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***“Even if you bring 10,000 synchrotrons, they're not going to
bring peace”***

Exploring SESAME through realist and liberal perspectives

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Abstract

Intergovernmental organizations can be found in all regions around the world, but in the Middle East they are a rare phenomenon. SESAME is a synchrotron light radiation facility located in Jordan governed by its eight member states: Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, Palestine, and Turkey. It has been promised as a project of science diplomacy, producing not only research, but also increased cooperation and understanding in the Middle East. While science diplomacy does seem promising, recent research suggests that it has not been as successful in the case of SESAME. This thesis explores the motives of the member states to be members of SESAME through realist and liberalist perspectives. By interviewing delegates of the member council, the thesis has concluded that improved science infrastructure is the main motive of the member states. Science diplomacy on the other hand was found to be more of an individual incentive and a method of achieving international funding. As the excitement of international cooperation has had an international shift towards a more nationalistic mindset, the hope of SESAME as a peace generator seems to slowly have left its premises.

Keywords: SESAME, Middle East, science diplomacy, liberalism, realism, cooperation.

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Table of contents

1. INTRODUCTION	4
1.1 AIM & RESEARCH QUESTION.....	5
2. BACKGROUND	6
2.1 WHAT IS SESAME?	6
2.2 THE COMPLICATED HISTORY BETWEEN THE MEMBER STATES	8
3. THEORETICAL FRAMEWORK.....	10
3.1 PREVIOUS RESEARCH	10
3.2 THEORY.....	13
3.2.1 Liberal institutionalism.....	13
3.2.2 The realist theory of state behavior.....	18
3.3 THEORETICAL DISCUSSION AND ASSUMPTIONS	20
4. METHODOLOGY	23
4.1 RESEARCH DESIGN	23
4.2 INTERVIEWS.....	24
4.2.1 Semi-structured interviews.....	25
4.3 SAMPLE SELECTION.....	26
4.4 DATA ANALYSIS	27
4.5 ETHICAL CONSIDERATIONS.....	29
4.6 RELIABILITY, VALIDITY, AND METHODOLOGICAL DISCUSSION	31
5. RESULT AND ANALYSIS.....	33
5.1 SCIENCE AND FINANCE AS THE MAIN MOTIVE FOR MEMBERSHIP IN SESAME	34
5.2 SCIENCE DIPLOMACY AS A TOKEN OF FUNDING.....	37
5.3 THE COMPLEXITY OF ISRAEL AS A MEMBER	39
5.4 IS SCIENCE DIPLOMACY ON ITS WAY OUT?	42
6. CONCLUSIONS AND DISCUSSION	47
REFERENCE LIST	51
APPENDICES.....	55
I. INTERVIEW GUIDE	55
II. INVITEE EMAIL.....	56

1. Introduction

After being conceived in the late 1990s, SESAME (short for Synchrotron-light for Experimental Science and Applications in the Middle East) was formally established and inaugurated in November 2017 in Allam, Jordan. SESAME is a science facility based on cooperation between its member states: Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, Palestine, and Turkey. Scientists from all member countries collaborate and use the same facilities for a varied scale of science projects and research, most of them related to physics, chemistry, archeology, history, and medicine (Rungius, Flink & Riedel 2022, p. 3).

SESAME is a unique collaboration between states that have a history of conflict. In some cases, as in Israel and Palestine, there is current ongoing violence involving not only the two states, but also interest groups and regular citizens. The history of conflict in Cyprus has an added tension to it, as well as the long-term proxy war between Iran and Israel. There are also a handful of examples of diplomatic episodes of increased tension in the region. These conflicts have not only led to destruction and thousands of lost lives, but it has also paralyzed the states abilities to cooperate and see eye to eye on many non-political issues (Karatas & Uslu 2022, p. 297). What is specifically interesting about SESAME is that its past is tainted by ethnic conflicts where the matter of identity trickles down to the very core of an individual (Python, Brandsch & Tskhay 2017, p. 87). Therefore, intergovernmental cooperation between these states is a rarity. However, in the case of SESAME, these states cooperate for the greater good of science. A question that must have been asked a million times is: how come that these countries who have history of some of the most infectious conflicts find themselves in a collaboration like SESAME? What motivates the member states to be members of SESAME when they rarely, or never, engage together in intergovernmental organizations?

When SESAME was founded, it was established on the same model as CERN (European Organization for Nuclear Research), which has an ambition of bringing scientists together from different nationalities to research and foster mutual understanding and peaceful relations. This ambition is called science diplomacy, and can lead to knowledge exchange, increased innovation and at its best, groundbreaking science and improved diplomatic relations (Ruffini 2020, p. 1). As a result of the founding aspiration of SESAME, researchers tend to investigate it from the perspective of science diplomacy, and many gravitates towards framing SESAME

as the promise of peace in the Middle East (Rungius, Flink & Riedel 2022, p. 4-6). But recent research has shown that the science diplomacy aspect of SESAME is not as successful as hoped for. Rungius, Flink and Riedel can from their research on SESAME conclude that efforts to build bridges between nationalities have not yet succeeded. They have also found that there are some researchers who refuse to cooperate with Israelis (Rungius, Flink & Riedel 2022, p. 22). There could of course be several reasons why science diplomacy has yet been successful in SESAME. Perhaps the member states lack interest in peacebuilding efforts, or maybe the idea of science diplomacy between parties of ethnic conflict is flawed.

The research by Rungius, Flink and Riedel has highlighted how the conflictual past and present still affect the ambition of SESAME. The evidence that science diplomacy is flawed in the case of SESAME again highlights the fact that collaborations between these states can be difficult. However, in the particular case of SESAME, they do still manage to cooperate. An intriguing question is, between states that rarely cooperate, under which circumstances do they? What motivates them to act in unity?

Through a case study of SESAME, I will investigate what motivates states to be members of the organization. By investigating SESAME, we can discover alternative perspectives to scientific intergovernmental organizations and increase our understanding of under which circumstances countries with a conflictual past come together to cooperate. If we can understand these circumstances, we can learn what is needed to create necessary communication and mutually beneficial cooperation between states in current conflict or after. In addition, if we get a better comprehension of science diplomacy and how it is manifested in the case of SESAME, we can more carefully understand its ability to make a positive impact and adapt strategies thereafter. While this thesis examines only the motivations of the member states of SESAME, its results should generate broader understanding of intergovernmental cooperation post conflict.

1.1 Aim & research question

This thesis aims to examine what motivates states to be members of SESAME. By conducting interviews with the council representatives in SESAME we can better understand why the states want to be members of SESAME. Paired with the goals of SESAME, the research puzzle will be explored through liberal and realist perspectives on why states engage internationally.

In order to fulfill the aim of this study, the following research question has been constructed as a guide for the thesis:

What motivates states to be members of SESAME?

The research aspires to stretch beyond the understanding of state membership in SESAME and will discuss cooperation in a broader sense of term. Despite SESAME being a unique case, understanding the motives to be members of the organization can be carefully generalized to other contexts of how states with a conflict past can be brought together. On a more theoretical level the thesis will provide insights into how we can understand science diplomacy in the case of SESAME. Why has it shown to be inadequate in the organization?

To conclude, this thesis aims to contribute to an increased insight into SESAME, as well as a broader understanding of under what circumstances states cooperate. Despite it not being articulated in the research question, research can also show whether motives have changed during the time of membership. Furthermore, the findings of the study will facilitate an increased theoretical understanding of how science diplomacy performs empirically.

2. Background

This section will provide a background explanation to SESAME for the reader to get a comprehensive understanding of the case. The first part of the chapter will explain what SESAME is for the reader to grasp the cooperation, its functions and objectives. The second part will briefly explain the complexity in the historical relations between the member countries as it is an important part of the research puzzle. The historical ties will be *briefly* explained, thus leaving out detailed descriptions of the conflicts.

2.1 What is SESAME?

The origin of SESAME dates to the 1990s and was driven by a group of scientists wanting to establish a science facility similar to CERN (European Organization for Nuclear Research). CERN was initiated in the late 1940s with the goal of providing unity in post-war Europe, as well as to prevent the ongoing brain drain to America (Cern 2023). Although SESAME has been an active project for three decades, it was not until 2017 when the gates finally opened

for research purposes. The facility has up to date synchrotron light sources and hosts more than dozens of research projects each year (Rungius, Flink & Riedel 2022, p. 1-3). SESAME is the first and only synchrotron radiation facility in the region and is therefore unique in its location. A synchrotron is a technically complex light source that facilitates studies on very small particles such as viruses, proteins, and crystals. Through the electromagnetic spectrum of light, researchers can conduct sophisticated studies in medicine, biology, material science and archaeology. A facility like SESAME is both technically advanced and requires a high level of infrastructure. It is uncommon for private companies to invest in such projects, and most synchrotrons around the world are state owned or international (Rungius, Flink & Riedel 2022, p. 4). Researchers from member states can apply for research time at SESAME and the proposal review committee will review and accept projects they deem suitable. The proposal review committee consists of independent researchers and scientists, thus it is not the member countries that decide which projects are accepted at SESAME (SESAME 2023a).

SESAME is based on cooperation and collaboration between its member states: Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, Palestine, and Turkey. Its observer countries are Brazil, China, the European Union, France, Germany, Greece, Italy, Japan, Kuwait, Portugal, Russia, Spain, Sweden, Switzerland, the United Kingdom, and the United States. The member and observer states meet twice per year for SESAME-Council meetings to make decisions on behalf of the operations of SESAME. The main task of the observer countries is to act as advisors to the member states, and they are allowed to submit material for discussion at the yearly council sessions (Rungius, Flink & Riedel 2022, p. 1-5). Apart from the council, there is also a user committee and four advisory committees. The user and advisory committees are responsible for organizing workshops where researchers can come together and learn from each other's projects (Schopper 2006, p. 91).

The main stakeholders in SESAME are its member countries, who are expected to financially support and uphold the mission. The member states must contribute to a yearly financial budget, whereas observer states have no formal financial obligations. SESAME has been supported by the international synchrotron community and has seen multiple donations in favor of their operations much thanks to its tie to UNESCO. SESAME was developed under the support of UNESCO, who has not only provided SESAME with an institutional framework but

also provided formal international recognition as a case of science diplomacy. Aside from UNESCO, other international organizations that have supported SESAME are the European Union, CERN, and IAEA, who continue to provide financial and technical assistance. CERN has been crucial not only as a role model and organizational inspiration, but they have also been key in contributing to the promotion of SESAME in the international community. Furthermore, they have donated equipment and educated SESAME staff as well as lobbied for the mission of SESAME, and encouraged commitment by other stakeholders (Rungius, Flink & Riedel 2022, p. 17).

The mission of SESAME is stated as follows on their website (SESAME 2023b).

SESAME is:

- Fostering scientific and technological excellence in the Middle East and neighboring countries by starting to enable world-class research in subjects ranging from medicine and biology, through basic properties of materials science, physics and chemistry to health care, the environment and archaeology.
- Building scientific and cultural bridges between diverse societies and fostering mutual understanding and tolerance through international cooperation in science.
- Helping to prevent and reverse the brain drain that is holding back science education and research in the region.

