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## Table of contents

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The Effect of the Increase in the Price of Building Materials and Works on the Price of Real Estate Insurance <b>Radek Kratochvíl, Vladimír Douda, Mária Jánešová</b>	<b>01 - 05</b>
Reflections on Constructive Disagreement: Negotiating Effectively and Avoiding Destructive Disputes <b>Hershey H. Friedman, Deborah S. Kleiner</b>	<b>06 - 13</b>
Statistics as Science and Art: The Importance of NNT (Number Needed to Treat) and the Danger of Overreliance on Statistical Significance <b>Simcha Pollack, Hershey H. Friedman, Taiwo Amoo</b>	<b>14 - 21</b>
Marketing Meal Kits: From Consumer Agency to Corporate Social Responsibility <b>James Moir, Majd Megheirkouni, Kathy-Ann Fletcher, Andreea Oniga</b>	<b>22 - 33</b>
Policing the Discourse: The Discursive Anatomy of a National Police Strategy Report <b>James Moir, Corinne Jola, David Scott, Jan Law</b>	<b>34 - 46</b>
Economic Consequences of Climate Change in the Arctic Region <b>Vladimír Douda, Radek Kratochvíl, Mária Jánešová</b>	<b>47 - 63</b>

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# The Effect of the Increase in the Price of Building Materials and Works on the Price of Real Estate Insurance

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## Abstract

Over the past 2 years, there has been a significant increase in the prices of building materials, which has led to a significant increase in the prices of the implementation of all construction works. This fact has a fundamental influence on the price of property, as well as on the price of insurance for property. Of course, this also applies to insurance prices for existing properties. Property owners must take this increase into account when renewing their insurance for the following years. This article is based on the statistics of the Czech Statistical Office and determines the level of necessary insurance increases for adequate real estate insurance to prevent unwanted underinsurance of existing real estate.

**Keywords:** price increase, building materials, construction work, insurance

## Introduction

Recently, we have noticed a sharp increase in the prices of building materials. This has a major impact on the price of new buildings and at the same time on the current value of existing buildings. This article focuses mainly on buildings intended for housing, with one or more housing units. Most real estate owners insure these buildings. This insurance is taken out when a new house is built. For existing buildings, it is necessary to regularly index the insurance in relation to the current price of the property. It is of course undesirable to have the property undervalued. In other chapters, a comparison of the prices of building materials and construction works since 2015, the price indices of constructions and the determination of real estate insurance prices in relation to current prices is made. This is primarily focused on the years 2021-2022, when there was a sharp increase in the prices of building materials.

## Price indices of constructions

According to the statistics of the Czech Statistical Office (hereinafter referred to as "ČSÚ"), the increase in the price indices of constructions has regularly been around 1% per quarter since 2015. In this evaluation, we are considering apartment buildings (one and more) according to the CZ-CC classification (ie codes 1110-1130). But this fact changed fundamentally in the 2nd quarter of 2021, when the increase in prices increased to the range of 3-5% per quarter. Indices according to CZSO statistics are processed for the decisive year 2015, when the value is set at 100. The sharp increase of this price index for the period 2020-2022 can be seen from Table 1 below.

Name	One-dwelling buildings	Two-dwelling buildings	Three- and more dwelling buildings	Other residential buildings
2015/2	99,9	99,9	99,9	99,9



<b>2015/3</b>	100,2	100,2	100,2	100,2
<b>2020/1</b>	114,8	114,6	114,1	113,5
<b>2020/2</b>	115,5	115,4	114,9	114,3
<b>2020/3</b>	116,2	116,1	115,7	114,9
<b>2020/4</b>	116,5	116,5	116,0	115,2
<b>2021/1</b>	117,6	117,4	117,0	116,2
<b>2021/2</b>	120,3	120,1	119,6	118,6
<b>2021/3</b>	124,9	124,6	123,9	122,7
<b>2021/4</b>	127,8	127,4	126,4	125,3
<b>2022/1</b>	133,2	133,0	131,6	130,4
<b>2022/2</b>	138,3	137,7	136,2	135,1
<b>2022/3</b>	141,5	141,2	139,8	138,4

Table 1: Price indices of constructions (2015 average =100)

### Industrial producer price

According to ČSÚ statistics, the increase in the industrial producer price indices since 2015 was very low and gradual. The evaluation refers to industrial producer price indices according to the CZ-CPA 2015. Within the framework of the comparison, some basic items in the field of building materials such as wood, cement, lime, concrete and plaster products, steel pipes and profiles and others. But a very drastic increase in prices occurred in 2021, when we observe a year-on-year price increase of around 10-20%. The indices according to ČSÚ statistics are compiled for the decisive year 2015, when the value is set at 100. The sharp increase in this price index can be seen from Table 2 below. The table gives us a comparison of the average yearly indices.

