injury.



An increase in violence would have an increase in death and injuries. An increase in death and injuries would lead to a decrease in protest participation and a decrease in protest participation would lead to a decrease in military involvement, this creates a balancing action within the loop. An example where this has occurred in the Arab spring was the situation in Syria where violence swept across the protests as a result of an increase in military troops involvement in the protests as the protesters were vastly out manned and out gunned to date over 80000 people have lost their lives for a cause they believed in resulting in a stumbling of their movement until the overthrowing of the government. (Huang, 2011)

5TH LOOP IDENTIFIED

The fifth loop identified in lime green is reinforcing in nature and depicts the relationship between social media use and military involvement.



An increase in social unrest within the MENA regions led to an influx (increase) in people taking to social media outlets to voice their concerns with her current regimes. As previously stated in the interim report the involvement of social media heavily increased the amount of people that protesters could reach and in turn increased the protest participation. As the governments within the MENA regions did not foresee such rapid growth and escalation they saw no other alternative than to involve the military to get a hold and diffuse the situation. We now know that this was not always and the result.

6TH LOOP IDENTIFIED

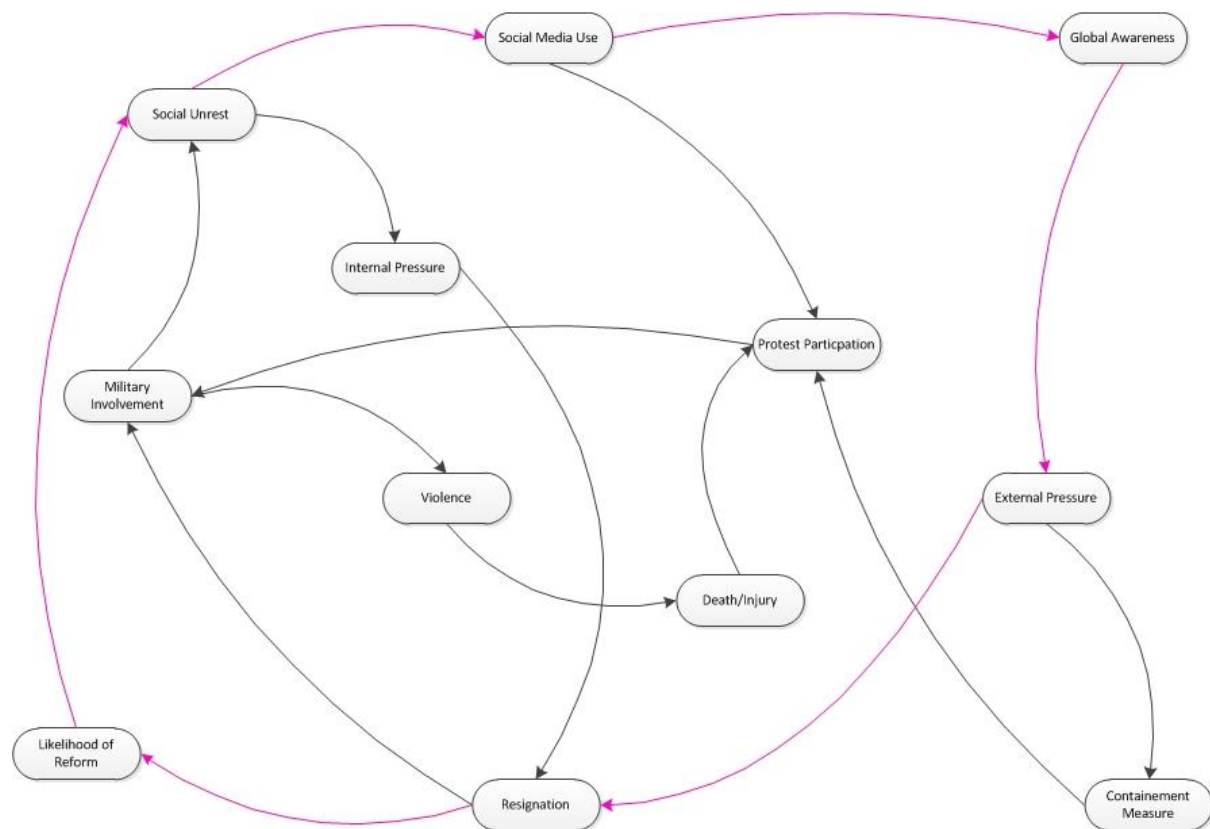
The sixth loop in orange identifies how an increase in social unrest in the MENA regions led to an increase in the number of social media users (see tab.1).



The diagram then goes on to depict what the ramifications of the increase in social media users such as a result of the increase of social media users it raised global awareness. This supports the 6 degrees of separation theory i stated in the interim report. As a result of the increase in global awareness. Global powers such as governments and NATO began to put external pressure on the MENA governments to better control the situation or they would be forced to get involved. Due to the increase in external pressure it caused an increase in countermeasures in an attempt to try and combat the situation the ways in which each MENA country controlled the situation such as Egypt's approach of cutting off the internet connection (see interim report) or Syria increase in military involvement. An increase in the countermeasures taken by the governments led to a decrease in the number of people participating in the protests. This is with the exception of Egypt whose only effective countermeasure was the resignation of the president (see interim report). A decrease in the protest participation often led to a decrease in the militaries involvement, again in Egypt's case the country became a military controlled state so the militaries involvement increased. As a result of the reduced military involvement in the MENA region it reduced the countries social unrest as a result. However this only reduced their increased unrest as a result of the militaries involvement the initial unrest stayed the same until the situation was rectified.

7TH LOOP IDENTIFIED

The final loop identified in pink depicts the alternate route the countries could have taken as a result of the external pressure applied to them as a result of the increased global awareness.



As a result of the increase in external pressure some nations resorted to resignations and firings. This was either deemed as an alternative to the failed containment measure or they simply tried to diffuse the situation by immediately firing government officials. As a result it increased the likelihood of reform at a quicker rate than it would have been if endless containment measures were to be deployed. Also if it was the individual was to blame for the entire conflict e.g. Head of state then the public would see their departure as a moral victory. An increase in reform likelihood it decreased the social unrest in the MENA regions. As more people were satisfied the governments were making a real effort to rectify the situation they felt some sort of moral victory.

QUESTIONNAIRE

I felt it necessary to conduct a questionnaire to obtain a viewpoint from the relatives of those involved with the Arab spring this will provide me with a more eastern understanding of the Arab Spring. Initially I intended to conduct interviews with PHD and research students who were from the MENA regions regarding the Arab spring. However after consulting the head of ethics Nick Avis he suggested that the best way for this to be carried out was anonymously as the subject is a very delicate matter. As there were certain time constraints on the task being completed after reviewing the alternatives I found that the most efficient and effective way of garnering the information from potential participants was from creating a questionnaire with the questions I would ask in the interview and make the questionnaire anonymous. In by doing this it ensured that participation was anonymous, time effective and easier to analyse the results but allowing the participant to be descriptive through the use of comment boxes for certain questions that would benefit from the use of such type of answer method. All of the questions required an answer, this was to increase the consistency of results. If you look at fig.2 in the appendix all the questions are marked * to indicate a mandatory question. Most of the questions answer method were multiple choice multiple answers meaning the user had a number of choices and could choose as many as he could see fit, these proved beneficial for the types of social media question listed below.

QUESTIONNAIRE ANALYSIS

1. The reason for the first question is to gain a better perspective of if the entire family of the nation are users of social media or whether it was just the younger generation who took part in the social media uprising
2. This question is to determine if the users are still active users in social media or whether users were just active for the Arab spring period.
3. The choice of country is merely to compare the findings I have made on my chosen countries stated in the interim report.
4. I have already been able to determine that Facebook and Twitter were the main forms of social media but I wanted to find out if people closely involved in the Arab spring accredited any other forms of social media with the Arab spring's impact.
5. Again question five is to compare the results with my findings which were that social media was widely used as an organisational, strategic and communication tools. In by doing this I will also be able to ascertain what other ways social media was used in the MENA regions.
6. Question 6 is highly opinionated; this question will merely provide me with the general consensus of how social media affected the government. The participants are not expected to provide a politically correct answer as many of them would not have worked for their governments. It will provide me with a public perception of how the government reacted to social media
7. From my research I was able to identify that there was a common drawback to the wide use of social media during the Arab spring commonly known as the 'double edged sword', this was where social media was used by the government to capture leaders of the movement with the help of the organisations and beat them into changing their focal viewpoint of the government regime. This will help me ascertain if the public were wary of this during the Arab spring period.
8. This question will highlight if the participants were aware of the government became users of social media platforms. I know from my research that they were in many areas but whether or not the public were made aware of the situation is yet to be discovered.
9. Although the final question controversial I felt the need to include it into my survey. The question asks for the participants thoughts on how the government used social media and the ways in which

they used them to their advantage. The question also asks the public's opinion of the government action to shut down the internet to the nations.

The survey was vetted by Professor Nick Avis to ensure that the survey was ethically sound. (See appendix for email). I then presented the survey to my supervisor Helen Phillips; the survey was then put out to research and PHD students. Potential participants were made aware that their participation was anonymous and the results were not forwarded to any external companies that would use the data against them.