2.2 The complicated history between the member states

As SESAME is partially founded on the science diplomacy aspect, explaining the conflictual past between the member countries is important for contextual reasons. Cyprus and Turkey have a history of violent conflict between the Greek-Cypriots and Turkish-Cypriots. Iran and Israel have since the 1980s been involved in an ongoing proxy war over power in the Middle East. Of course, we have the conflict between Israel and Palestine, involving not only the two, but also Jordan and Egypt. In fact, Pakistan is the only member country in SESAME who does not have recent history of conflict with any of the other member states. Several of the member countries have on and off diplomatically estranged relations. The proxy war between Israel and Iran is more of a state vs state issue, while the conflict in Cyprus as well as between Israel and Palestine are based on identity and territorial disagreements. Of course, both conflicts involve states, but they are also characterized by identity-based clashes. The conflict in Cyprus was

characterized by ethnic cleansing, settler behavior as well as sexual- and intercommunal violence between the Greek-Cypriots and the Turk-Cypriots (International Crisis Group 2023). As for many conflicts involving ethnic clashes, reconciliation is difficult and tensions between the groups still exist in Cyprus as well as in Turkey and Greece (Latif & Sitas 2012, p. 203).

The conflict between Israel and Palestine is well known internationally but is nonetheless complicated. From a state perspective, Egypt and Jordan were both involved in the 1948 war between the Arab states and Israel have had on and off military conflicts with Israel up until their peace agreements in 1979 and 1994 (Gelvin 2014, p. 231-240). From an identity perspective, some suggest that there was conflict between Jewish and Palestinian even decades before the actual civil war broke out in 1948. Despite several peace agreements, ethnic violence, settlements, and terror still haunt the conflict to this day. While both sides have suffered loss, the conflict is asymmetrical, and the Palestinian community has for a long time been deteriorating from relative deprivation. Despite the term *war* perhaps not being correct in today's context, the two parties are still in conflict with occurring killings. Needless to say, the conflict is still relevant in today's society, and while there are examples of Palestinian and Israelis peacefully cohabiting, there is a clear divide between the groups (Gelvin 2014, p. 242). While Egypt and Jordan have peace agreements with Israel, most of their population side with the Palestinians. More than half of the Jordanian population are of Palestinian descent (Arab Center for Research and Policy Research 2020 p. 55).

When conflicts based on national or ethnic belonging end, reconciliation is usually difficult and conventional methods of peacemaking often fail. Even after a conflict has ended and formal agreements have been met, ethnic segregation and mistrust between communities are still common occurrences (Python, Brandsch & Tskhay 2017, p. 87). An important point is that even in societies of peace, ethnic identity matters and past conflictual wounds might still bleed. One could argue that these factors make SESAME even more unique since many of the underlying conflicts are identity based. A trait of science diplomacy is that it puts emphasis on individuals engaging with one another, assuming that they will disregard any past conflicts related to them. It would be foolish not to question whether this is possible since the Israel-Palestine conflict is still ongoing. Not to mention the fact that identity and ethnic belonging still matters even after the conflict has ended.

3. Theoretical framework

This chapter will cover the theoretical concepts needed to understand what motivates states to be members of SESAME. Drawn from the ambitions of SESAME, and because of their ability to explain state behavior, realist and liberalist perspectives will lay the foundation of the theories used in the framework. The chapter will start with a walkthrough of the previous research on SESAME and how the organization is understood in relation to political theory. The theories will be explained as well as positioned in their relation to SESAME. To conclude the chapter, I will present a theoretical summary as well as explain the theoretical contribution of the thesis.

3.1 Previous research

What does previous research tell us about how we can understand SESAME? Well, most of the research is concerned with explaining what SESAME is and usually target it from the peace and cooperation aspect. An article written by the then current chairperson of SESAME, Herwig Schopper, makes a good effort to narrow down not only the outspoken goals of SESAME, but also the generally accepted approach to it. He writes that SESAME has two main purposes, first, to promote science and research in the Middle East and second, to create mutual understanding between actors of different traditions, religions, and mentalities. UNESCO has themselves held high hopes of SESAME and coined it as a *“quintessential UNESCO project combining capacity building with vital peace-building through science”* (Schopper 2006, p. 90). The peacebuilding aspect of SESAME is also one of the reasons why it is in Jordan, as the country is accessible to all member states through visa (Schopper 2006, p. 90). Similar to the article written by Schopper, Smith explores SESAME in a case study and provides a summary of the story of SESAME. In her article, Smith tells the historical tale of SESAME, and similar to other researchers, describes it as a project of peace (Smith 2015, p. 550).

Rungius, Flink and Riedel provide the most recent research on SESAME and come with a more of a critical perspective on its success in terms of creating peace and understanding in the Middle East. The authors have identified that there is an insufficient level of cooperation at the member level. They have also found that some Arab researchers have refused to cooperate with Israeli researchers because of the Israel-Palestine conflict (Rungius, Flink & Riedel 2022, p. 22). In some instances, Rungius, Flink and Riedel suggest that the science for diplomacy aspect

could be somewhat damaging to the organization. They cite in their article that efforts to build bridges between the states have been met with suspicion and interpreted as stemming from political agendas. Rungius, Flink and Riedel argue that in the worst of scenarios, an overambitious plan to achieve peace might attract future conflict. In the end of their article, Rungius, Flink and Riedel argue that the only way SESAME will succeed is if the science diplomacy efforts are disregarded. However, they do not specifically mention why science diplomacy is flawed (Rungius, Flink & Riedel 2022, p. 24).

Another important factor found in the research by Rungius, Flink and Riedel is that the level of engagement seen in every member country was largely based on personal interest from each council representative (Rungius, Flink & Riedel 2022, p. 15). This makes the individual a key factor in SESAME, as the engagement can shift depending on individuals. Perhaps this can explain why science diplomacy efforts have varied in result. Interestingly, individual engagement is what started SESAME in the beginning, when two physicists at CERN initiated the idea that Arab and Israeli researchers should cooperate (Rungius, Flink & Riedel 2022, p. 15)

Rungius, Flink and Riedel also conclude that SESAME is somewhat dependent on the support of international actors and other similar science facilities in Europe such as CERN, ESFR and SOLEIL (Rungius, Flink & Riedel 2022, p. 23). The European Union is highlighted as a major supporter and contributor to SESAME. Not only have they contributed with pure financial donations, but they have also secured components crucial to the operation of the beamlines and funded the construction of a solar plant that satisfies the energy consumption of SESAME. The European Union has further funded a project called OPEN SESAME, which brings researchers and students from the member countries of SESAME to European facilities to train, learn and connect with each other. Despite the financial support by international organizations, the authors have identified the lack of ability to secure the necessary budget as an obstacle to the future of SESAME. For instance, they claim that the specific constellation of the member countries has proven to affect the organization's ability to collect financial support. Moreover, they also claim it has made it difficult to attract new members into the council (Rungius, Flink & Riedel 2022, p. 24).

As CERN is the inspiration source to SESAME, shifting our eyes towards CERN might perhaps give us insight on their common ambition and motives. Similar to the EU support of SESAME, there was American financial support for the creation of CERN. CERN was seen as an effort to rebuild Europe after the second world war and was strategically financed to promote American long-term interests in Europe, financially and politically. It was also seen as a tool to promote liberal democratic values and oppose xenophobia and racism (Höne & Kurbalija 2018, p. 68). While we cannot for sure say that the European Union has the same motives as the Americans in 1949, there sure is a resemblance. Höne and Kurbalija have also studied the benefits that states believe they gain from being a member of CERN, and reached the conclusion there are three areas of interest: prestige of membership, access to technology and knowledge as well as the access of financial resources (Höne & Kurbalija 2018, p. 69-70). While they concluded that the prestige of membership did carry weight, they found that technological access and cooperation linked to national industries was of greater importance to the member states (Höne & Kurbalija 2018, p. 70).

How or if CERN has brought more peace into the region is rarely discussed, instead it seems like most authors see CERN as a case of diplomacy for science rather than the opposite. Instead of bringing scientists together for the sake of peacebuilding, the scientific outcome of cooperation is prioritized. CERN seems to have the ability to promote peace in a way that it is a good example of international cooperation rather than serving groundbreaking peacemaking efforts (Höne & Kurbalija 2018, p. 70).

The previous research can tell us a few things about SESAME. While most studies seem to understand SESAME as a case of science diplomacy, recent research suggests that it is not as successful in terms of building bridges. I would argue that in the case of CERN, science always comes first, and while it is seen as a case of science diplomacy, it does seem that it is more of a case of diplomacy for science, where the cooperation of scientists should lead to groundbreaking research, not peace. As found in Rungius, Flink and Riedel, science diplomacy might lead SESAME in the wrong direction (Rungius, Flink & Riedel 2022, p. 24). An important conclusion they make is that the individual seems to take up a lot of space when it comes to the success of diplomacy in SESAME. While cooperation should be able to be institutionalized independent of individuals it needs organized efforts in that direction. If not,

it will be a heavy task for a few people to carry on the mission of science diplomacy if the rest are not equally as motivated.

The following theoretical section aims to present the possible motives of why a state would want to be members of SESAME. The theories have been selected based on what we have learnt in terms of the previous research on SESAME and CERN. As SESAME has three clear and outspoken goals, these should be seen as apparent motives to be a member as they guide the organization's operations. The outspoken goals do correlate with the anticipated advantages of being a member state of CERN, which too have laid the foundation for the theories. The following section can also further our understanding of under what circumstances states cooperate.

3.2 Theory

Contrasting between faith in the positive effects of international cooperation, liberalism takes an optimistic approach to explain why states collaborate. On the somewhat opposing side is realism which views states as self-serving, hungry for power and security. While liberalists stand by science diplomacy, realists would argue that technological advancements and prevention of brain drain are motives weighing heavier. The following theoretical section aims to present the possible motives of why a state would want to be members of SESAME. The theories have been selected based on what we have learnt in terms of the previous research on SESAME and CERN. As SESAME has three clear and outspoken goals, these should be seen as apparent motives to be a member as they guide the organization's operations. The outspoken goals do correlate with the anticipated advantages of being a member state of CERN, which too have laid the foundation for the theories. The following section can also further our understanding of under what circumstances states cooperate.

3.2.1 Liberal institutionalism

Liberal institutionalism provides an explanation to the various benefits a state can claim if they are a member of an intergovernmental organization (IGO). Liberal institutionalism is concerned with the idea that IGOs make fertile ground for building strong relationships between countries (Boehmer, Gartzke & Nordstrom 2004, p. 1). Liberalists usually claim that mutual membership in intergovernmental organizations reduces the risk of conflict between two countries. While they simultaneously claim that other factors will provide a more robust

peace, liberalists argue that IGOs may generate positive outcomes such as a sense of mutual identity and can promote trade and democracy (Oneal & Russett 2001, p. n/a). Science diplomacy is seen as a tool to build peaceful relationships through international science cooperation, which makes it a perfect fit into the liberal strategy. Supporters of liberal institutionalism do not only argue that IGOs harbor peace by improving mutual understanding and cooperation, they claim it will also pave the way for third party involvement in case of conflict, which can foster conflict mediation and resolution (Boehmer, Gartzke & Nordstrom 2004, p. 1). Being a member of an IGO can be motivated by increased state-state relationships and create a positive interdependency with the other members of the organization.