Name of group		Wood and of products of wood and cork, except furniture	Clay building materials	Cement, lime and plaster	Articles of concrete, cement and plaster	Tubes, pipes, hollow profiles and related fittings, of steel	Structural metal products
2015 average = 100 (average from the beginning of the year)	<b>2015</b>	100,0	100,0	100,0	100,0	100,0	100,0
	<b>2016</b>	99,1	105,4	100,1	101,0	92,7	98,8
	<b>2017</b>	100,6	110,8	100,2	102,1	99,3	102,7
	<b>2018</b>	103,1	121,2	100,6	105,0	105,2	104,9
	<b>2019</b>	103,4	134,1	106,7	113,2	101,8	111,1
	<b>2020</b>	100,7	129,1	112,0	116,3	100,0	110,5
	<b>2021</b>	126,8	135,7	115,4	119,0	129,2	129,7
Months of 2022	<b>01/2022</b>	142,2	157,8	126,0	132,4	139,8	147,9
	<b>11/2022</b>	167,4	205,1	169,5	147,3	154,0	156,3

Table 2: Industrial producer price (2015 average =100)

## Construction work price indices

According to ČSÚ statistics, the increase in construction work price indices since 2015 has been regularly in the range of approximately 1-4% per year. However, this fact changed fundamentally at the turn of 2020/2021, as shown by the long-term point of view on price index of construction works, compared to the 2015 average. Indices according to ČSÚ statistics are compiled for the decisive year 2015, when the value is set at 100. Annual comparison, resp. the increase in the price index of construction works can be seen from Table 3 below.

Year	Avg from the beginning of the year (publication 011041)
2015	100,0
2016	101,1
2017	102,8
2018	106,2
2019	111,0
2020	115,1
2021	120,9
01/2022	127,8
01/2022	139,9

Table 3: Long-term point of view on price index of construction works (2015 average =100)

## Property insurance prices

This drastic increase in the prices of building materials and construction works has a major impact on the price of real estate. This is taken into account when building new buildings, but of course it also affects the price of existing properties. Persons or companies that insured their property several years ago should update their insurance. Otherwise, they run the risk of underinsuring the property. This is very risky in case of damage. According to automatic applications used by insurance companies, for example, the insured value of a family brick house in Prague (with a gable roof) and an area of 100m<sup>2</sup>, with 3 residential floors and a basement, is approx. 10 mil. CZK. In the years 2015-2017, the price, according to the determination of the insurance company, was approximately 8 mil. CZK. In the Table 4 below, we illustrate the prices of insurance for real estate worth 8 - 12 mil. CZK. Two large insurance companies in the Czech Republic were chosen to compare property insurance prices.

Year	Insurance company	Annual insurance depending on property value	
		8 mil. CZK	12 mil. CZK
2015-17	Generali (Česká Pojišťovna) variant <i>Exclusive</i>	8 200 CZK	<i>undetermined</i>
	ČSOB Pojišťovna variant <i>Premiant</i>	7 600 CZK	<i>undetermined</i>

2022	Generali (Česká Pojišťovna) variant <i>Exclusive</i>	10 900 CZK	15 600 CZK
	ČSOB Pojišťovna variant <i>Premiant</i>	9 775 CZK	13 800 CZK

Table 4: Annual property insurance in the Czech Republic, values shown in CZK.

## Results

When insuring real estate, it is important to pay attention to the current price, which in case of damage will cover the entire value of the given building. When insuring newly built buildings, we insure the property at its current price. If we have an older property, it is necessary to constantly monitor the current market prices of the properties and the price of building materials and works, which have a major influence on the current price. The Table 5 below shows us that the existing property, which we insured in 2015-2017 for a price of 8 mil. CZK, must be insured today for a current price of 12 mil. CZK. This results from calculation applications used by insurance companies to determine current real estate prices. These are regularly updated with regard to the prices of building materials and the prices of construction works. So, we currently pay approximately twice as much annual insurance for the same property than in 2015-2017. This is evident from Table 5 below.

Year	Insurance company	Range of annual insurance depending on property	
		8 mil. CZK / 2015	12 mil. CZK / 2022
2015 vs 2022	ČSOB Pojišťovna - Generali (Česká Pojišťovna)	7 600 - 8 200 CZK	13 800 - 15 600 CZK

Table 5: Annual insurance (range) for real estate in the Czech Republic, values given in CZK.

## Conclusion

In conclusion, it is necessary to state that it is very important to regularly monitor the current market prices of real estate as well as the prices of building materials and works. It is advisable to have the insurance recalculated by the insurance company at least once a year. In the event of a major price fluctuation, it is desirable to insure the property at the current market price, taking into account the current prices of building materials. It is very important that the insured property is not underinsured.