QUESTIONNAIRE RESULTS

After analysing the results of the questionnaire I found a direct correlation between the information I had gathered on the Arab spring and what the participants knew of the Arab spring and in particular the social media platforms that were used in their respective countries. This information was to be expected but what were particularly interesting were the responses to the opinion questions. Below will be an analysis of all of the questions within the survey.

1. This question showed that 2/3 of participants were active users of social media. This result was to be expected as over 1 billion people are members of one form of social media or the other.
2. From my research I found that the most form of social media used were Facebook, Twitter. I was also aware that there were other platforms which were used. This response to question 2 was that those users identified YouTube as another platform that was widely used.
3. From question 3 I discovered that the participants were from the following countries; Oman, Saudi Arabia and Iraq. All of the countries fall within the MENA regions so the responses were valid.
4. Like question 2 question 4 identified that Facebook, Twitter and YouTube as the main platforms of social media that were used within the MENA regions.
5. Question 5 asked the participants what their chosen form of social media in the previous question was used for. Participants identified that Facebook was used for socialising and during the Egyptian election was used for communicating during their elections. They also inadvertently identified that social media helped spread awareness as none of the participants were from Egypt. One participant noted that some radical parties used social media to advertise false situations of political and social unrest. The participants noted that the people of their home nation were aware of the true situation and were clever enough to ignore such nonsense.
6. One participant noted that they felt that social media changed the Arab world; another participant noted that through social media the government identified the youth perspective, plans and thinking towards politics in their nation. The final participant identified that their government welcomes and encourages the use of social media but does acknowledge that in some countries it was necessary to use social media in unconventional ways.
7. Question 7 asked participants to state any drawbacks they felt social media use had; one participant felt that the use of social media contained no drawbacks while the others noted that social media should be frowned upon if it is used to promote an individual's political gain or to spread false information on the government. Other participants identified that anyone can see a Facebook post and said that that may have been the reason behind the violent outburst in Egypt by stating that opposition parties may have seen where peaceful protests were to take place and went there to cause trouble which could escalate to a riot.
8. When the participants were asked in question 8 if they were aware if their government was an active user in social media one participant said no but the remaining participants were not sure. This further

proves the theory i have identified in my interim report that governments used social media without the public's knowledge to locate and interrogate leaders of protests also known as the double edged sword of the Arab spring.

9. Question 9 asks the participants for their opinion on the government cutting off the internet and shutting down social media outlets during the Arab spring. One participant noted that they have lost the whole point of government and instead adopting a dictatorship standpoint and also stated how barbaric it was to deprive the people of those nations of their freedom of speech. Another participants cites it as a mistake on the government part as it caused more harm and had a limited effect while another participant acknowledged the need to control the internet and social media usage during violent periods but stated that they cannot shut it completely off as it limits the public's freedom to speak their minds.

TABLE OF SOCIAL MEDIA USERS BEFORE AND DURING THE ARAB SPRING

(tab.1)

| 10. Country | Population [16] | No of Fac3ebook users 6/12/2010 | No of Facebook users after 12/10/2011 | No of twitter users before 9/1/2011 | No of Twitter users after 4/1/2012 |
|-------------|-----------------|---------------------------------|---------------------------------------|-------------------------------------|------------------------------------|
| Egypt | 82,949,000 | 3.5 million | 9 Million | 130000 | 215000 |
| Syria | 21,872,000 | 169000 | 1.7 million | 6130 | 8600 |
| Morocco | 32,754,600 | 1.8 million | 4 million | 26700 | 33400 |
| Tunisia | 10,673,800 | 1.5 million | 2.7 million | 9150 | 10800 |
| Bahrain | 1,323,535 | 220000 | 304000 | 42350 | 58200 |

(Source data from Dubai school of business, Social media report, statistics. All values were accurate as of December 2012)

When comparing the qualitative data obtained from the questionnaire against the quantitative data within the above table I have found that with the increase in social media brought awareness to other countries and others in the same country to the dire governments actions that have forced these impossible living conditions and severely affected their standard of living. The reasons behind the increase in social media users shown above is that the people of those countries had exhausted all alternatives in trying to rectify or better the situation and because a majority of those affected were between the ages of 15-29 which is the demographic which has the highest amount of people using social media and is seen as more technologically advanced than other age demographics, they decided to use the social media platforms to voice their opinions on their current situation. The qualitative data that people thought it was the best way to communicate and converse with others who are in the same situation as they are and seek advice. The quantitative data shows that social media numbers swelled during the Arab spring, which also backs up the common answer made in the questionnaire that on average ¾ family members were active social media users and in the above table it also depicts that in Bahrain nearly 29% of the population were actively using social media in the form of Facebook during the Arab spring period.

IMPLEMENTATION

SSM 1

The problem definition has already been defined (see interim report) so as a result I am moving straight into the root definition which is step 3/4 in (Checkland', 1981) SSM practise. From these SSM models I intend to formally produce a set of recommendations in which the government can use and follow the procedures outlined in the SSM model to better cope with the situation outlined in the report.

ROOT DEFINITION

A system owned by a MENA government to control protests peacefully by the sub IT dept by means of monitoring the most common social media outlets to identify potential false social media accounts and protest outbreaks and communicate to protesters in order to control the situation. The system must make use of the government's technology available and follow the guidelines and not breach user freedom of speech or confidentiality. By doing this will allow the people of the MENA region to better put across their problems with the current government and the governments to better control the situation in a peaceful manner.

CATWOE ANALYSIS

Clients – General Public & Government – the general public have been identified as one of the beneficiaries of the system because the system will result in less death and injury as a result of the identification of false accounts used to antagonise the situation. The government will benefit from the lack of protest participation which not only drain their resources but reduce the external pressure exerted upon them by other governments.

Actors – IT department – the IT department have been identified as the main actors of the system as they will be carrying out the activities to ensure that social media usage is properly monitored.

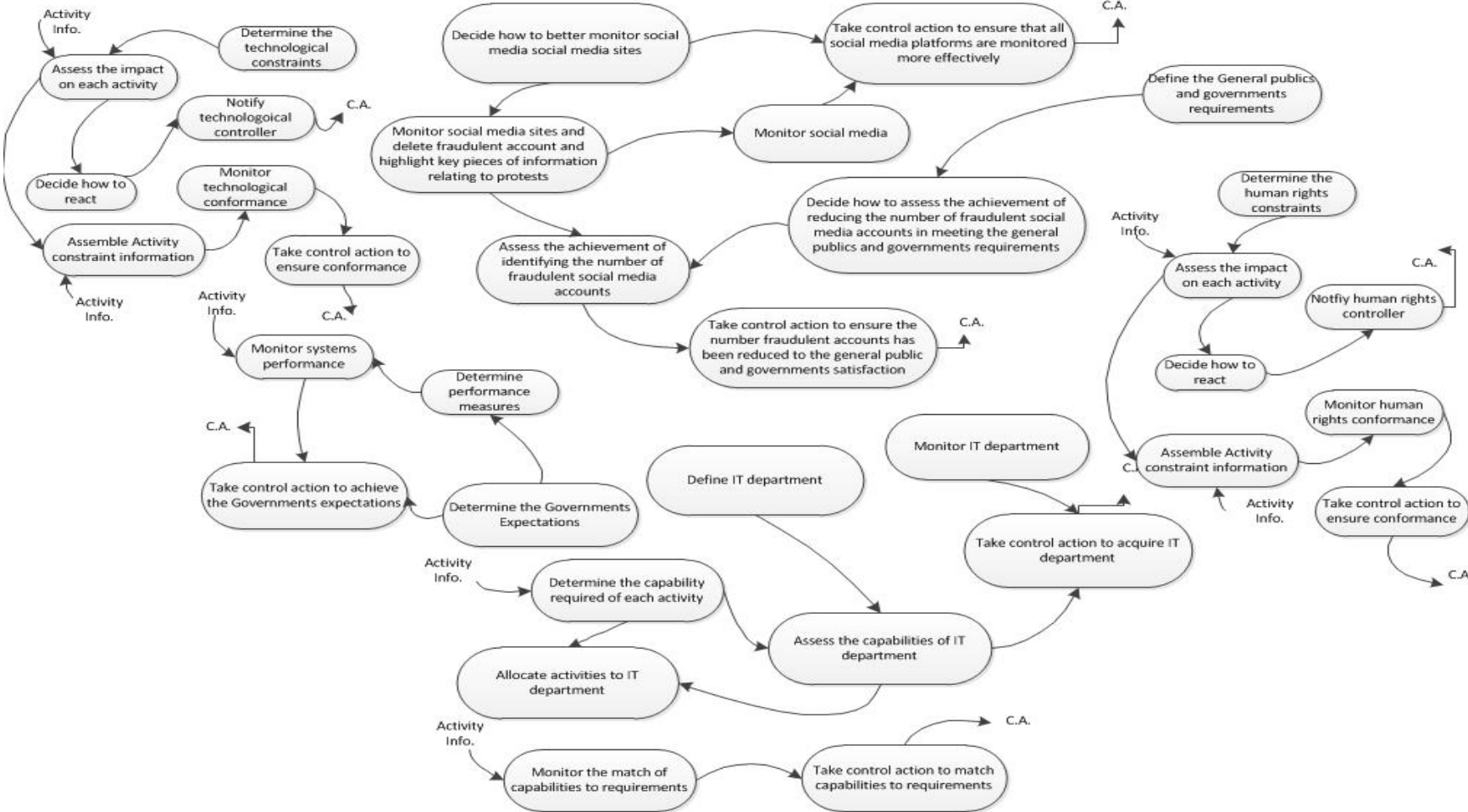
Transformation process – better monitoring of social media social media sites to allow the people of the MENA region to better put across their problems with the current government and the governments to better control the situation in a peaceful manner.