In sweeping terms, science diplomacy is defined as “*the use of scientific collaborations among nations to address common problems*” (Caymaz et al. 2022, p. 2). The European Commission has in 2016 provided the world with a further explanation, defining science diplomacy as “*the use of science to prevent conflicts and crises, underpin policy making, and improve international relations in conflict areas where the universal language of science can open new channels of communication and build trust*” (Caymaz et al. 2022, p. 2). Both definitions describe science diplomacy as a process where science is used to tackle common problems, whereas the European Commission has chosen to describe it as more of a peacemaking tool. But both quotes give away the general description of science diplomacy as a chance to build relations between states by collaborating to solve a shared problem. Pierre-Bruno Ruffini argues that the reason behind the international enchantment with science diplomacy is due to its ability to address global issues and its inclusion of non-state actors in peacebuilding efforts. Ruffini also mentions how science diplomacy can lead to reduced political tensions and alleviate conflicts amongst states, thus contributing to global peace (Ruffini 2020a, p. 1). When we look at science diplomacy from this angle, we can clearly see its connection to liberal institutionalism, where the existence of intergovernmental organizations lay ground for peace (Boehmer, Gartzke & Nordstrom 2004, p. 1).

There are several historical examples of cases of science diplomacy, one being the US and Soviet agreement to work collaboratively in Antarctica in the midst of the cold war. This is an example of countries that do not only disagree politically, but also find themselves on opposite sides of almost any modern-day conflict (Caymaz et al. 2020, p. 2). Another perhaps more

recent example, although not with peacebuilding intentions, is how scientists cooperated to fight the covid-19 pandemic (Berkman 2020, p. 436).

Science diplomacy can be categorized into three dimensions: science in diplomacy, diplomacy for science and science for diplomacy. The first might not be obvious at first glance, but science in diplomacy refers to the dimension where science can guide policymaking. This is usually the case in environmental research, where newly found facts on climate change or the green transitioning can guide politicians in their decision making, nationally and internationally. The second, diplomacy for science, describes how international cooperation can contribute to science, by scientists sharing knowledge and expertise while working towards common scientifically solvable issues. Here, we might again use the pandemic as an example, where doctors and scientists cooperated to find proper treatment and vaccine against the virus. The third refers to science as a tool to improve relationships between states, increase mutual respect and contribute to global understanding (López de San Román & Schunz 2018, p. 247). Here, we can see clear similarities to SESAME and their goal of fostering enhanced relationships and cultural bridges between its member countries. In their goal of creating mutual understanding and tolerance through scientific cooperation, SESAME positions themselves as science for diplomacy (SESAME 2023b). If it were the other way around, and they claimed that scientists internationally should come together to cooperate to contribute to science, it would be categorized as diplomacy for science. The differentiation between science for diplomacy and diplomacy for science is crucial and specifically important in this essay. The difference of the two anticipates the expected ambitions of an organization either posing as science for diplomacy or diplomacy for science.

The international community has a history of supporting science diplomacy. The European Union has lately launched investments into science diplomacy, mostly funding projects engaging scientists from over the world to research the common EU agenda, or projects that promise multinational interaction and peaceful cross-cultural meetings. A study conducted by López de San Román and Schunz has found that the EU were more eager to contribute financially to projects that were committed to addressing global challenges that were in their perspective for the “greater good” of humanity. An important contradiction is that the research also suggested that the EU’s incentive to contribute to a project was based on its ability to

strengthen the Union in any way (López de San Román & Schunz 2018, p. 257). These findings suggest that the EU has, intentionally or unintentionally, acted in their own interest, contributing more to projects that will lead to profit for the EU.

While liberal institutionalists have never promised that international organizations have a foolproof success rate, they have received quite a lot of criticism for its effectiveness (Boehmer, Gartzke & Nordstrom 2004, p. 1). Research by Dorussen and Ward found that the peacebuilding aspect in intergovernmental organizations only emerged when the actors were willing to play an active role in peacebuilding, suggesting the attitude to be the causal factor (Dorussen & Ward, 2008, p. 191). While Dorussen and Ward provide practical critique to liberal institutionalism, others claim that intergovernmental organizations are utopian and simply another method for states to increase power internationally. From a realist standpoint it is unreasonable to expect that a state will neglect its self-interest for the sake of common goals and therefore, intergovernmental organizations can never completely exclude the egocentric trait of states. In addition, IGOs will still include more or less powerful states, and expressions of power and imposing of control of other states will still exist within the organization. Another challenge is how exactly IGOs could alter state behavior to the point where they choose not to engage in conflict. In this regard the IGO must intrude on the premises that create conflict i.e., the membership of an IGO needs to contribute against the factors that would lead to conflict (Boehmer, Gartzke & Nordstrom 2004, p. 6).

A part of the realist critique highlights how liberalism and realism can have similar traits. Liberal institutionalism is built on a mutually beneficial relationship between the members of the intergovernmental organization. One important premise is when cooperation is equally beneficial for each part, states will not engage in conflict. While this premise is the backbone of liberalism, it highlights the fact that states act on what they believe is most beneficial for them. Similarly, intergovernmental organizations themselves seem to be driven by the same logic. López de San Román and Schunz found that the EU funded science diplomacy projects that they believed would strengthen the EU as a competitor or strengthen the EU as a whole. If they fund projects that are for the good of humanity, it will still benefit the union in one way or another (López de San Román & Schunz 2018, p. 257). Again, we can see the same logic in

the case of CERN which the United States supported because of political and economic motivations (Höne & Kurbalija 2018, p. 68).

Liberal institutionalism has also been criticized for overlooking the post-colonial heritage of states. If we only look at cases of intergovernmental organizations from western Europe, we cannot assume that they will have the same result if they place the organizations somewhere else in the world. They say this not by claiming that other parts of the world are more prone to conflict, but rather that cases of Western European cooperation are based on decades or centuries of already established relationships (Boehmer, Gartzke & Nordstrom 2004, p. 30). The post-colonial critique is specifically intriguing in this case as SESAME is an organization with members who do not usually cooperate internationally and has a history of conflict, protectorates, and colonialism. Not to mention the fact that the member states in SESAME do have a current presence of ethnic conflict whose effects on individuals are especially difficult to eliminate (Python, Brandsch & Tskhay 2017, p. 87). Combined with the factors of peacemaking success in IGOs, SESAME would have to contribute positively to the elements that have caused conflict, which would be quite complicated in many aspects. The elements of the conflict in Cyprus and the conflict between Israel and Palestine are based on identity and ethnicity, but also include other important factors such as territorial space. SESAME will not be able to provide any solution to the territorial aspects, but it could provide a relief of ethnic tensions, increased understanding and showcase that cooperation between these ethnic groups can exist.

The criticism of the liberal institutionalist theory does not directly criticize SESAME, but it undoubtedly questions its effectiveness in fostering peace and improving relationships. The skepticism lies in its dependability on individuals and partners to take initiative towards peacebuilding efforts. The research by Rungius, Flink and Riedel somewhat confirms that this critique is somewhat correct in the case of SESAME. If some researchers refuse to cooperate with Israelis, can the actors in SESAME contribute to its peacemaking perspective? Science diplomacy and the liberal institutionalist theory do not seem to take identity-based conflicts into enough consideration, which coincides with the post-colonial critique. This certainly questions its ability to succeed in areas where identity and conflict has been intertwined. This matters greatly in the context of SESAME as the member countries are tainted with ethnic

conflicts which inevitably will affect peacebuilding in a different way than traditional state-to-state conflicts. If liberal institutionalism puts too much weight on individuals having the “right attitude”, this will be more difficult to find in societies touched by ethnic conflict.

3.2.2 The realist theory of state behavior

Realism is often posed in contrast to liberal institutionalism and is used by political scientists to explain state behavior. Within the realist tradition, nation states exist on an international playfield, where the states compete over power, acting in their own national interest to achieve dominance and security (Mastanduno, Lake & Ikenberry 1989, p. 459). Preventing brain drain and ensuring scientific and technological advancements are two out of the three goals of SESAME. If we see this as states acting for its own benefits, investing in such goals are in line with the realist agenda, as achieving them are directly beneficial to a nation. If we break down these two goals and start with the broader one, cultivating scientific and technological expertise could directly benefit a country in terms of its educational infrastructure. Educational infrastructure does not only consist of buildings, buses, and libraries, it is also substantially affected by having access to different levels of education and research facilities. A state that does not have a functioning educational system usually falls short in many other aspects. Although there are several societal advantages stemming from a strong education infrastructure, an expanded economy is believed to be one of the major benefits. To add, increased innovation, technical advancements as well as social growth are common chain reactors when states invest into education (Kruss et al 2015, p. 22-30). There is also a learning aspect of SESAME, where states could benefit and learn from each other's knowledge in synchrotron radiation. If an individual from a less advanced state came to SESAME to learn about synchrotron radiation, they could in turn teach others in their home countries. There could therefore be a direct learning outcome of SESAME which benefits the member states.

Aside from economic and social benefits, there is a competitive side to education. Research by Hazelkorn shows that higher education has been increasingly important for national competitiveness to the point where states are starting to progressively invest in improving their educational quality. Hazelkorn acknowledges that states continue to invest large percentages of its GDP, and increasingly more in the science and technology sector. She argues that the increase in educational investments indicates a heightened competitiveness between countries which is likely to amplify a global divide between states and their economic, technical, and

social abilities. The states that can enjoy a well-functioning education system might likewise see an increase in its soft power through student applications, research output and highly educated immigration as countries that invest in education and produce skilled workers can be seen as more attractive and respected on the global stage (Hazelkorn 2017 p. 3). Hazelkorn also mentions the current Anglo-American hegemonic influence on global education which benefits the countries not only through increased levels of highly educated immigration, but also through the dominance of the English language in journals and research output (Hazelkorn 2017, p. 4).

Hazelkorn touches on the other goal of SESAME, to prevent brain drain from the Middle East. Brain drain is a term for what can happen to states that do not successfully invest in educational infrastructure. Brain drain refers to high levels of emigration by highly educated citizens (Sako 2002, p. 25). The cause of brain drain varies, but usually stems down to a social dissatisfaction mixed with the attraction of seeking opportunities elsewhere. Common components usually consist of the will of improving one's own living conditions and seeking life- or professional opportunities (Sako 2002, p. 25). DiPietro argues that brain drain is notably destabilizing for a country's development and economic growth. It is likely to cause an even worse regression for developing countries as it creates a shortage of social capital. It is also damaging to any investment in the education system as expected return in skills migrates to other countries. Resources that could have been put into other matters were put into an individual who makes a profit for another state (DiPietro 2014, p. 31). SESAME is meant to act against brain drain as it provides a space for higher educated individuals to conduct their research.

Based on above mentioned research, a state that invests in their educational infrastructure does not only invest purely in education, but they also simultaneously invest in economy, technical and social advancement, innovation, and educational competitiveness. All mentioned benefits could advance a state's power, as they provide an enhancement of national stability which in turn enlarges the geopolitical weight of a country (Nazari & Noori 2022, p. 529). Looking at SESAME from the realist approach, the organization provides a tool for national benefits and increased power in the long term. Given the realist perspective, the balance and imbalance of power makes dominance the most important factor in the international system, where governments will be categorized as less or more powerful. The balance of power will be

shifting, and less powerful states will pursue policies that strengthen their power in the international playfield. Regions are referred to as specifically important on the international playfield, as states within a region have their own power-balance relationship where each state seeks regional dominance. The most powerful states in each region will then reach further in the international system, gaining more influence and ability to pursue their own interests (Nazari & Noori 2022, p. 529). Investing in a project like SESAME can likely be motivated by its benefit to the country, which will prove direct and indirect effects to a state's position in the international system.