World views - identify potential false social media accounts and protest outbreaks and communicate to protesters in order to control the situation,

Owners – Governments of the MENA regions – I have identified the governments of the MENA region as the owners of the system as they will ultimately have the power over the system and whether it will exist or not.

Environmental constraints - The system must make use of the governments technology available and follow the guidelines and not breach user freedom of speech or confidentiality – I firstly identified the technological constraints of the system because it is well documented that certain MENA regions are not as technologically advanced as the western world so they must only use technology that is available to them. The second most important environmental constraint I have identified within the root definition is that the system cannot breach the general public freedom of speech or confidentiality, this was a major factor that upset many protesters during the Arab spring so it is imperative that governments learn from their mistakes and use social media with the public's information being privy to them only.

CONCEPTUAL MODEL



REAL WORLD COMPARISON

When analysing the conceptual model there were a few aspects of the model that failed to depict the true real world procedures, below I have outlined the areas I have identified as inaccurate and have provided a brief possible recommendations:

1. Sometimes when protests and riots are being arranged it is paramount that the police act pro actively rather than reactively in order to better control the situation. As a result the police may not respect a person's human rights as well as they should. This action therefore would not comply with the constraints of the system. A recommendation for this action would be to identify the fraudulent account first as the constraints of user privacy do not apply to those social media accounts in the terms of use agreement.
2. In some developing MENA nations their IT department would not be able to handle such a task that the system outlays so the system could prove ineffective. The best way for developing nations to overcome this is to create a relationship with the social media platforms whereby they monitor the identified fraudulent accounts and pass on the information that is garnered from them for the IT department to take action on.

SSM 2

ROOT DEFINITION

A system owned by the MENA governments and used by the police to diffuse violent situations through using social media to alert potential protest goers Not to attend protests due to the ensuing violence by doing this will reduce the amount of deaths that occur during protests. The system must abide by the laws and freedom of speech and constrained by time. By doing this will allow the police to better control the violence and reduce the death rate from the protests.

CATWOE ANALYSIS

Clients – government - The government will benefit from the lack of protest participation which not only drain their resources but reduce the external pressure exerted upon them by other governments.

Actors – Police – the police have been identified as the actors of this root definition as they will be the people executing the activities and attempting to diffuse the protest situation by reducing lives lost during protests.

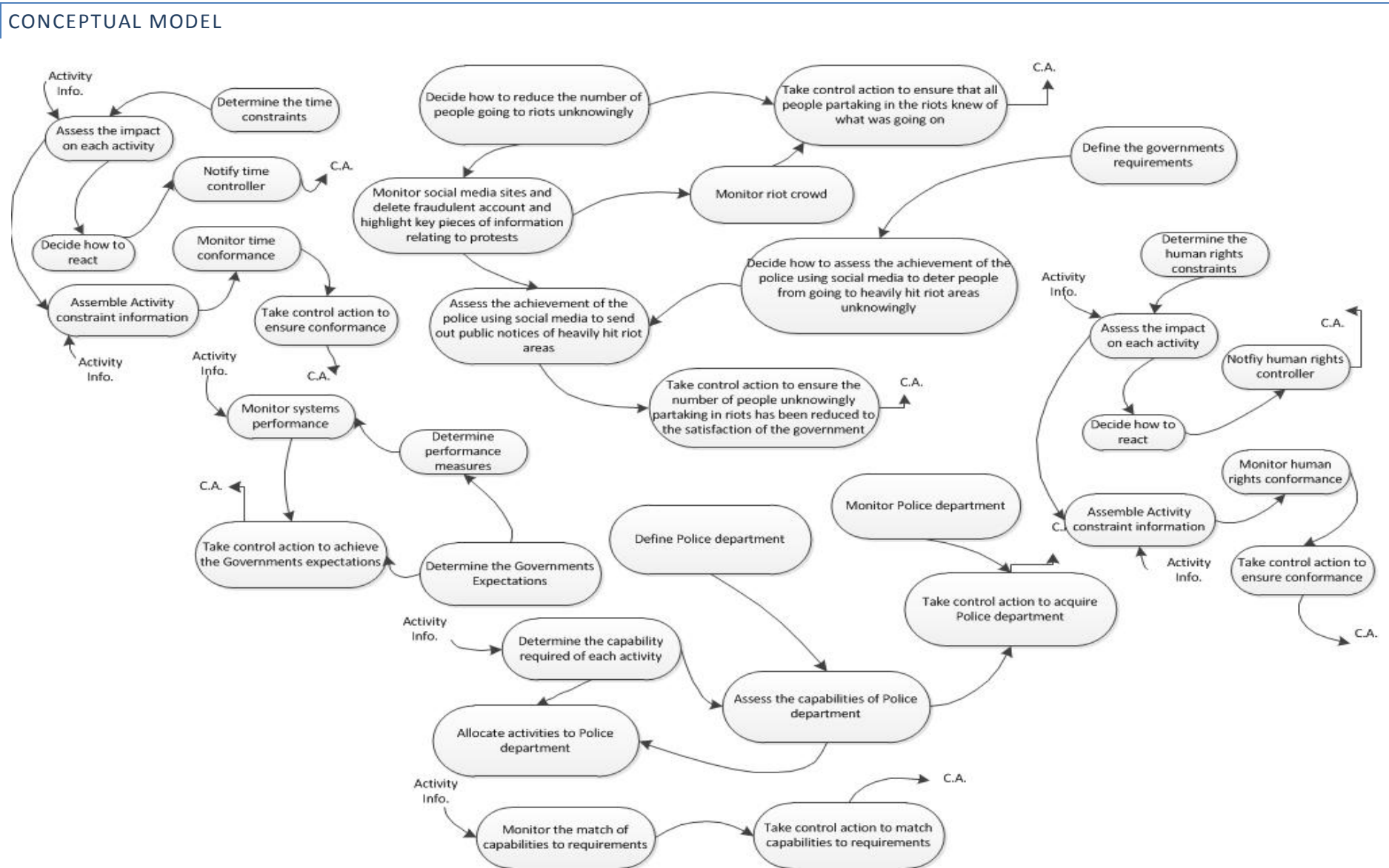
Transformation Process – reducing the number of attendees and death of protests – in by doing this will enable the police to identify the real threat and enable them to resolve the situation more efficiently.

World view - alert potential protest goers not to attend protests due to the ensuing violence by doing this will reduce the amount of deaths that occur during protests – – in by the police implementing such a system

adopted by many protest organisers they can rely public notices advising them to stay away from riot zones so they don't risk their lives

Owners – Governments of the MENA regions – I have identified the governments of the MENA region as the owners of the system as they will ultimately have the power over the system and whether it will exist or not.

Environmental Constraints - The most important environmental constraint I have identified within the root definition is that the system cannot breach the general public freedom of speech or confidentiality, this was a major factor that upset many protesters during the Arab spring so it is imperative that governments learn from their mistakes and use social media with the public's information being privy to them only. The protesters cannot be forcefully removed from a situation for speaking their mind and the police department should be made aware of this. Time is also a key constraint as the police must react quickly to the threat in order for the system to be effective.



REAL WORLD COMPARISON

When analysing the conceptual model there were a few aspects of the model that failed to depict the true real world procedures, below I have outlined the areas I have identified as inaccurate and have provided a brief possible recommendations:

1. In theory the system has the potential to work, however in a riot situation there are too many variables and dangers each police officer to process and at time cannot take the time to ask every person if they are knowingly taking part in a riot. As a result people may feel aggrieved if they are mishandled by the police. A recommendation for this to be overcome is to maybe use a loudspeaker system during the protests warning people that it is a riot and any person involved will be dealt with the necessary force so if they were unaware of this they should disperse immediately.
2. The system is only as effective if the general public are using social media and following the police social media feed at this time. My recommendation for this to be better achieved is for the police to go on a marketing campaign alerting the general public that they are now using social media.

SSM3

ROOT DEFINITION

A system operated by government officials and owned by the government to reduce the number of protesters participating and reduce the number of people that feel aggrieved by the government by increasing the government's social media presence for better communication with the general public under the constraints of technology, ethics and government regulations.

CATWOE ANALYSIS

Clients – the clients of the systems are the general public, they have been identified as the main clients of the system as they are people who will be given more clarity on political issues in their country and will be given a better probability of change in the country as a result.

Actors – government officials are the actors of the system as they will be the ones who will have to use the social media platforms and communicate openly to the public. Officials should remember that social media is only as useful as the information the user puts into it. It is not clear at this time what levels of officials would be able to use this system.

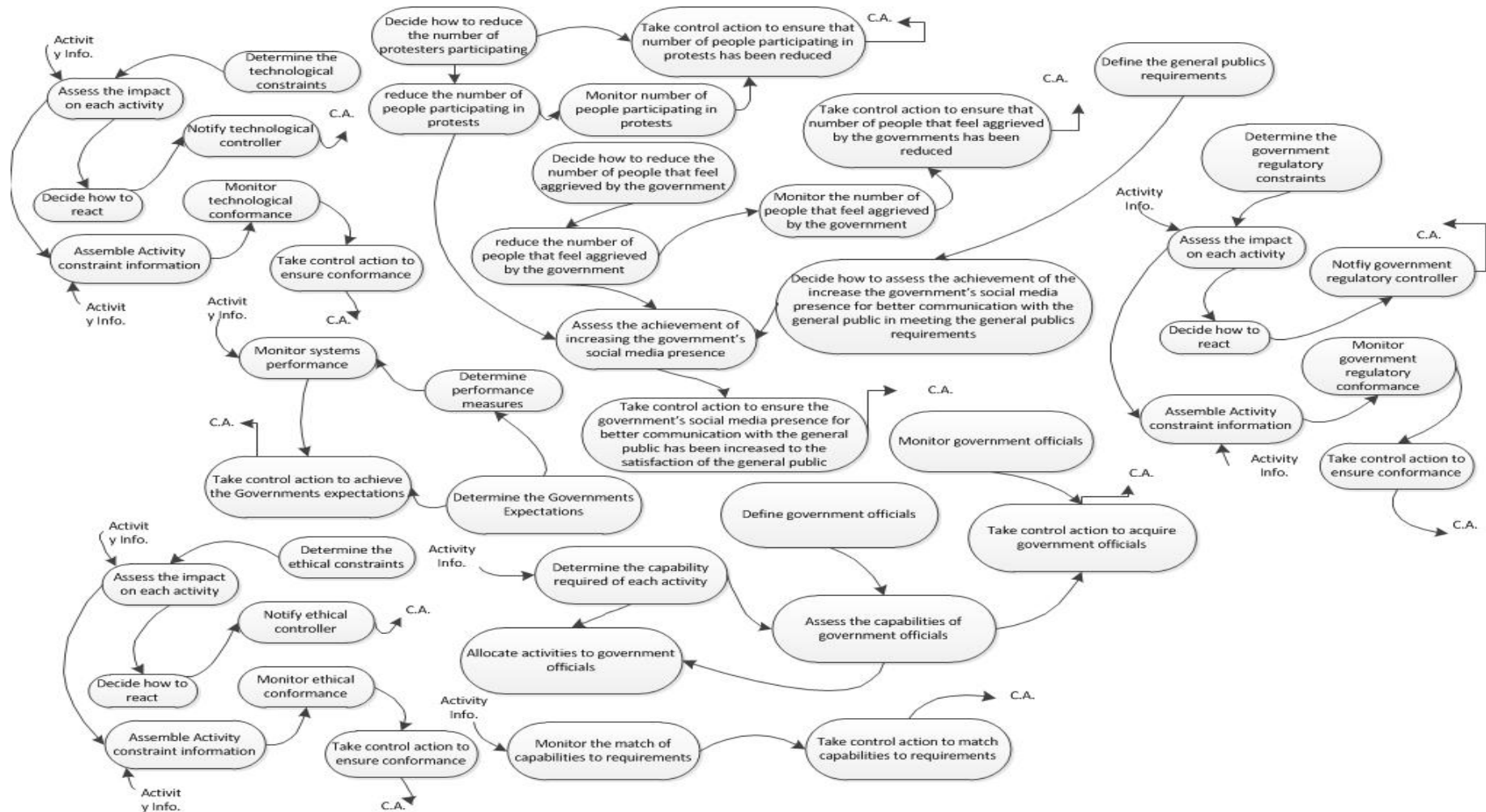
Transformations - reduce the number of protesters participating and reduce the number of people that feel aggrieved by the government – from iThink simulations this has been identified as one of the main reasons for the escalation of the Arab spring.

World view - increasing the government's social media presence for better communication with the general public - this has been determined as a plausible solution to the problem situation from the simulations in iThink

Owners – the government will own the system as they will have the power to remove officials from the system should they be deemed to be portraying the government in a bad light or divulging classified information over the social media platforms or their social media etiquette is not to the standard set.

Environmental constraints – technology, ethics, government regulations are seen as constraints of the system because of the following; users can only operate their social media platform with the technology supplied by the government, government users are bound by the ethics of social media to not act irresponsibly on social media platforms, government regulations must be strictly followed and abided by at all times whilst using the system.

CONCEPTUAL MODEL



REAL WORLD COMPARISON

When analysing the conceptual model there were a few aspects of the model that failed to depict the true real world procedures, below I have outlined the areas I have identified as inaccurate and have provided a brief possible recommendations:

1. When dealing with a system of this kind it can prove difficult for an organisation to control what is being said but is still providing the public the right amount of information. My recommendation for this would be to pick the politicians who are going to be using the system and put them through tutorial classes to improve the etiquette on the social media sites
2. This system is heavily dependent on the politician's participation, many of whom may not want to be involved with the system but for the ones that do must become active social media users. My recommendation for this is to only pick the politicians who can free up enough time in order to be active social media users.
3. With systems of this size it is often difficult for people to feel involved in the system, some members of the public may feel ignored as their messages are being responded too as the politicians is inundated with messages on certain policy. My recommendation for this case would be for the politicians to make their followers known of the swelling message load they have and to assure their followers that they will try and answer as many questions as they can.

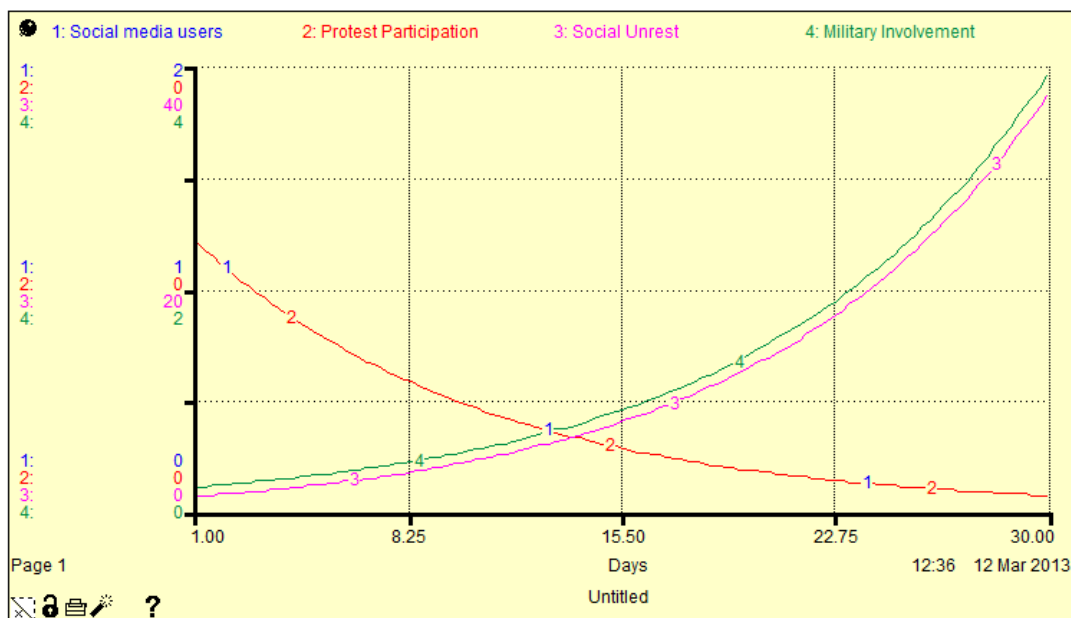
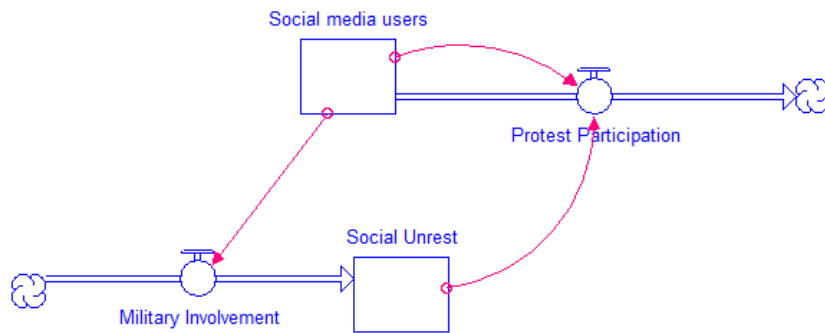
ITHINK SIMULATIONS