3.3 Theoretical discussion and assumptions

Even if liberalists describe it differently, liberal institutionalism and realism ultimately builds upon the same idea that states act in their own best interest. Realists focus on the national benefits that states seek to achieve international power and security. In the shape of liberalism this showcases itself by the fact that IGOs foster a sense of mutually beneficial cooperation where a state does not believe that it is in their best interest to wage war on the other part because of the benefits stemming from the IGO. But liberal institutionalists also highlight that states that engage in IGOs can find themselves in beneficial collaborations, where the national interest of states are fulfilled while simultaneously building relations with other states. In this regard, why would a state not engage in an IGO if they can have national benefits and achieve relevance internationally? Important to keep in mind is that international cooperation and protecting national interests can coexist. Thus, a state can engage in SESAME with the purpose of gaining national benefits while simultaneously building stronger relationships in the region.

Assumption 1

An ambition of this thesis is to explore under what circumstances states cooperate. Drawn from the realist and liberalist perspectives my theoretical assumption is that states cooperate because they find benefits within that cooperation. In realism the national interest of states will always be prioritized in international organizations. The critique of liberal institutionalism highlights a middle path where if the state can benefit enough from the cooperation, they will engage in it. States might even make compromises within it given that they believe that it's in their best interest. The member states could make decisions that are best on their behalf, but still foster good relationships between one another. I theorize that in the case of SESAME, member states are more motivated by the research infrastructure rather than the peacebuilding aspect. I base

this on the fact that SESAME provides the Middle East with its only synchrotron light source, making a membership necessary for those who wish to conduct such research. However, having regional presence and membership in an intergovernmental organization might still be a secondary motive. If the member states are more motivated by the direct infrastructural benefits of SESAME, it does not cancel out the possibility of them wanting to achieve enhanced interstate relationships.

There are two aspects of SESAME that could coincide with a codependency factor. First, synchrotron light sources and the facility surrounding it are very expensive. Therefore, we usually see similar facilities as an international cooperation. Second, there is a knowledge sharing aspect of SESAME where researchers can learn from researchers from other countries. Thus, a membership in SESAME could satisfy the national interest of a state, while simultaneously pairing countries into a mutually beneficial condition. If the desire to conduct synchrotron research is strong enough, past conflicts between the countries might not matter. In these two examples we can see how realism and liberalism can be quite compatible when they explain why states cooperate.

Assumption 2

The second theoretical assumption that I suggest is that the actual peace generating aspect of science diplomacy is flawed, at least in the case of SESAME. I base this on a multitude of factors. In accordance with the critique of liberal institutionalism, I would argue that the mistake it makes is that it assumes that peace will come if we simply bring individuals together. Now this might be true in some cases, but it will never be easy to bring two opposing sides of an ethnic conflict together in hope for them to find mutual understanding. We know this based on research on ethnic conflicts (Python, Brandsch & Tskhay 2017, p. 87) and we can see it occurring in the latest research on SESAME (Rungius, Flink & Riedel 2022, p. 22). While we do see CERN as a post-conflict example of citizens of different nationalities cooperating, the history differs from the conflictual past of the member countries of SESAME. The original 12 founding states of CERN have (certainly more recent back then) a history of violent conflict among each other, but these have not been characterized by ethnic violence. Full reconciliation to the point where ethnic or national belonging is no longer central to the individual is very difficult to achieve. When science for diplomacy seeks to build bridges between communities

and ultimately foster peaceful societies it seems to disregard the decades of hurt and anger that can emerge from ethnic conflict and marginalization. If the success of science diplomacy relies heavily on individuals cooperating, the identity aspect might alter its success rate.

Science diplomacy as well as intergovernmental organizations are also weighed down by the fact that they rely too much on individual engagement. In cases where neither individual nor governmental incentives are there, peacebuilding will be difficult. If there are no governmental or organizational efforts for building enhanced relationships it will be up to individuals themselves to work towards peace. To add, if the success is dependent on individual effort, the level of accomplishment can vary depending on the rate of interest from the people involved. If in the case of SESAME only a few are motivated by the peacebuilding aspect, they need to themselves pursue these opportunities as well as convince others to work for the same achievement, which is not an easy task. I would argue that this factor leads to science diplomacy being less likely to occur as the researchers who come to SESAME probably come with the primary desire to conduct research, not to make peace.

When SESAME was founded, liberalism was popular and there was a genuine faith in the success of IGOs (Fioretos 2019, p. 20). But in later years, liberalism and the thought of collectivism has been on decline. Instead, many states have now taken a right swing, opting towards more nationalistic policies (Sandrin 2021, p. 227). While realism does not stand by a particular political idea, it views the actions of states in a more self-serving way than liberalism. One could argue that the hope of SESAME generating science for diplomacy has been washed away as the world has shifted towards a nationalistic perspective on states. In fact, this shift could explain why SESAME is now struggling to obtain international funding, but also illustrate its somewhat failure in working towards peace. If the member states have followed the current political trends towards more national interest driven politics, are they truly motivated by the collective idea of SESAME? If they are motivated by it, we should be able to see some organizational efforts in that direction. This motive should ideally come from the organization, the governments and the individuals involved. The disregard of ethnic conflict, paired with the weight on the individual and the recent international wave of nationalism might tell us that science for diplomacy is on its last legs.

4. Methodology

This chapter aims to thoroughly describe and explain the chosen methodology in this thesis. The chapter will therefore summarize the different methodological choices that were made to conduct the study. In the first part of this chapter, the methodological approach and research design will be explained and motivated to provide the reader with a basic understanding of the study and its research angle. Secondly, the chosen method of data collection will be explained followed by a presentation of the sample selection as well as a description of the method of data analysis. In the final part of the methodological section, the ethical aspects of the research will be discussed, followed by a methodological critique.

4.1 Research design

The aim of this thesis is to explore what motivates member states to be members of SESAME. The research question will be answered in a qualitative case study with interviews as the method for gathering empirical material. This thesis is designed in a case study format as it entails an in-depth analysis of a single case. Case study research is usually adopted when the research is concerned with a particular case of nature and when there is a desire for deeper analysis of the case (Bryman 2016, p. 60). The case of this study is SESAME, which refers to a certain location (Middle East) and organization. SESAME in itself is a case of a multinational organization but is unique in the sense that it is an intergovernmental organization in the Middle East involving countries with a recent history of- or in active conflict. Following this uniqueness of SESAME, paired with Alan Bryman's categorization of type of cases, SESAME is an *extreme or unique case* (Bryman 2016, p. 62). There are similarities in EcoPeace, which is a case of cooperation between countries that have a recent history of violent conflict (Israel, Palestine, and Jordan). What differentiates the two is that EcoPeace is a non-governmental organization where private individuals work together towards a more sustainable future. They are similar in the sense that they involve individuals in a diplomatic fashion, but they differ in the actual membership of states. EcoPeace is not funded by either Israel, Palestine, or Jordan (McKee 2018, p. 449-470). CERN is another similar case to SESAME as it is an intergovernmental science organization where the member states have a history of conflict. However, its location in Europe makes it a different case to SESAME, which is the crux of the uniqueness of the organization.

To most efficiently answer the research question of the thesis, the research design will be based on an abductive approach. An abductive research approach mixes the inductive and deductive way of viewing research collection and analysis. The inductive approach uses observations of reality to establish knowledge, which puts the observation ahead of the theory. The observation is used to establish the theoretical framework and the theory is thus assembled after the observation has been made. A deductive approach on the other hand has theory established before the observation is made. It uses existing theory to study the objective, hoping to explain phenomena to create and develop current theories (Bryman 2016, p. 21). An abductive approach mixes the two, allowing for a research based on existing theory, while being open minded to the empirical findings that might suggest other theories to be a better explanation of the phenomena. The abductive approach should be seen as a more dynamic way of conducting research, being specifically useful in research that examines the unknown. The researcher can have several theories in mind, but still be open to there being other explanations to the research puzzle not known to the researcher before the collecting of empirical material (Dubois & Gadde 2002, p. 555-559). Based on the flexibility of the abductive approach as well as its openness towards generating new theoretical assumptions, an abductive research procedure has proven to be the most efficient way of approaching the research puzzle.

4.2 Interviews

Interviews have been chosen as the method for data collection. Esiasson et al argues that the method of a research should be largely based on the research question and puzzle (Esiasson et al 2017, p. 261). The research question poses an investigation into what motivates member states to be members of SESAME. In the early stages of the study, I acknowledged two methods suitable for exploring the research question: document analysis and interviews. Document analysis could have been useful if there were any documents available, preferably state documents with outspoken motives and intentions to join SESAME. In my efforts to try to find any such documents, I have not been successful. Interviewing the key individuals involved on the state side of SESAME should therefore be seen as the more appropriate and only available method. Interviews are especially encouraged when human subjects convey important information for the puzzle, which is the case in SESAME (Esiasson et al 2017, p. 262).

Alan Bryman differentiates between different interview methods by making a distinction between quantitative and qualitative studies. Quantitative studies tend to opt towards more

structured interviews to secure the reliability and validity of their research measurements. Qualitative studies on the other hand usually values the perspective of the interview subject and not leaning too much on an interview guide is encouraged (Bryman 2016, p. 466). The more structured form of interview might struggle to provide meaning to answers, as they often lack the possibility to properly explain the *why*. Of course, there is a possibility to include a space for the respondents to explain why, but if done in a questionnaire, the response will be more planned and thought out and lack the natural reaction to the questions (Holstein & Gubrium, 1995, p. 2-3). Because of the lack of deeper sensemaking in structured interviews, I chose to seek a more open interview method.

Since this study has been conducted in a qualitative manner, paired with the fact that there is a desire for a deeper, more in depth interview method, semi-structured interviews were chosen as the interview method. The following section will further motivate the choice of semi-structured interviews.

4.2.1 Semi-structured interviews

A semi-structured interview is a less structured and less predetermined method and is a very useful tool when undertaking a qualitative and abductive research approach. Semi structured interviews are more vaguely defined and do not require a rigorous questionnaire or predetermined tight theoretical framework. The semi-structured interview aims to address a specific dimension to the research while simultaneously leaving space for interviewees to add new insights to the study. Semi-structured interviews therefore align well with the abductive research perspective as it combines both inductive and deductive approaches. The researcher should come with a set of prepared questions while still leaving the interviewee open to add to the theoretical investigation (Galletta 2013, p. 21-24). A semi-structured interview can be structured into two segments, one with complete open-ended questions and the other with theoretically constructed questions to guide the interview. A crucial benefit from conducting interviews in a semi-structured way is that it highlights the lived experiences from the interview objects, while also addressing the theoretically driven interests of the thesis (Galletta 2013, p. 24).

In semi-structured interview research, the interview is usually structured by an interview guide preconceived by the researcher. Because it is a semi-structured interview, the researcher can

take on a more open approach to their replies, asking follow-up questions that are not pre-planned. The replies from the interviewees should be able to vary based on the questions asked (Bryman 2016, p. 468). Holstein and Gubrium agree with Bryman and state that the interview guide needs to be flexible enough to be altered during the interview in case new questions arise or new pathways to follow emerge. Again, they state that the researcher should not be too focused on their interview guide or coding scheme, but instead be focused on the response based on what the research is concerned with, and how the respondent constructs a narrative based on the questions posed (Holstein & Gubrium 1995, p. 5). As this research is concerned with finding motives in the answers of the respondent, it was important for me as a researcher to be present in the interview and not too focused on just categorizing the answers, but also to remain focused on what the research was actually about and see to the narrative constructed by the respondent.