In this stage of the implementation section of the document I have created and simulated systems dynamics model in the software programme iThink to model the both problems and solutions I feel could positively impact the violence that ensued over the MENA regions during the Arab spring. From the generic influence diagram I have identified certain areas that needed to be modelled to explore the effects they would have long term had they continued to carry on. I also plan to identify possible solutions that could avoid death and injury to the public but to also provide the public an opportunity of reform. From the events of the Arab spring the increasing number of social media users had an increasing influence on the amount of global recognition the Arab spring achieved, from the interim report I discovered that this was due to the 6 degrees of separation principle that social media has attained as a result of its growing number of members. This in turn had an increase in the external pressure that was applied to the governments by NATO and other western nations such as the USA. The purpose of the iThink models is to depict to government officials the potential errors in judgement they had during pressure strung situations that ultimately was the demise of the publics faith and belief in the government. The iThink models will also provide insight into the following:

- Alert the government to their errors in judgement and depict the unintended consequences of their actions during the Arab spring period
- Show government officials the possible outcomes of the Arab spring had they decided to resort to other solutions in their attempt to control the protest situation
- Provide insight in the relation that social media had on the protests
- Portray the severity of the unintended consequences that were a result of their action of using military forces as crowd control.
- Highlight some solutions that had the potential to reduce the protests without any animosity and held the possibility of the government saving some face with the public

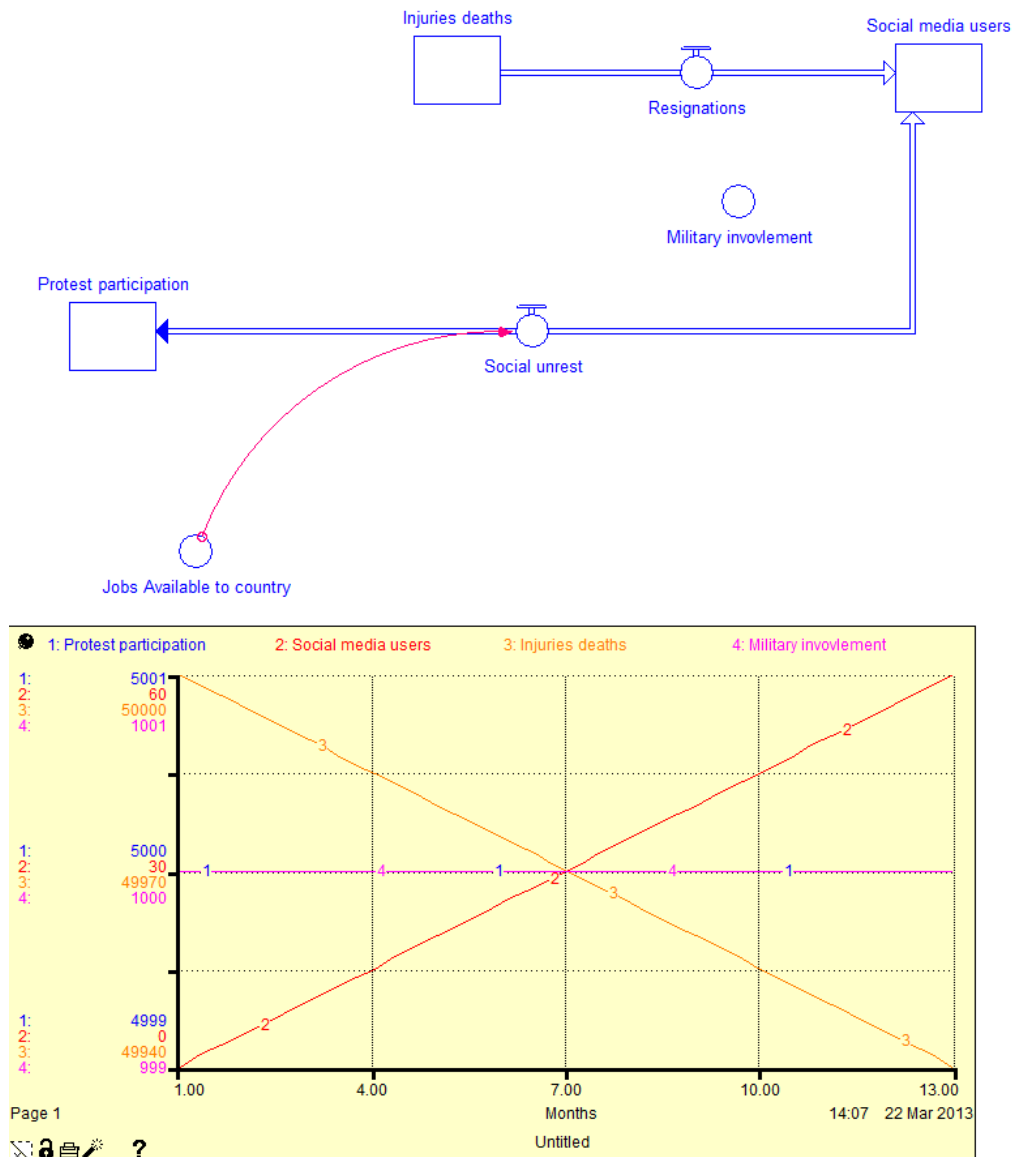
Although some of the models are not mathematically accurate in a sense of using the most accurate figures and formulas from the research I have carried out I feel that these solutions and results would have solving the situation or worsening the situation to point of full-scale revolt which would of required external aid. Below will be a pictorial of each model and its graphical output followed by a brief explanation of the factors within the model and a discussion on the outputs the models produces. All the data that was needed to achieve an accurate representation of the social media situation in the MENA region was retrieve from (Arab Social Media Report. 2013)

MODEL 1



The above model which was developed in iThink was created to show how an increase in a military' involvement during a periods of unrest does not reduce the amount of social unrest within the country. The model is very simplistic but produces the desired output. As you can see form the graphical output the model shows how the increase in the military' involvement does reduce the number of people participating in the protests, it may even reduce the number of people using social media for a short period but the core aspect that started the Arab spring, the social unrest continues to rise because of the frustration people have with the government decision to use such force on protests. The model itself is broken simply into 2 stocks (social unrest and social media users) and 2 flows (protest participation and military involvement). The connections between both stocks to the protest participation flow essentially means that both social unrest and the number of social media users increase the number of people participating in the protests. The connection from social media users to military involvement identifies that because of the use of social media has increased the number of people taking part in the protests the government is taken the action to involve the military.

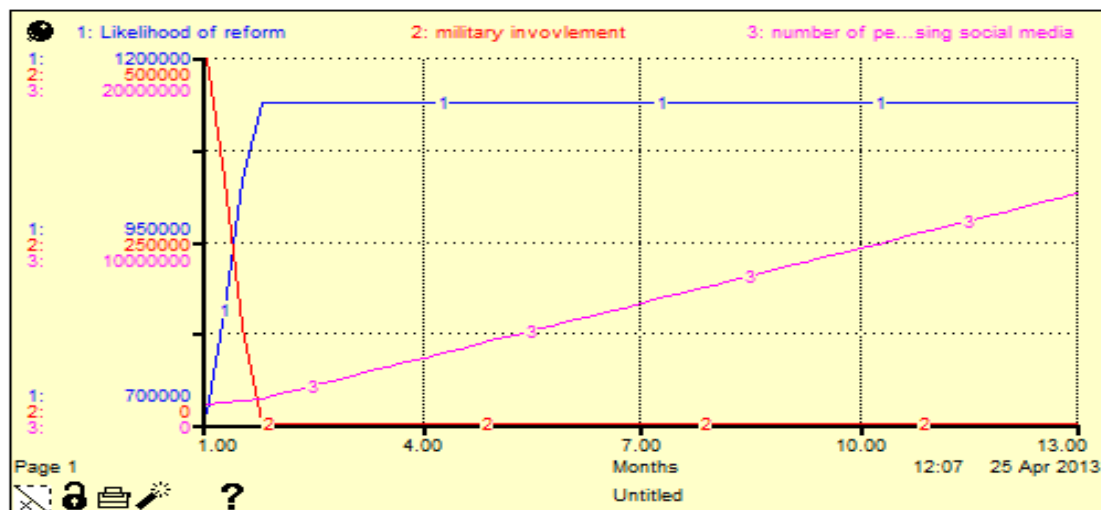
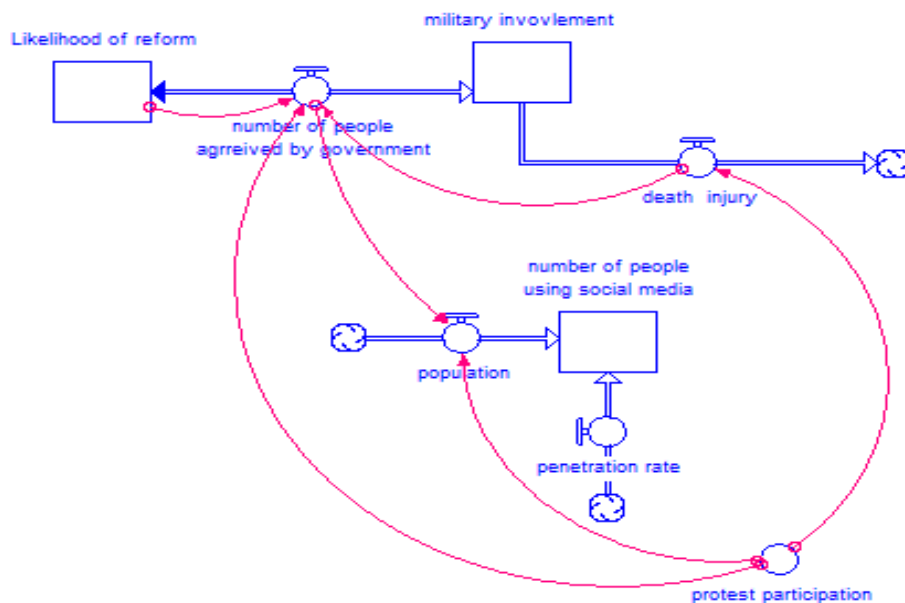
MODEL 2