Preparing myself for the interview I have followed Alan Bryman's preparation chapter (Bryman 2016, p. 469-476). The preparation chapter describes how to best formulate interview questions, and how to properly act and behave during the interview. The interview questions were formulated in a way that would answer the research puzzle while simultaneously taking the theoretical framework and abductive position into consideration. The interviews were conducted in English which is not the native language of any of the interview participants. However, their language skills were at a level that did not require an interpreter, neither was it requested. The interview guide was divided into three essential parts: (1) general questions, (2) questions related to peace and cooperation and (3), questions related to research- and educational enhancement. The interview guide used in the interviews can be found in appendix 1. The interviews were held through zoom and recorded on the app. Later, the interviews were transcribed through an application called Descript. I re-listened to the interview and followed along with the transcription to make sure that the transcription was correct.

4.3 Sample selection

To reiterate, the purpose of this thesis is to explore the motives of why states are members of SESAME. To give an answer to the research question, I needed to interview individuals who had insight on the state motivation to be members of the organization. Here, I sat with a couple of different options and pathways to choose in how to conduct the interview. The first one being which specific individuals to interview, where a government official could have been an

option. However, I knew from the start that coming in contact with a government official would be tricky, given the fact that I do not have any contacts within the governments of the member countries. To add, neither do I speak any of the languages of the member countries. Even though many government officials are proficient in English, many of them are not. A middle ground, and the samples I elected in the end, were the representatives in the SESAME council.

The representatives in the SESAME council are chosen by their states to represent them in the organization. Many of them have represented their states from the creation of SESAME and should thus have the knowledge of reasoning as to why their states have joined the organization. In addition, they interact in the SESAME council, and should also be somewhat aware of other states motives as well as conscious of the organization's deficiencies. Choosing the representatives as the main samples for the thesis should be regarded as the most reasonable selection given their position as council representatives in SESAME. Most importantly, their position in the council has provided them with experience and knowledge that can contribute to answering the research question. I conducted a total of six interviews, with representatives from half of the member countries. How the selection of council representatives as interviewees might affect the validity of the research will be further discussed in section 4.6. One of the interviewees was not a current representative but had been previously, however, it will not be specified who this person is to remain their anonymity.

I approached the representatives through email and then tried to use the snowball effect on those who did not reply. I asked the persons I had interviewed if they could help in any way of reaching the representatives I had not yet come in contact with. This proved to be the most effective way of reaching the representatives. I also contacted a few representatives through WhatsApp, using the same invitee text as for the email. The invitee letter is available in appendix 2.

4.4 Data analysis

After the collection of raw data (interviews), data analysis is needed to manage the data and make conclusions from it. Coding the data is a useful tool to first-hand categorize the data, and then later conduct analysis on the material. Through coding, the researcher can ask specific questions when reading the data, to categorize it properly. An example of this is to ask oneself: *what is this item of data about?* (Bryman 2016, p. 580). When the transcription of the material

was overseen by myself, I simultaneously manually coded the material in three broader categories that related to the theoretical framework: (1) liberal institutionalism, (2) realist reasoning and (3) answers which provided new theoretical evidence. The two first categories are a part of the deductive perspective, while the third allows for one to see the unknown and has been included as an inductive element in accordance with the abductive research approach.

Dubois and Gadde differentiate between loosely developed analytical frameworks and stricter, more structured ones. Here, they explain the first as more inductive and the second as more deductive. Dubois and Gadde suggest, what they call a “tight and evolving framework”, meaning having a preconceived theoretical framework but allowing for the framework to evolve as the data is collected. They state that there is a need for openness throughout the process as well a must to clarify each decision being made (Dubois & Gadde 2002, p. 558-559). I chose to adopt a middle ground perspective when applying the analytical framework regarding the abductive research approach in this thesis. Doing so, I could use premeditated categories based on the theoretical framework, while simultaneously looking for answers that might not fit well into any of the categories, thus providing a chance to adapt the theoretical framework. As the thesis puzzle is concerned with motives to be members of SESAME, I could not only strictly look at the theoretical framework as it could risk the validity of the research. The aim is to find the actual motivations, which I continuously tried to look for in the collected data. However, this was of course paired with the theoretical framework as it provided the theoretical foundation for the research puzzle.

The three categories in the analytical framework made it easier to go back to the data and structure the data analysis. When conducting the analysis, I revisited the data, and identified several central themes. Most of the identified themes could be found in several of the interviews. Bryman mentions that a key aspect in thematic analysis is to identify what a theme is. He mentions that the word *theme* is used loosely in research, and that it can have several different meanings (Bryman 2016, p. 584). In this thesis, I have chosen to refer to themes as a set of similar answers provided by the interviewees that can aid in answering the research question. To simplify, if a specific answer to one of the questions were recurring in multiple interviews, I identified it as a theme. This was done to demonstrate the data collection as well as structure the analysis and showcase the answer to the research puzzle. To refer to a theme

in this way is appropriate according to Bryman, who argues that thematic analysis is a way of presenting recurring concepts in the data (Bryman 2016, p. 585). When presenting the identified themes, I have used quotes by the interviewees to showcase the themes, thicken the analysis and provide transparency to the study. In addition, when presenting and explaining the content of the themes I have purposely tried to keep to the actual language of the interviewees, with the purpose of not twisting words and risking the reliability of the study.

There are some pitfalls when using an analytical framework and interviews. Holstein and Gubrium mention the two part answer as a risk for the coding of the interview, as one subject can give two answers when asked a question (Holstein & Gubrium 1995, p. 4-5). If this occurs, I will allow for multiple categorizations of the data. As the researcher, I have taken this into consideration and made it possible to discuss it in the part for results and discussion. The nature of this research allows for multiple answers to explain the motives of being a member of SESAME, as one answer might not be substantial enough to be the truth. However, I have left it as an open possibility if the answers would point towards it.

4.5 Ethical considerations

Ethical considerations are crucial to respect in both qualitative and quantitative research but especially important to consider when the research concerns human subjects. Typically, ethical considerations in research are guided by a universalist stance that ethical practices should never be broken. To ensure that this research has been conducted regarding ethical principles, I have chosen to mainly follow the ethical list compiled by Alan Bryman, while incorporating additions by other researchers (Bryman 2016, p. 120-137).

Bryman has listed a few areas in which ethical considerations must be regarded. Some of them are relevant to this study, and some of them are not. A relevant area of concern regarding this thesis is the risk of harm to the participants. Bryman argues that the researcher should always consider the possibility that research might have a negative and harmful aftereffect on the research participants (Bryman 2016, p. 126). During the earlier stages of writing the thesis, I realized that the way the research puzzle is formulated and the answers I had to ask could result in answers including sensitive information to the respondents. As the thesis is concerned with state motivations to be members of SESAME, answers given by the respondents might not coincide with what the states in question would answer. In fact, there is a possibility that a state

would be dissatisfied with some of the answers. In the worst of scenarios, this could jeopardize the respondent's job position, or worse, health. In order to combat this issue Bryman suggests confidentiality of the research participants (Bryman 2016, p. 127). Therefore, the participants of the study have been anonymized. There was another issue regarding keeping the participants anonymous while still maintaining the quality of the study. There are not that many representatives in the council which makes the anonymization part tricky. Simultaneously, not disclosing their position as representatives could reduce the credibility of the thesis. After putting a lot of reflection into this issue, I decided to deal with it by not mentioning which state the representatives represent. I also confirmed with every interviewee that they would be mentioned as council representatives. Another measurement taken against this was the fact that I informed each research participant of the possibility of declining to answer questions, retracting statements, or the entire interview. Despite the possibility of retracting statements, there is still a risk that other statements are deemed upsetting. I have carefully considered every statement included in the thesis, regarding their ability to do harm, as well as if they would give away the identity of the interviewee. The interview subjects have not been named in the transcriptions, and any personal information that can identify the participants has been removed from the transcriptions. In section 5.4 of the analysis, I have chosen to not disclose which interview the information came from, for it not to be possible to figure out the identity of the respondent. I chose to do this because the information given could be regarded as sensitive while it still proved an important aspect to the thesis. This decision was made in coordination with my supervisor.

Another important area identified as important in ethical considerations is informed consent. First, an interview subject should have as much knowledge of the study as possible to decide if they want to participate in the research. The interviewees should be given as much information as possible before the study, in order for them to make an informed decision on their participation (Bryman 2016, p. 129). To get informed consent from the interviewees, I explained the content of the research when reaching out to the participants. This was done through email as well as WhatsApp. The description of the invite email is available in appendix 2. When starting the interview, I again informed the participants of the content of the research, as well as their ability to retract statements, refuse to answer and retract the interview. In terms of anonymity, I asked for permission to call the respondents "council representatives" as well

as to record the interview to simplify the transcription process. Lastly, I asked for verbal consent in the beginning of the interview.

4.6 Reliability, validity, and methodological discussion

This section is dedicated to a discussion that should consider the quality and various aspects that can affect the result in the thesis. The two terms that are important to mention in quality assurance are reliability and validity. Reliability is concerned with the repeatability of the study, which is usually less considered in qualitative research. However, it is still important to care for in cases where the researcher is heavily involved in the case. The correct question to ask is whether another researcher would provide the same result if the study was redone (Bryman 2016, p. 41). To assure reliability, the researcher must showcase how they have approached the research puzzle and do this in great detail to the point that another person could get the same results if they conducted the study. There is a downside of being very active as a researcher in a study overall, especially during the sample selection process (Jorgensen & Phillips 2000, 28). When a researcher selects individuals to participate in an interview, they could essentially alter the result of the study as one individual might not answer similarly to others. This is perhaps the most major issue in this thesis, as I have not interviewed all council representatives. Instead, when selecting the interviews, I had hopes of interviewing a specific set of delegates. In the end, I chose to disregard the set of delegates, and instead interview representatives from half of the council. When this decision was made, I reached out to all council representatives, however I only received responses from about four of the member countries. Therefore, the samples of this study are representatives from four instead of eight countries. As I will not disclose which countries the interviewed delegates represent, another researcher might come across different answers if they interview other representatives. I have strived to achieve as high of reliability as possible, but the sample selection is a clear issue that needs to be mentioned.

Another reliability issue when conducting interviews is the impact of the interview questions. The questions asked to each interviewee should be disclosed, which could be tricky in a semi-structured interview which should not be completely bound to the interview guide. Still, the interview questions should be posed in such a way that they are open enough to generate somewhat similar answers if asked again, which I have tried to assure in the interview guide (see appendix 1). Another factor of reliability is the involvement of the researcher in the

analysis. If the analysis weighs heavily on the researcher's own interpretation of the data, there is a risk that another person might not interpret the data in the same way, thus generating a different response in the thesis. A language barrier between the interviewer and interviewee can add to this issue (Bergström & Boréus 2012, 296). It can not only put the reliability at risk, it can also be perceived as deceptive towards the interview subjects. Now, I do not mean that the researcher must have the intention of being deceptive, but misunderstandings and misinterpretation of the material risk altering the accounts made by the interview subjects. This issue will be approached by relating the analysis to the theoretical framework paired with analytical transparency where I explain why certain interpretations of the data have taken place.