The above model is was created to depict how by taking the action to not increase the military involvement reduces the number of deaths and injuries that occur during the protest. The model also depicts how as a result the number of people participating in the protests stays at a steady level and the number of social media users shows a steady rise due to the growth of social media itself across the world. The model itself is built of a total of 3 stocks (injury/death, protest participation and social media users) a biflow (social unrest) which feeds both the protest participation and social media users stocks. The final element of the diagram is the inflow which goes from the injury/ deaths stock to the social media users stock, the model also includes 2 converters (military involvement and job availability in country). The military involvement converter is used by the social unrest biflow as an increase in the military involvement cause social unrest and affects protest participation. The job availability in country converter is fed directly into the social unrest biflow; this action was taken as this model is loosely based on one of the main causes of the Arab spring which was the lack of jobs for university graduates in Egypt. From simulating this model I have been able to identify a possible

recommendation to produce to government regarding the procedures they should follow when dealing with social media induced protests.

MODEL 3



The above model was created to explore the outcome of the government reducing the military involvement during protest periods in an attempt to increase the likelihood of reform. The model is comprised of 3 stocks (number of people using social media, military involvement and likelihood of reform), 3 flows (penetration rate, population, and death/injury) and a biflow (number of people aggrieved by the government). The model also contains a converter (protest participation) which is connected to the following inflows due to the effects that said converters has on each flow (population, death/injury, number of people aggrieved by the government). The death/injury flow is also connected to the number of people aggrieved by government biflow because an increase in the death and injuries that occur unnecessarily as a result of the government action to increase the military involvement causes an increase in the number of people aggrieved by said

action. There is also a connection between the number of people aggrieved by the government and the population (of social media) this is because I have found from my research and derivation of influence diagrams (see page.ID) that an increase in the number of people aggrieved by the government led to an increase in the number of people taking to social media platforms to vent their frustration and share stories thus increase the number of people using social media. As you can see when simulating the model, I achieved the results displayed above. It shows how an increase in the likelihood of reform and a decrease in the military involvement as less people are being aggrieved by the government as a result of the increased military involvement which reduces the social unrest in the country. The results also show how social media use steadily rising as a result of the continuing success of social media growth and the reduced likelihood of being apprehended as a result of using social media and the public's desire to use social media to communicate. This simulation shows how situations can be eased without the use of military involvement and results in an increase in the likelihood of reform in the country.

The final model is a representation of how by increasing the governments social media presence can potentially reduce the protest participation and reduce the number of people who are taking to social media to organise protests and entice protesters to riot. The model itself is loosely based on the success to successful systems dynamics archetypes as the archetype best depicted the intended solution. The model itself consists of 2 stocks (number of people using social media to organise protests and to entice protesters to riot, protest participation) and 2 biflows (social unrest, number of people using social media). I have identified these two factors as flows the stocks (social unrest to protest participation, number of people using social media to number of people using social media to organise protests and to entice protesters to riot) because I have identified in my research that different people in different countries made use of social media in different ways and social unrest may of occurred for differing reasons but I have identified the common use of social media in all countries is to organise protests and entice riots in the countries I have carried out research on. The model also contains 2 converters (death and injury, government social media presence) the government social media presence converter is linked to the slider shown below the graph, this means that the value of said converter can be increased or decreased by moving the slider in each direction (increasing the number of government officials using social media or decreasing them). As you can see from the graph the results prove to be very enlightening, when the model is simulated and the slider is set to 0 or -1 the both the number of people using social media to organise protests and entice riots and the number of people participating in protests rise. However mid simulation if the slider (government social media presence) increases to 2 both the protest participation and the number of people using social media to organise protests and entice riots also falls. I fell that this occurs because the government are providing the public with a medium to communicate with the people who can make a difference in their country so it proves a more effective method than protesting as with protesting there is always that built up animosity between both parties involved.

RECOMMENDATIONS

After the extensive work I have carried out within the document I have been able to derive the following recommendations for the government to use in the future if such instances of revolt through the use of social media occur again. I have been able to achieve this through combining a number of methodologies in my approach and combine the results obtained from the questionnaire analysis, information derived from the influence diagrams and I think simulations. From these I was able to use the data from these methodologies to create SSM root definitions and conceptual models that show the possible procedures that the governments can use to ease the violence and still keep the public freedom of speech intact. From comparing these conceptual models and root definition to the real world activities I was able to refine the systems to produce the following recommendations and procedures that governments can follow.

1. The first recommendation outlined is for the governments to increase their social media presence. A study by Wang, 2013 found that when university increases their social media presence they have the potential to attract more students to study at their university. I feel that this could be adopted by governments in the MENA regions so it could provide a common platform for both politicians and general public to openly communicate to provide updates to areas that the public find cause for concern. It is widely noted that the president of the united states Barack Obama is an avid user of twitter and has often held open forums for followers to put forward question on policy and government for him to answer. From my research I have indicated that through tough political periods the governments failed to establish a constant wave of information on multiple media platforms and as a result caused mass panic and hysteria and only antagonise the situation. I also accept that certain governments have monopolised the media platforms in their country such as in Syria, but I feel that now that the situation there has started to change with the fall of their government I think that even they could potentially adopt this policy and share more information with the public so that it comforts them and provide hope for a complete reform, many people understand that the global recession limits what the government can do in terms of spending but they can take measures to attempt to lay the foundations for the rejuvenation of their countries so that when the situation changes they can quickly react. I also acknowledge that social media is not always adopted by all ages but I feel that social media can appeal towards the younger demographic where as existing forms of media can appeal to the remaining demographic and they can adopt social media where they see fit. (Anderson, 2011)
2. From the influence diagrams created on various countries who were a part of the Arab spring I found a number of problems when the protests were taking place. It is well documented that the protest numbers swelled in the Arab spring, many crediting that with the use of social media, I too believe that social media played a part in reaching more people to take part in these protests. However when the protests were being carried out many governments approach to controlling the protests to keep them from escalating into riots varied. Many police officers used unnecessary police force on people who were tweeting about the protest on their cell phone by either beating the protesters who were using their cell phones to document the event or destroying the protesters cell phone so they could not document the event. My recommendation for this is to control the situation peacefully through the use on non lethal force. I also recommend that the government implement the system outlined in both SSM model 1 and 2 so that they can monitor the social media updates and identify the people in the protests that are enticing others to be violent and eject them form the protest.
3. My third recommendation is relating to the use of social media to provoke or arrange violent protests. As highlighted in the first SSM model the government should take action to better monitor the use of social media to identify possible violent outbreaks during protests even attempt prevent such violent outbreaks. This could be achieved through creating a relationship with the social media companies so that they can work together to identify fraudulent accounts that are used to spread

false accusations of the government. Although many believe that it is an invasion of user privacy when monitoring social media accounts people must remember that users relinquish those rights when uploading messages using social media onto the web as it is very difficult to delete all existence of that message. In extreme circumstances where it is seen as a last resort I feel that governments can withhold the right to 'cut off' the internet connection the country receives and block all 3G connectivity being received. This is only when violence such as what was seen in Syria and Libya I feel that the period that the internet and 3G connections should be disconnected should be short term, no more than 2 days. By only disconnecting the mobile internet it still allows people to communicate but it reduces the amount of people using social media to wreak havoc. I have found that from researching into Egypt's action to cut off the communication services that it was only effective short term and it was ineffective for the 2 week period imposed by the government as people found alternative means of communicating in the meantime. By only severing the connection for a short period gives the controlling authority to send in troops or police to diffuse the situation and only use lethal force where it is necessary. However I must stress that this action should only be executing when there is no other alternative and all other recommendations have been executed and had minimal success.

CONCLUSIONS

Throughout the course of the report I have been able to identify the impacts of social media in the Arab spring. From conducting research in the interim report I was able to identify the uses of social media in 5 countries as a result I was able to explore these uses and from this construct influence diagrams for each country I conducted in depth research into in the interim report. The influence diagrams were able to depict how the use of social media affected other factors during the Arab spring period. From this I was able to determine that through the increased use of social media it increased the global awareness, I increased the protest participation. However some say that from this social media caused external government with interests in certain Mena regions involved in the Arab spring to get involved and exert pressure on the government to act. Many people also say that because of the use of social media the scale of protests got out of hand and resulted in military involvement and in some cases death and injury too many protesters of which were working class citizens who were not acting violently. I have then been able to create a generic influence diagram of all 5 Arab spring situations so that the relationships between each activity can be clearly portrayed. From this influence diagram I have created 3 iThink models which show the possible future impacts of the continued use of social media in the Arab spring and it shows some ways in which to combat the adverse effects of the increased social media usage in the MENA regions. These simulations stood me in good stead and from these simulations I was able to derive formal procedures which could be followed if situations escalated, this was in the form of an SSM. The SSM models were useful as they were able to provide me with a set of recommendations for governments who may be going through similar situations. In answering the question proposed at the start of the project 'the impact of social media in the Arab spring' I conclude that social media was a major factor in promoting the Arab spring across the MENA regions, knowing that other countries were in a similar position to them gave countries the belief to make a stand and attempt to change the situation. However people must remember that the Arab spring is an ongoing event, many people fail to realise that social media may have its success stories but it also has its failures. In many of the Mena regions social media has had limited success in reducing the social unrest and in many areas it has failed to have the lasting impact as it did in countries like Syria and Egypt. However social media did allow many people to communicate across regions to share their stories of plight and many people also accredit social media for its potential as an alternative press and organisational tool in protest situations. Social media also impacted rural areas of the MENA regions which many believe to be incapable of a rapid increase in social media users, this was for an unorthodox reason, being that people used social media to aid rebels in their attempt to overthrow governments and used it as a interactive scout cities to identify military troops from town to town. However people also neglect to realise the negative impacts social media had on the Arab spring. With all of the awareness and pressure the government were forced to try and quickly diffuse the situations. As many people are aware that it is difficult to erase a digital fingerprint and once the information is uploaded to the web it is there forever. The governments with great wealth and technological power were able to use this to their advantages by locating key figure in protest organising and opposing belief and force them through lethal force to change their views on governments and cease to organise protests against the government. In some extreme cases people lost their lives as a result of using social media which in the modern day era no one's lives should be lost as a result of using social media. Many people feel that the negative impacts of the Arab spring outweighed the positive and the data I have been able to collate does show that number of active social media users does rise but at a slower rate than what it was at the start of the Arab spring period.

FUTURE WORK

Throughout the course of the project I have found it difficult to find credible sources which provide accurate information regarding the Arab spring. This was largely due to the fact that in many areas which took part in the Arab spring, the situation is still ongoing and in many areas there has been limited change. For future work I would like to broaden the scope of the project to include all of the MENA regions involved in the Arab spring and return to the situation there now and determine the current impact that social media has had on the Arab spring and compare it to the impact it made at the start of the Arab spring. I feel that it would be interesting to explore the number of social media users in each country and determine whether the number of social media users has risen or fallen since the start of the Arab spring movement. It would also be interesting to explore the number of tweets or messages relating to the Arab spring or parliamentary matter that are being sent each day and again compare them to the beginning of the Arab spring. I feel that this would provide valuable insight into whether the social media impact on the Arab spring was a FAD or whether the user were committed to using the social media platforms as a tool for change within their countries. Another part of the project I would like to explore in the future is the effectiveness of the recommendation outlined in this report. It could provide valuable insight to the Arab spring but also the models used to derive the recommendations. As my experience in the iThink software package was limited I feel that they were more than adequate to produce a working model which can produce quantifiable results that are of use to the project. However in the future I feel that the project and the recommendations would benefit from making the iThink models more complex, highlighting more issues and causes down to the 5th degree, by doing this will provide more accurate results and can better portray the problem situation. I feel that it would also prove beneficial to gain the opinion of others on the recommendations for the MENA regions from people whom were at the protests, political figures and police forces.

REFLECTION ON LEARNING

I feel that my ability to define problem situation has improved as a result of the project, when defining the problem at the start of the project I struggled to put the problem into words and as a result both the moderator and supervisor struggled to determine what the problem was and how I intended to solve it. However through feedback from both the moderator and the supervisor showed me how to express the situation and clearly state how I intended to solve the problem. This improvement can be seen in my definition of the problem area in the interim report compared to the problem definition in the final report. From previously using both SSM and systems dynamics to solve problem situations in the past I knew that both methodologies could be applied to a problem situation however at the start of the project I was unsure of what insight they information they could provide to the project. I feel that this was due to the fact that I was unfamiliar in determining what methodologies needed to be applied because I have always been informed what methodologies I need to apply in certain coursework's within the brief. This is the first instance whereby I had to decide for myself what methodologies would best suit the problem. However I feel that despite this the approach I outlined is appropriate to the problem and it provides more insight and solutions to the problem situation. However I did determine early on in the project that more needed to be included in the approach in order to provide a richer picture and provide enough information which I could use to form recommendations for the project. I feel that the influence diagrams which were part of the systems dynamics aspect of the approach provided a more systemic insight into each countries problem situation and from this I was able to take certain aspects of each diagrams key problems and amalgamate them into a generic influence diagram which I could use to determine the key issues which occurred during the Arab spring. I feel that the SSM model were appropriate as they were able to formally define a system which could be implemented to solve a certain aspect of the problem which I identified during the influence diagram (systems dynamics stage) of the project.

It also provided a formulation of what activities needed to be followed in order for the system to be a success and it also takes into account the possible pitfalls which could occur in the real world. The second aspect of the systems dynamics approach which was the iThink models provided a clearer quantitative picture of what the end result of the Arab spring could possibly be if certain aspects were not addressed. The iThink models also provided a simulation of the possible solutions and the impact/success they could have on the problem situation, which in a sense determined if they were viable or not.

Throughout my time at Cardiff University I have continuously been learning and developing new skills. However this project has been one of the first instances where I have been able to apply those skills and use them to express and solve the pr research technique to a real life problem. The IS research technique module which I took at the start of the year required me to conduct a literature survey on a problem. I was able to use the knowledge learnt from the module and apply it to the Arab spring problem I had defined. I also decided to conduct a literature review as a research technique. I deemed it necessary to conduct this type of research as my problem situation was well documented on a forms of press. As the topic was ongoing I found it difficult to discover many journals on the subject matter however I was able to use the tools I learnt from the is research techniques module and sift through the online library databases such as EMRALD and EBSCO. This enabled me to identify more credible sources of information that I could reference and use as data sources which allowed my future work which was to be done in the final report to be more quantitative.

The second skill in which I was able to refine was the application of the Soft Systems Methodology to solve a problem. I have again had some experience in applying this methodology in certain situations and have done so in 2 previous pieces of coursework. However I had limited knowledge of SSM having only applied it to a problem situation twice before. I feel that you could see this in the first SSM I produced for the final report however through more perseverance and self learning (studying peter Checkland standard for SSM). The progression of my understanding of soft systems methodology is clear through each SSM model I produce as part of the final report. I feel that each model still provided relevant good quality information which I could use as part of my recommendations for overcoming the problem.

I have again had some previous experience with using the system dynamics software package iThink. However this was during my second year at Cardiff University so my recollection of using the software and its functionality was somewhat hazy. So when I identified during the initial plan that using systems dynamics modelling software such as iThink would be beneficial to expressing the problem situation and exploring possible solutions to overcome the problem I felt that it was necessary for me to refresh my memory on how to use the iThink software and how each piece of its functionality worked so that the models I could produce were of worth. However with the coursework load and the dedication of my time to other aspects of the course I was not able to fully understand all of the functionality. As a result of this I had to scale back the complexity of the models which I devised in order to produce fully functioning models. However despite the models lacking in complexity the end result stayed the same, the output of each model still provided a viable solution and showed a quantitative systemic viewpoint on the problem situation which I was able to use in the SSM to provide more accurate and reliable set of recommendations.

I feel that throughout the course of my university degree I have obtained a variety skills and techniques which not only can be applied in future projects but in the real world environment also. The final year project has enabled me to correctly identify what techniques and methodologies need to be applied in order to benefit the project. I feel that by independently identifying and using these methodologies and skills has enabled me to refine them and correctly apply them to the correct problem situation.

I feel that the techniques and skills that I have obtained and refined from carrying out the final year project will stand me in good stead in future endeavours; I feel that by refining these skills will increase my standing and enhance my chances when applying for jobs in which certain methodologies are needed. I can now confidently

say that the methodologies I have learnt and refined in the final report, can be correctly applied to the correct problem stations and can be carried out to great effect.

When looking back at my previous project work such as the initial project plan I was pleasantly surprised at how I kept to the schedule I outlined. There were a few aspects of the project which overran but there were some which consumed less time than I first anticipated, all of which is to be expected during a project of this scale. When reading through the Gantt chart I devised in the initial plan I found that I had anticipated producing just 3 SSM models and 3 iThink models. I was able to excel in this aspect of the project and produced 4 iThink models and 3 SSM models, all of which were created to high quality and provided great insight into the problem and its solutions. However there were certain aspects of the project which had to be revised, such as the inclusion of a questionnaire to attain a user perspective in order for the project to be a greater success which I feel is a justifiable reason for adjusting the time management of the project. To conclude I feel that my time management of each aspect of the project has been followed with great success, I was able to allocate the correct amount of time for each activity and adjust the time needed for certain activities in order for the overall progress of the project would not suffer.

From the project I feel that I have taken away and increased appreciation for time management of projects as from experience I have found that time management heavily contributes to a projects success and if you do not follow the time plan outlined then the project is doomed for failure. I have also feel that I can now successfully apply a variety of methodologies and practices to problems with great effectiveness and efficiency, all of which will provide me with a competitive edge in the job market. I feel that I can also take away the ability to adapt my style of writing to make the document more academic and adapt it again to make more professional. To conclude I feel that I am able to take a lot of things away from the final year project and feel that they can be applied in future situations correctly and efficiently. I have also learnt how to adapt my writing style to better suit the document format.