Validity is another quality criteria important to consider when conducting research. A first factor to consider is if the research measures what it actually wishes to measure (Bryman 2016, p. 41). In this thesis we want to measure what motivates states to be members of SESAME. There are several aspects of what we want to measure that can affect the validity of this thesis. If we begin with the first of *what motivates* states to be members of SESAME, we are interested in finding out the actual truth of the motives. We can find this through asking the interview subjects of their real experiences in why their or other states are members of SESAME. Factors that could risk this part of the research is the way the questions are asked if the respondents answer truthfully and if I as the researcher is able to analyze and properly categorize the answers. Holstein and Gubrium argue that an interviewer should pose questions in such a matter that it acknowledges alternative truths to an issue for the interviewee to provide answers true to their original perception. Falling to do so is called contamination of data which can occur when the questions are asked in a way that it forces a specific answer from the respondent (Holstein & Gubrium 1995, p. 3). Therefore, I have asked open questions, allowing for the respondent to give a truthful account of their experience. Hard to overcome is the fact that the respondents still might not speak the actual truth of their experiences. Now this is of course a general issue when conducting interviews, but it can become an even larger issue based on the sensitivity of the research subject. While truthfulness can be an issue hard to tackle, anonymity should be seen as a tool to achieve authentic answers since the interview subject does not show their own identity. Perhaps the most important validity critique to this essay is if the interview subjects can speak on behalf of the motives to why a *state* is a member of SESAME. The interview subjects are not government officials, but rather elected to represent their countries

in SESAME. Now while it would have been optimal to interview the actual government official that made the decision to join SESAME, this was not possible. Therefore, despite the slight risk of jeopardizing the validity of the research, interviewing the representatives was the only available choice. To add, the representatives are still chosen by their governments, and are the actors most engaged in SESAME. This makes them the most reasonable interview object despite the critique against it.

Bryman also mentions external validity which refers to whether a study is generalizable beyond the research participants (Bryman 2016, p. 41). This issue correlates with what I explained with the researchers' involvement in the sample selection in terms of reliability. The fact that only half of the states are represented in this thesis leads to problems in terms of generalization. Can half of the representatives speak for all member countries? Probably not. But the way the research question is framed forces a somewhat generalization of the result so that it is applicable to all member states. Due to the anonymity, I could not reveal which countries I had interviewed, and therefore could not specify it in the research question. However, this is a common issue within research. Involving a smaller number of people out of a larger research group as a few individuals will never be able to completely speak the truth on behalf of a larger group. Despite this, a generalized analysis can still be true to reality. In the case of this thesis, the response from the interview participants has been quite similar, which tells the story that I might have gotten the same answers if I had interviewed all member representatives.

5. Result and analysis

This chapter aims to provide an understanding of what motivates states to be members of SESAME. Through understanding this we can further discuss under what circumstances states do cooperate. In addition, by exploring science diplomacy as a motive, we can understand how it manifests itself in the case of SESAME and thereafter further the discussion and understanding of science diplomacy.

The chapter will present the results of the interviews as well as provide continued analysis on the material generated from the data. From an abductive standpoint I let the data generation guide the theoretical development while simultaneously using theory to further the interviews. Through thematic analysis, four general themes have been drawn out of the data:

1. Science and finance as the main motive for membership in SESAME
2. Science diplomacy as a token of funding
3. The complexity of Israel as a member
4. Is science diplomacy on its way out?

The themes were continuously recurring and derived directly from the data but guided by the research puzzle and theoretical framework. Each theme has been presented in a way that is logical from a reader's perspective, they are thus not arranged by occurrence rate. The second theme was not more occurring than ones that follow but consists of necessary information to understand the third and fourth themes. The quotes have been chosen to highlight the context of the general response from the interviewees.

5.1 Science and finance as the main motive for membership in SESAME

After conducting the interviews, it was quite clear that the most common incentive to be a member of SESAME was related to its national scientific benefits. The incentive varied slightly for Jordan. The financial aspect of being part of SESAME was an important factor and will be discussed in the end of this theme.

Most of the respondents either clearly stated that having access to science was the main motive, or they described it as a major beneficiary of being a member (R1, R2, R4, R5, R6). When asked directly on the motives of why their states are members of SESAME, a common response was to refer directly to the increase of infrastructure and scientific opportunity that comes with being a member (R1, R2, R5, R6). Similar answers were provided when I asked the respondents on why they believe other states have joined SESAME.

Quote 1: *“They want to benefit from a complex infrastructure and advanced capabilities that are available.”* (R5)

Two representatives explicitly stated that investing in science infrastructure is a concrete target in their educational policies (R2, R5). As the theoretical framework has suggested, prioritizing research infrastructure and educational advancements are common state priorities. Now while the respondents did not mention what they specifically hope will come out of investing in such

a project, they still argued SESAME to be a part of their scientific infrastructure (R2, R5). Kruss et al argues that investing in higher education is linked to technical advancements as well as economic benefits (Kruss et al. 2015, p. 22, 30). This could be a reason why the respondents mentioned science infrastructure as the biggest motive to be members of SESAME. Another reason is stated by Sako, who argues that brain drain is a negative occurrence in states that do not invest in educational infrastructure (Sako 2002, p. 25). Several of the respondents did mention that this was a motive for them or other states to join (R1, R2, R5).

Quote 2: “Opening up techniques and facilities that otherwise, the scientists will not have access to, so they will not be able to do research and eventually either that the country will not benefit from the outputs of it. But also, those smart people will probably leave the country and the brain drain will continue in those countries”. (R1)

Quote 2 highlights two factors, first they mention the technical benefits of states having access to SESAME, second, they mention brain drain as a direct result of not investing in the educational infrastructure. As mentioned by Sako, these two factors correlate with each other. Countries that do not invest in education, or do not make sure that there are enough opportunities for people with higher education degrees, will lose their investment into intelligence in the shape of brain drain. Brain drain will not only benefit other countries by highly educated immigration, but it will also remove a lot of the possibilities of establishment of new companies and technological advancements (Sako 2002, p. 25). It is evident that the respondents claim technological and scientific advancement to be a main motive, while mentioning that its presumed benefits could also include preventing brain drain.

Another important factor that came up in every interview was the fact that almost all member states have difficulty to access other synchrotron facilities around the world (R1, R2, R4, R5). This was stated as an expected motivation in the theoretical framework, which is a very reasonable logic to join a cooperation like SESAME. Simply put, if you do not have access to technically advanced research facilities, why would you not use such an opportunity to your benefit? The respondents mention the fact that SESAME provides a key research opportunity for all of the member countries.

Important to note is that Jordan was brought up on several occasions as specifically benefiting from SESAME because of its location in Jordan (R1, R2, R4, R5). Jordanians are

overrepresented when it comes to permanently employed staff, and they seem to benefit from having the building itself located in Jordan. The following quote describes it quite well:

Quote 3: *“Well, it contributes to Jordan. Most of the staff are Jordanians. And it does have a lot of positive images for science building and science policy in Jordan. These are the impacts and definitely will allow first rate research, and a platform for Jordanian scientists.”* (R2).

There are two clear motives in this statement, first, the fact that they employ more staff is beneficial to their employment rate. Second, it serves as a physical part of their research infrastructure with its location in Jordan. Another respondent made a similar argument and said that the location serves Jordan as they become a research hub (R1). Another respondent said that it had given Jordan a scientific platform internationally (R2). It is clearly in the interest of Jordan to be a member of SESAME as they can employ their citizens as well as receive international recognition. These are two national interest benefits they receive from their membership (Hazelkorn 2017 p. 3).

While science was reiterated as the main motive to join, the financial aspect of taking part in such a cooperation was mentioned regularly. Many respondents touched upon the fact that running a synchrotron facility is very expensive (R1, R2, R5, R6). Even though running such a facility comes at a high financial cost, some of the respondents claim that the finance of SESAME is lower than other synchrotrons around the world (R1, R2). In fact, all respondents responded conclusively that SESAME is underfinanced (R1, R2, R3, R4, R5, R6). Either they are underfinanced by member states for not paying their fees, or the member fees are not high enough to sustain SESAME (R1, R2, R4, R5). To add, the international community does not contribute as much as what was hoped for (R1, R2, R3, R5).

Quote 4: *“The International community, they do not pitch in enough”.* (R1)

A respondent pointed out the fact that the member contribution to SESAME is quite low in terms of their GDP and he mentions the membership in SESAME to be *“a bargain”* (R1). I would argue that there is a clear motive to be a member of such a cooperation if the member fee is low.

The running of a synchrotron facility is generally very expensive, but the cost of running SESAME is not as high as other facilities around the world. Despite the low cost, the member

states still struggle to finance SESAME. This gives away another interesting aspect of the research which is the fact that these countries would probably not afford or at least prioritize building their own synchrotron facility. SESAME provides a more cost-efficient opportunity for the member states to conduct synchrotron research. The financial dependency can force countries together if they wish to conduct synchrotron research. In this case, it seems like the incentive of having access to a synchrotron facility paired with the fact that for the member countries it is likely too financially expensive to conduct such research by themselves has led to a circumstance where these states cooperate.

5.2 Science diplomacy as a token of funding

Science diplomacy was in many instances not referred to as a motive for a state to be members, but instead as a token to receive more funds to SESAME. The respondents claimed in several different ways that the member countries as well as the international community was specifically intrigued by SESAME because of its science diplomacy aspect, and that it was one of the main reasons why international institutions funded it from the beginning (R1, R2, R4). This was somewhat in line with one of the assumptions that the international community did fund SESAME based on its approach to science for diplomacy. In the interviews, this perspective was voiced in a couple of different ways. One of the respondents described the science diplomacy aspect to be of a greater selling point for the respondent themselves personally, but also describes it as a selling point to receive funds from the international community. The respondent motivated this by mentioning Israel and Palestine, claiming that Palestine does not have enough scientific advancement to truly benefit from the research conducted at SESAME.

Quote 5: “So otherwise, why involve Israel? I mean, Palestine has very little scientific institution to benefit from, you know.” (R2).

The response from the respondents insinuates that neither Israel nor Palestine would be included in SESAME if it weren't for the science diplomacy aspect. It does seem that there was thought into the member constellation. In fact, the original idea stemmed from the ambition to put together Israeli and Arab scientists for this very reason (Rungius, Flink & Riedel 2022, p. 15). One respondent argued that this was necessary as a selling point as no one would fund the project before it had data of scientific success (R1). This resonates with the fact that there was not a lot of expertise in synchrotron radiation in the region before the installation of SESAME.

Another respondent brought up this fact and argued that their country was not ready to conduct any research at SESAME because of their lack of education infrastructure and knowledge in the field. They were still however strongly encouraged to join. Now while it is difficult to assume what exactly motivated the international community to donate to SESAME, we know from the theoretical framework that the EU did donate to projects they believed were for the good of humanity. Could this be a case of such donations? If the member states believe that science diplomacy was the encouraging factor that led to international donations, it would not be strange if they feel encouraged to remain a case of science diplomacy. As of now, the biggest issue that SESAME faces are financial (R1, R2, R3, R5, R6), because they cannot sustain themselves on purely member fees. Thus, there is an incentive to remain an attractive project to donate to.

However, it seems that most international donations to SESAME as of now are not state of the art, but instead consist of older models and used machines. While one respondent claimed that the international financial donations have been absent, another agreed and urged for more financial donations (R1, R5). If we want to see why the international community would donate to projects like SESAME, we can compare it to the research by López de San Román and Schunz. They argue that the European Union would donate to science diplomacy projects out of two main reasons, either because the projects strengthen the European Union in any way, or because the projects were in line with global benefits (López de San Román & Schunz 2018, p. 257). We saw similar logic in the case of CERN where the US supported the organizations because of political and economic incentives (Höne & Kurbalija 2018, p. 68). In the case of SESAME the international community could donate specifically for the peacebuilding aspect because they would benefit from less conflict in the region or because they would benefit from the research conducted at SESAME. Either way, the funding to SESAME was probably based on the fact that intentions of the organization were in line with what the international community could benefit from and stand by.

The fact that SESAME still sticks to the science diplomacy aspect despite it has proven unsuccessful might be because they believe the branding of it was the reason why they received funding in the beginning. A few scientists with a genuine interest for science diplomacy founded SESAME, but the idea of it being a peace generating cooperation might have been

further urged by the international community. Because of this very reason, the organization itself could in its own interest stick with the science for diplomacy title even though most of its member countries do not seem to believe in it. In fact, this could show that organizations will just like states act in their own interest, and certainly for their own survival (Mastanduno, Lake & Ikenberry 1989, p. 459).

Quote 6 “*I think as long as money keeps flowing in, SESAME will last.*” (R4).

5.3 The complexity of Israel as a member

During the interviews, mentioned several times by the respondents was the state of Israel and the fact that they have access to other synchrotron facilities around the world. The respondents mentioned that the synchrotron facilities in other areas of the world are better equipped and provide better research results (R1, R2, R4, R5). As I wanted to explore motives to be a member of SESAME, the fact that the Israelis have access to better facilities around the world makes their point of departure somewhat different compared to the other member states. If you have access to better research facilities, why join SESAME and pay member fees for something you could do better elsewhere? I followed up on this track when the opportunity presented itself which it did in most of the interviews. The involvement of Israel as a member state turned out to be of a bigger matter than what was initially thought and therefore, I have given it space in form of a theme from the data analysis.

There were mixed answers of why Israel would seek membership in SESAME, where the answers varied from geopolitical control, easy access, and research collaboration. A common response to the question was that SESAME is closer to Israel than any of the other synchrotron facilities that they have access to. Undoubtedly, conducting their research at SESAME would therefore make sense in terms of time management and saving money. In fact, SESAME is located only 1-2h from Israel (time to cross border included) which makes it a simple car ride away (R1, R3, R4). Joining SESAME based on the proximity to a synchrotron light source would correlate with the desire to improve one's educational infrastructure, as easier access and convenience can improve the amount of research output a country has (Kruss et al. 2015, p. 22-30; Hazelkorn 2017, p. 3). It would also mean that more researchers have a possibility to get their research projects accepted, as they have one more facility with the opportunity to

apply to. In the other member states where SESAME is the only opportunity to conduct research, the incentive to be a member is probably stronger to that of Israel, however proximity of distance could still be an important motive for Israel.

Another incentive for Israel to be a member of SESAME was articulated as a desire to contribute to knowledge sharing in the region (R1, R3). It was mentioned that Israel does possess more knowledge in synchrotron radiation than the other member countries, and that perhaps for them it was a motivation to share this knowledge with their neighbors (R1, R3, R4). Now this could be an incentive related to science diplomacy as sharing scientific knowledge is a key part of the theory (López de San Román & Schunz 2018, p. 247). However, if this is what motivates Israel it does have to include their participation at workshops and international cooperation in SESAME research projects. According to some of the respondents, Israel has a modest participation in SESAME when it comes to conducting actual science at the facility (R1, R2, R5). The council representatives however are described as very present in the council which could indicate that they themselves have an interest in the knowledge sharing (R2). However, one of the respondents pointed out that if there is a desire to share knowledge, there needs to be a bigger movement of a lot of researchers participating, not just the council representatives (R2). A couple of the respondents phrased it as an inclination to work with and contribute to its neighborhood and work for the greater good (R1, R3). Now this again is similar to science diplomacy arguments as working together for science is a key perspective in science diplomacy (López de San Román & Schunz 2018, p. 247).

Similarly, some respondents argued that Israel has a desire to participate in SESAME for regional insights and diplomacy (R2, R4, R5). It was argued that SESAME was seen as a token for Israel and its allies to gain insight into research conducted by other member states such as Iran and Pakistan (R4, R5). Now while it is hard to make such an assumption based on this it would not be completely unreasonable for a state to engage in an organization like SESAME for this reason. However, they would still have the possibility to review the research done at SESAME even if they were not members of the organization. Therefore, this motive is perhaps not very likely. Another reason that was reiterated between some of the respondents was that Israel would join SESAME because of their relationship to the west. It was said that Israel was requested to join by their allies or that they did not want to disappoint the EU (R2, R4).

Quote 7: *“I think at the beginning of SESAME, the European Union was very active in SESAME. I don't think they (Israel) wanted to disappoint them in a way.”* (R2).

Now this is perhaps a more likely reason to why Israel would join, especially based on the fact that SESAME did receive a lot of its initial funds because of its connection to science diplomacy. Now, we cannot surely know that this is the case since it entails an assumption regarding other organizations, but if we reason with the theoretical framework, there are definitely motives to why this could be the case. If we look at realism, states will invest in whatever they deem beneficial in terms of their position on the international playfield (Boehmer, Gartzke & Nordstrom 2004, p. 1). If Israel's disengagement in SESAME would disappoint the European Union it would perhaps rub their diplomatic relations in the wrong way, which would not be beneficial for Israel. This subject brings us to another recurring sentiment about Israel's participation in SESAME which is that their participation seems to be crucial to the science diplomacy aspect overall. As mentioned in quote 5 in 5.2, one respondent said that the participation of Israel was a part of selling SESAME as a matter of science diplomacy (R2). This sentiment is related to the assumption that Israel would join SESAME because it was requested or expected of them by the international community. The fact that they are members seems to have been crucial in securing finances based on the science diplomacy aspect. Relating this to the brief background on the various conflicts that have affected the region, Israel has been a key player in most of them (Gelvin 2014, p. 231-240). If they want a project to improve peace and foster cooperation in the Middle East, it would be foolish not to include Israel.

Some of the respondents implied that Israel, out of the greater good, would like to contribute to SESAME because of their advanced knowledge in synchrotron radiation. If this was the case, perhaps they should take on a more active position in the organization. Interestingly, this argument is similar to how the EU seems to reason, which occasionally chooses to donate to projects out of the sake of the greater good of humanity (López de San Román & Schunz 2018, p. 247). Looking back at the realist perspective of intergovernmental organizations, they could be seen as just another attempt to increase power on the international arena (Boehmer, Gartzke & Nordstrom 2004, p. 1). Israel is one of the most powerful states in the Middle East, and they

do seem to have the upper hand when it comes to synchrotron research. One could argue that there are similarities between how Israel sees themselves in the Middle East and EU in the world. Both seem to want to support organizations for the greater good and they are aware that they have vastly more knowledge and dominance in the field. Based on the results from the research, it does seem that Israel is motivated both by rational reasons, i.e., proximity to SESAME, but also because of an aspiration to help their neighboring countries. This could be because they see themselves as advanced to the point where they can help without risking their position on the international arena, but it can also be because they genuinely want to participate in regional growth. Despite Israel not having the best history with its neighboring countries, it could still benefit if the Middle East advances as a region.

To summarize, it is probably not likely that Israel would be a member of SESAME for the sake of observing other states. If this was the case, they could do this comfortably as observers or from their own home computers. Most probably Israel is motivated by the fact that SESAME is close in proximity. It could also be the case of pleasing the international community.

5.4 Is science diplomacy on its way out?

The fact that science diplomacy was not a main motive was quite clear in most interviews. It is neither perceived as very successful in fostering cooperation and tolerance between the member states. Most participants seemed as if science diplomacy was not their main motive much because of its lack of accomplishing what it was set out to. To start with, some of the respondents claimed that SESAME was lacking in international cooperations between scientists and mentioned that the perhaps most crucial collaborations between past/current conflict parts were not occurring (R2, R4, R5, R6). It was mentioned that while the Israeli representatives are active in the council, Israeli scientists do not make much use of the SESAME facility as discussed in chapter 5.3. It was also added that it is rare to see Israeli scientists participate at workshops (R2, R5). Because Israel has access to other more advanced facilities, it is not surprising that their attendance is lower than other countries. However, if Israel is not taking an active part, the peacebuilding aspect somewhat fails as Israel is a key component. Despite this, the other member countries can still contribute to enhanced cultural understanding between each other. This puts somewhat of an emphasis on the issue related to individual effort and science diplomacy. If individuals are not invested in the peace generating aspect, they will not go to such workshops if it is not in their best interest. If Israeli scientists

have better opportunities elsewhere, and they are not particularly motivated by building bridges between them and the Arab countries, it does not make much sense for them to attend. However, it was mentioned in one of the interviews that there are special grants awarded to scientists that find collaborations between Israelis, Jordanians, and Palestinians (R1). Such financial incentives might trigger a desire for an individual to seek such collaborations, but the finances need to come from somewhere.

As expected, past and current conflicts still take up space in SESAME and provide somewhat of a roadblock to the science diplomacy aspect. A practical issue that was brought up as an effect of the conflict is the travel restrictions posed on Palestinians (R2, R4). Especially those traveling from Gaza had had a particularly hard time attending certain workshops. If they cannot attend the workshops due to these restrictions, efforts to build bridges between the different communities backslide. To add, it also exhausts the knowledge sharing aspect if Palestinians cannot take part in the workshops. Some respondents reported that there have been instances where researchers do not want to cooperate with Israelis. This sort of issue does not seem to be occurring in the council, but instead among the researchers and in the workshops. Another respondent argued that while scientists can always agree on science, they themselves would not wish to cooperate with Israeli scientists living in settlements. To add to this, based on the response I received from a handful of the respondents, there seems to be an existing stigma of cooperating with Israelis. For instance, some were not comfortable having their picture taken with Israeli scientists, and others were not open to cooperate on scientific projects unless they were initiated by their own state. If the projects were initiated by the scientists themselves, it could negatively impact them in their communities. Overall, the conflict seems to clearly affect the ability to cooperate.

Quote 8: “The problem is that it's very difficult to divorce science from politics in the region. I mean, there is this Israeli government, for example, and several governments under Netanyahu, that have been oppressive for the Palestinians. And also repressive even for the whole region. It's very difficult to have the warmth of cooperating under this environment.” (Anonymized)

As concluded in the theoretical framework and summarized by my theoretical assumptions, a conflict of this magnitude cannot be disregarded as it continues to involve and affect individuals. The Israel-Palestine conflict has in many instances triggered ethnic violence between Arabs and Israelis (Python, Brandsch & Tskhay 2017, p. 87). And we can clearly see that the conflict affects the ability for individuals to cooperate in SESAME. Pairing this with the previous research by Rungius, Flink and Riedel, we can see that they have found similar findings in their research (Rungius, Flink & Riedel 2022, p. 22). This also coincides with the criticisms against liberal institutionalism and how it puts too much weight into individual contribution and seems to disregard the importance of identity in ethnic conflicts. To further the arguments by Dorussen and Ward, if the right attitude is not there, the peacemaking efforts will simmer away (Dorussen & Ward, 2008, p. 191). In this case, the “right attitude” would be for the individuals to completely disregard the history between Israel and Palestine, and the ongoing violence between the two groups, something that would be incredibly hard and probably unlikely.

Another issue that might obstruct the operation of SESAME is the constellation of member countries. In this case, science diplomacy has become a two-edged sword. The original member countries were approached because of the desire to have more cooperation between Arab and Israeli researchers. Later, other countries joined the project which was welcomed based on their location in the Middle East, but also because their history contributed to the peacebuilding aspect. However, the very fact that many of the members have current conflicts has led to them being unable to pay their member fees, because of international sanctions or lack of budget (R1, R2, R4). One respondent also suggested that the presence of certain member countries led to other prospective member countries not joining because of the conflict history. If this were the case, it confirms what Rungius, Flink and Riedel concluded in their research (Rungius, Flink & Riedel 2022, p. 24). The issue of member states not paying their fees has led to a shorter suspension of their possibility of conducting research at SESAME (R2). If this continues, the future of SESAME is not looking bright, and more needs to be done to attract new members that can bring money into the project.