APPENDICES

Appendix .1 Email

 [https://cardiffmail21.cf.ac.uk/mail1/c1030552.nsf/\(%24Inbox\)/D8560](https://cardiffmail21.cf.ac.uk/mail1/c1030552.nsf/(%24Inbox)/D8560)

From: N.J.Avis@cs.cardiff.ac.uk
To: Nathan Horner <HornerNP@cardiff.ac.uk>
Cc: n.j.avis@cs.cardiff.ac.uk, Helen.R.Phillips@cs.cardiff.ac.uk

Date: Wednesday, February 13, 2013 12:37PM
Subject: Re: Final year project

Nathan

Thanks for the email

I think this raises a number of concerns in my mind

You must be clear about how this information is to be stored and used
- for instance will anyone be able to attribute a response back to a participant ?

I suggest that responses are anonymised and this is made clear in the questionnaire and that you will conform to the DPA

I have made comments on the questions posed below in capitals and in []

Hope this helps

Kind regards

Nick

Quoting Nathan Horner <HornerNP@cardiff.ac.uk>:

> Dear nick
> I am currently in the process of writing my final year report. The
> report is to determine the impact social media had on the arab
> spring uprising, in particular the following countries
> Egypt
> Syria
> Tunisia
> Morocco
> Bahrain
> As I have only been able to rely on newspaper articles for
> information and opinions about the events I feel it would be
> beneficial for me to get an account from people who have lived there
> or have family members residing in those countries. After
> consulting my supervisor she suggested that phd students could
> provide this information. My supervisor also informed that there
> are certain ethical boundaries that must be addressed and that you
> were the person to consult on this matter.
> The type of questions I would like to ask are
> Are you or any of your family members users of social media?
> What form of social [MEDIA] do you use?
> What would you say is the most used form of social media in [your]
> country? (* which country - PhD students in the UK ??) Was this form
> of social media used during the arab spring period? [Not sure this
> has any merit - what does this tell you ??]
> If so what for? - BETTER to rephrase this to ask what it was used for
> Do you feel that through the use of social media that the people
> were able to gain an advantage over the government and contributed
> to the movements success? [Again a bit of a loaded question - need
> to make more neutral in the approach]
> Do you think that [the use of] social media had [any] drawbacks
> during the arab spring period? - [from whom's perspective ?]
> Do you know if the government were users of social media during this
> period? [Again - needs more refinement - how do they know and for
> what purposes were they using it- also what is the view of the
> respondents on attempts of governments to control access and close
> down SM outlets - might be interesting to know]

This message was sent using IMP, the Internet Messaging Program.

Appendix .2 Questionnaire results

Response Summary

Total Started [Survey: 3](#)
Total Finished Survey: 3 (100%)

PAGE: 2

1. Are you or any of your family members active users of social media?






[Create Chart](#) [Download](#)

| | Response Percent | Response Count |
|-------------------|---------------------|-------------------|
| YES | 100.0% | 3 |
| NO | 33.3% | 1 |
| answered question | | 3 |
| skipped question | | 0 |

2. If YES to Question. 1, What 2 forms of Social Media do you use the most?

[Create Chart](#) [Download](#)

| | Response Percent | Response Count |
|-------------------|---------------------|-------------------|
| Facebook | 66.7% | 2 |
| Twitter | 33.3% | 1 |
| Youtube | 66.7% | 2 |
| LinkedIn | 0.0% | 0 |
| Foursquare | 0.0% | 0 |
| Myspace | 0.0% | 0 |
| Tumblr | 0.0% | 0 |
| answered question | | 3 |
| skipped question | | 0 |

| 3. What Country are you from? | | |  Create Chart |  Download |
|-------------------------------|---|---------------------|--|--|
| | | Response Percent | Response Count | |
| Libya | | 0.0% | 0 | |
| Egypt | | 0.0% | 0 | |
| Tunisia | | 0.0% | 0 | |
| Bahrain | | 0.0% | 0 | |
| Saudi Arabia |  | 33.3% | 1 | |
| Syria | | 0.0% | 0 | |
| Yemen | | 0.0% | 0 | |
| Jordan | | 0.0% | 0 | |
| Morocco | | 0.0% | 0 | |
| Kuwait | | 0.0% | 0 | |
| Lebanon | | 0.0% | 0 | |
| Oman |  | 33.3% | 1 | |
| Iraq |  | 33.3% | 1 | |
| Algeria | | 0.0% | 0 | |
| | Other (please specify) | | 0 | |
| | | | answered question | 3 |
| | | | skipped question | 0 |

4. What would you say is the 2 most used forms of social media in your country [Create Chart](#) [Download](#)
that you stated in question 3?

| | Response Percent | Response Count |
|-------------------|---------------------|-------------------|
| Facebook | 100.0% | 3 |
| Twitter | 66.7% | 2 |
| Youtube | 33.3% | 1 |
| Tumblr | 0.0% | 0 |
| Myspace | 0.0% | 0 |
| answered question | | 3 |
| skipped question | | 0 |

5. What was your choice of social media in the previous question used for and what impact do you feel it had on the countries arab spring movement? [Download](#)

| | Response Count |
|---|-------------------|
| | 3 |
| Hide Responses | |
| <div>Responses (3)Text AnalysisMy Categories (0)</div> | |
| Showing 3 text responsesNo responses selected | |
| Facebook | |
| 26/2/2013 22:43 View Responses | |
| Socialising and it was used heavily during the elections mainly in Egypt revolution. | |
| 26/2/2013 12:38 View Responses | |
| It was mostly used for social communications and getting news. My country is stable luckily. Some malicious people tried to use social networking sites to reflect false situation of political and social unrest but people were aware of such behaviour. Hopefully our country will continue to be safe.. | |
| 26/2/2013 12:05 View Responses | |
| | |
| answered question | |
| 3 | |
| skipped question | |
| 0 | |

6. How do you feel that this impacted the government and do you feel that social media impacted the Arab Spring movement? [Download](#)

| | Response Count |
|--|-----------------------|
| Hide Responses | 3 |
| Responses (3) Text Analysis My Categories (0) | |
| GOLD FEATURE: Text Analysis allows you to view frequently used words and phrases, categorize responses and turn open-ended text into data you can really use. To use Text Analysis, upgrade to a GOLD or PLATINUM plan. Learn More Upgrade » | |
| Showing 3 text responses | No responses selected |
| I believe that the social media changed the Arab world. 26/2/2013 22:43 View Responses | |
| Indeed! The government can sense youth thinking. mainly their plans and perspectives regarding the revelotion. 26/2/2013 12:38 View Responses | |
| The Government in my country is open to the social media and they encourage the use of it for good. In other Arabic countries, I think social media had a great effect on government and I believe they have valid reasons for that ! 26/2/2013 12:05 View Responses | |
| | |
| answered question | 3 |
| skipped question | 0 |

7. Do you think that there were any drawbacks for the public using social media during the Arab Spring period, if so what are they? [Download](#)

| | Response Count |
|--|-----------------------|
| Hide Responses | 3 |
| Responses (3) Text Analysis My Categories (0) | |
| GOLD FEATURE: Text Analysis allows you to view frequently used words and phrases, categorize responses and turn open-ended text into data you can really use. To use Text Analysis, upgrade to a GOLD or PLATINUM plan. Learn More Upgrade » | |
| Showing 3 text responses | No responses selected |
| No 26/2/2013 22:43 View Responses | |
| Yes, but less than the benefits. However, in Egypt in particular, any plans set by the revolutionists can be revealed and any trouble- making party can either trick them or cause riot. 26/2/2013 12:38 View Responses | |
| Using it for personal political gain and distributing false information for the purpose letting people think that the situation is horrible when it is not. 26/2/2013 12:05 View Responses | |
| | |
| answered question | 3 |
| skipped question | 0 |

8. Was the government an active user on social media platforms during the arab spring?

 Create Chart Download

| | | Response Percent | Response Count |
|-------------------|-------------|---------------------|-------------------|
| YES | | 0.0% | 0 |
| NO | <div></div> | 33.3% | 1 |
| UNKNOWN | <div></div> | 66.7% | 2 |
| answered question | | | 3 |
| skipped question | | | 0 |

9. What is your view on the attempts of government to control the use of or shut down Social Media outlets during the Arab Spring?

Download

Response

Count

Hide Responses

3

Responses (3)

Text Analysis

My Categories (0)

GOLD FEATURE: Text Analysis allows you to view frequently used words and phrases, categorize responses and turn open-ended text into data you can really use. To use Text Analysis, **upgrade to a GOLD or PLATINUM plan.**

Learn More

Upgrade »

Showing 3 text responses

No responses selected

Barbarity and Dictatorship

26/2/2013 22:43

View Responses

A mistake.

26/2/2013 12:38

View Responses

Control : yes. Removing false and misleading news. Shut down : No. People have the right to speak their minds..! Thanks

26/2/2013 12:05

View Responses

answered question

3

skipped question

0

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