Not all respondents disregarded the science diplomacy aspect as a motive to be a member of SESAME. Science for diplomacy, and especially diplomacy for science was recurrently

reiterated as a personal motivation for the representatives and the researchers. Several of the respondents argued that it was the Arab-Israeli cooperation that intrigued them from the beginning and that it was a crucial selling point to them and their states (R1, R2, R3).

Quote 9: *“The science building, science diplomacy and, you know, cooperation. It was sexy for everybody really. Everybody wanted to host SESAME.”* (R2).

It was also mentioned that scientists in particular make good players in science diplomacy because they are more focused on science rather than politics. A common argument highlighted by many of the respondents was that scientists are there to conduct science, and do not care about the other persons national or ethnic belonging as long as they can produce good science. Scientists are there in their professional role, and they can all agree on the rules of science (R1, R3, R4).

Quote 10: *“All the members are extremely friendly and the atmosphere is phenomenal. Mostly because I guess that most of them are scientists, at some capacity.”* (R1).

One respondent brought up an anecdote that he had seen a lot of scientists working together flawlessly but the respondent had lost hope in the interaction between scientists bringing peace to the region (R4). While science diplomacy does not claim to make peace between countries waging war against each other, the anecdote is somewhat telling of the perhaps small impact that science diplomacy has. What this says is that a handful of scientists are there to work for science diplomacy and are motivated by the peacebuilding aspect. It also highlights the fact that some researchers are there to just do research, and not to reflect upon politics. While these researchers do not care about politics or ethnic belonging, neither do they lobby for cooperation. They just exist in an institution whose ambition is to foster bridge building and mutual understanding. If the researchers are not exposed to such efforts, they will at best be a part of diplomacy for science, not science for diplomacy. In fact, neither respondents claimed that SESAME had succeeded in building peace in the Middle East, which probably was too much to ask given its so far short lifespan.

While some argued that the science diplomacy aspect is successful because SESAME brings scientists together, others claimed that the scientists that come to SESAME are already convinced from the start. They were described as beforehand accepting differences of nationalities and therefore, their presence in SESAME did not do anything to foster good relations. Others argued that even if scientists can agree across borders, they do not have enough power to convince their states to act more peacefully. Perhaps a rather cynical perspective, but also an important angle given the fact that most member states are authoritarian states. In addition to that, a respondent highlighted the fact that science diplomacy must go beyond SESAME to make an actual difference (R2).

Quote 11: *“Even if you bring 10,000 synchrotrons, they're not going to bring peace ... If you are going to create a minority, an island of human beings who are willing to have peace, you haven't brought peace to the region, you have brought peace among a certain minority of individuals.”* (R4).

The overarching sentiment that I can draw from these statements is that science for diplomacy is, what Rungius, Flink and Riedel concluded, perhaps not so successful in the case of SESAME. I would argue that all instances where science diplomacy fails is related to the fact that it puts too much weight on the individual. To draw back on the theoretical framework, Dorussen and Ward criticize liberal institutionalists for the fact that intergovernmental organizations fail at peacebuilding if the actors are not playing an active role in it themselves (Dorussen & Ward, 2008, p. 191). Here we can see clear similarities to the results of this study. If Israelis do not participate in the international workshops, and if there are no international workshops at all, the only engagement will be between national citizens. Similarly, if individuals do not want to cooperate across borders, specifically with individuals where bridge-building is needed, science for diplomacy will fail. We do know why this is the case because people identify with the conflict whether or not we want them to (Python, Brandsch & Tskhay 2017, p. 87).

Even though several of the respondents did say that they were personally motivated by the peacebuilding aspect of SESAME, it is difficult to see how this can transition into broader peacemaking. Not to say that an institution like SESAME will end conflicts in the Middle East,

but perhaps it should at least strive to branch out from the group of individuals that are already convinced by the positive outcomes of cooperation.

Perhaps the reason why several respondents claimed they were personally motivated by the idea of science diplomacy is the same reason as why it does not make sense in the organization as of this time. When SESAME was conceived, intergovernmental organization and international cooperation were as hot as ever, and we can see this in quote 9. Not only were individuals motivated by peace and collectivism, large organizations and states were as well (Fioretos 2019, p. 20). The process of launching SESAME took almost two decades and the political times had shifted when the first beam line was inaugurated. By then, the desire to cooperate and to move in tandem was less fascinating. What states as well as individuals choose to prioritize now is less in line with what the international community wants, and more in line with the national interest of states (Sandrin 2021, p. 227). Now, since SESAME has only been operating for six years, it is difficult to argue that the motives have shifted to more selfish ones, but we can surely say that science diplomacy is not a priority. Could this mean that science for diplomacy is on its way out of SESAME?

6. Conclusions and discussion

This thesis has examined what motivates states to be members of SESAME through conducting interviews with council representatives. The findings of the thesis indicate that the predominant motive was the pursuit of gaining access to the facility itself and enhancement of research infrastructure. The fact that SESAME provides the Middle East with its only synchrotron facility showcases the infrastructural importance of the organization. If most of the member countries cannot access other synchrotrons, SESAME makes a great alternative to conduct research which can eventually benefit the countries themselves. The state of Israel varies slightly in motive since they do have access to other, better synchrotrons around the world, thus they were not as clearly motivated by the ability to conduct research. However, the proximity to SESAME was expressed as a motive which can be defined as enlargement of their research infrastructure. Another important finding was that science diplomacy was in some cases voiced as a personal motive to take part in SESAME. The data showed that both researchers and council representatives were in some instances motivated by the aspect of Arabs and Israelis working together for the sake of science. Simultaneously it was also

expressed that the conflictual past involving some of the member countries had affected the possibility of cooperation to some extent. An interesting find was the fact that science diplomacy was to some extent used as an incentive to gain international funding. This could point towards the fact that SESAME itself has its own interest of self-preservation as finances are simmering down.

Concluding the findings of the research we can see that states mainly cooperate when they can gain something out of it. This correlated to the first assumption made in chapter 3.3. The fact that a synchrotron facility is very expensive to run makes it difficult for states to pursue such research in national facilities. In the case of SESAME, states with a conflictual past and present do cooperate because they get access to science that they would not otherwise have. The advantage of being a member of SESAME apparently weighs so heavy that these states, who do not otherwise cooperate, do under this circumstance. Going back to the realist perspective on state decision making, it seems like national benefits do weigh heavier than strengthening relationships to other states. If the relationships to the other states were prioritized in this case, we would probably see more research projects involving multiple member states. Preferably between states that are in conflict or have poor relations. However, we can also see how liberal institutionalism is somewhat right in their idea as well, since in the case of SESAME, states cooperate because they have enough national incentives to do so. Hopefully the international community can learn that states can cooperate if there is a strong enough incentive to do so, and in that case the incentive should lead to national benefits for each state involved.

Furthermore, there is an important discussion to be held on what implications the result of this thesis might have on science diplomacy theoretically. As I discussed as a theoretical assumption, science diplomacy has some flaws and apparent factors it needs to consider to be successful in the future. If the success of science diplomacy is too dependent on the individual's will to participate, it can be hard to achieve what it is set out to. There will be cases where states cooperate under science diplomacy where the involved individuals are all personally invested in the peacebuilding aspect, but there will also be projects where this is not the case. In addition, if science for diplomacy should succeed in fostering mutual understanding, it must reach individuals that are not already convinced. Furthermore, if science for diplomacy should

truly find success in actual peacebuilding it needs to create spillover into a broader set of institutions.

Noteworthy to the understanding of science diplomacy is that it does not seem to put much consideration into how deeply some conflicts can affect the individual. This critique refers mostly to efforts of science for diplomacy where the aspiration is to bring scientists together to build a better understanding for the other. These efforts are made to achieve positive outcomes in the field of peacemaking but can at its worst lead to further segregation between ethnic groups. Conflicts that cut so deep into society will, and have, affected the ability for individuals to cooperate in the case of SESAME and will most likely do the same in similar projects. We cannot disregard the impact that ethnic conflicts have on the individual. Especially when it comes to an individual's desire and capability to cooperate with someone who in their opinion is a part of an oppressive system.

Perhaps science for diplomacy should be more confronted by its faults, and in the case of SESAME, perhaps it should be disregarded. If they should continue to strive towards science for diplomacy, there is a need for actual efforts in this direction. Those efforts need to come from within, and they need finances. In the case of tough times, perhaps SESAME should adapt to a broader sense of diplomacy for science, where science building and knowledge sharing is the priority. Diplomacy for science should still have the ability to trickle down into improved relations, but it should be a secondary effect to putting science first.

For future research there is a need for further understanding of SESAME as well as cooperation in the Middle East as a whole. Even though all countries and conflicts are unique, researching other post-conflict cooperations might further the understanding of how we can achieve collaboration between polarized states or individuals. If we get a broader understanding of how science diplomacy expresses itself in cooperations post-conflict, we can use its merits and pitfalls to our advantage in peacebuilding and policymaking.

SESAME as well as many similar projects are in deep need of financial support, and if we could further research within the field of international donations perhaps it would be easier for these projects to retrieve financial aid. Research on why states donate to projects that are not

directly related to the basic development of a country could showcase which incentives weigh heaviest. Overall, the international science community would benefit from any attention given to their benefits to society. If the majority of society as well as politicians would understand how science can be beneficial to their country perhaps we would see more investments into projects like SESAME.

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Appendices

i. Interview guide

General questions:

1. *What were the reasons your state decided to join SESAME?*

Questions related to liberal institutionalism:

2. *How do you think the cooperation is going in SESAME?*
3. *Do you think SESAME has brought more peace or increased cooperation in the middle east? Explain why/why not.*
4. *Is there any conflict that you would say affects the cooperation in SESAME?*

Questions related to realism:

5. *How does SESAME contribute to your country?*
6. *Do you think that SESAME is an important part of your infrastructure?*
7. *Do you think that your membership in SESAME has prevented brain drain?*
8. *Do you think that there are any economic motives in being a member of SESAME?*

Other questions:

9. *Do you think that SESAME is more beneficial to peace and cooperation or the scientific infrastructure in the region?*
10. *Why do you think other states have joined SESAME?*
11. *Why do you think your state is still a part of SESAME?*
12. *What do you think of the future of SESAME?*

ii. Invitee email

Dear X,

I hope this email finds you in good health.

My name is Agnes Selnes and I am currently pursuing a masters degree in Global Studies at Lund University in Sweden. For my masters thesis, I am investigating SESAME and its member states, why they joined and why they remain. Last semester I did an internship at the Swedish Embassy in Jordan where I made a study visit to SESAME together with the Swedish ambassador Alexandra Rydmark. I met with several key individuals of SESAME, including professors Tord Ekelöf and Sverker Werin (Swedish observer delegates to SESAME). I was intrigued by the peace aspect of SESAME, which encouraged me to write my thesis on the subject.

During my research, I realized that there should be more aspects to SESAME than science diplomacy, much based on the fact that very little research has been done on case. I am exploring SESAME and its member states from the perspective of science diplomacy and education/research infrastructure. I have chosen interviews as the main method of my study, and aim to interview the delegates in the SESAME council. This is why I would like to ask you whether you would be available for an interview of approximately 1h during this or next week?

I would highly appreciate the opportunity to speak to you and look forward to your response. Should you have any questions concerning my research, please do not hesitate to contact me.

Many thanks and yours sincerely,

Agnes Selnes

Masters student at Lund University