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## **Reflections on Constructive Disagreement: Negotiating Effectively and Avoiding Destructive Disputes**

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### **Abstract**

Any organization which finds a way to allow people to disagree constructively will thrive. Unfortunately, often disagreements become destructive and hostile, and disputes get out of hand. The following are some principles that should be followed in all relationships: Avoid blaming the other party; Respect one's debating partner; Possess humility and patience; Understand the viewpoint of one's debating partner; Knowing that truth is what matters, not winning the argument; Eliminate the need-to-win strategy; Be aware of cognitive biases.

**Keywords:** Management, Debate, Negotiation, Argument Techniques, Constructive Argumentation

### **Introduction**

Conflict often results when people disagree or have different opinions on some subject. These disagreements can be constructive or destructive. This is why knowing how to disagree constructively, in a way that does not result in lasting wounds and grievances, is vital in many areas of life, including business. Effective negotiations require the ability to debate fruitfully. Diversity of opinion is necessary if a team is going to function well and achieve meaningful results. Racial, gender, and ethnic diversity must be factored in and may contribute to the differences of opinion. Unanimity of opinion, where everyone has the same point of view, does not guarantee constructive, progressive debates. Imagine a Supreme Court consisting of nine Clarence Thomases (Paul, 2022). The goal is to get people to express diverse opinions and then engage in constructive discussions. However, it is easy for people with different views to engage in ugly battles. Destructive conflict makes it virtually impossible for workplace teams to function effectively.

The key to effective utilization and optimization of diversity of opinion is to disagree constructively. Many colleges and universities offer courses and programs in conflict resolution and negotiations because this is a valuable skill in the workplace and life. This is especially important in the volatile post-factual age we live in today. According to Harari, the problem of choosing between truth and power can result in conflict because facts can lead to disunity. Sometimes it is falsehoods that keep people united.

Truth and power can travel together only so far. Sooner or later they go their separate paths. If you want power, at some point you will have to spread fictions. If you want to know the truth about the world, at some point you will have to renounce power. You will have to admit things — for example, about the sources of your own power — that will anger allies, dishearten followers, or undermine social harmony (Harari, 2018, para. 22).

Productive arguing requires specific soft skills that include critical thinking, communication, listening, and interpersonal skills that most employers believe new college graduates lack. About 73% of employers assert that they have difficulty finding students with these necessary soft skills (Wilkie, 2019). Some people suffer from need-to-win personalities and will use any strategy or approach to ensure they are the victor in disagreements. This temperament is a disaster when trying to reach a compromise or settlement and turns minor disputes into ugly altercations.

Many wars could have been avoided if the parties had used constructive arguing to negotiate; civil wars are the most prevalent types of wars we see today (Kriesberg, 2015). Certainly, WWI could have been averted if the parties had understood the value of healthy disagreements. Many scholars believe that toxic polarization and hyper-bipartisanship threaten American democracy and might result in a civil war (Marche, 2022; Walter, 2022). This is ironic, given that the United States was founded on compromise (Friedman and Kleiner, 2022; Walter, 2022).

Gunther (2017) describes ten need-to-win fighting strategies. They are "The Silent Treatment; Invalidation; Escalation; Piling on Other Issues; Character Assassination; Arguing from a Distance; Hitting Below the Belt; Martyrdom; Intimidation; and Feigned Indifference to Outcome." What they all have in common is that disagreements are handled with a lack of mutual trust and respect.

Several of the above strategies are used when the need-to-win partner desperately wants a victory and does not care about the consequences. This individual might bring up irrelevant issues from the past to deflect attention from the current concern ("Piling on Other Issues"). Some individuals with a need-to-win will use ad hominem personal attacks or even attribute false statements to their partners, allowing them to mock or gaslight them.

Gunther asserts that the proper way to disagree is to carefully listen to what the other party has to say and understand it. If it is clear that one of the parties has fallen into the need-to-win trap, end the debate, or it will result in a severe conflict. Gunther opines that need-to-win approaches to debating are frequently unconscious behaviors. People can and should train themselves to avoid using this fighting style.

Disputes and arguments do not have to be acerbic; it is essential to understand the other party's viewpoint and use positive terms in stating one's position; it is also helpful to recognize areas of agreement (Gino, 2020). Constructive fighting may bolster a relationship. John Gottman, an expert on relationships, uses the "Four Horseman of the Apocalypse" metaphor to describe the communication styles that can predict the demise of a marriage. These "horsemen" are criticism, contempt, defensiveness, and stonewalling (Lisitsa, 2013).

Couples who stonewall, which means totally avoiding arguing, or who, when they do disagree, are contemptuous of each other by being caustic, sarcastic, condescending, and making it apparent that they have no respect for what their companion is saying are fighting destructively. Being defensive or blaming as a way of dealing with criticism also makes it clear that one party refuses to accept responsibility and appreciate the other party's viewpoint. Destructive arguing is

unproductive and does not bode well for the couple's future.

It has been proposed that constructive arguing, coined by some scholars as "commitment through contestation," fosters a healthier and more engaged work environment (Price and Whiteley, 2014). Employees are encouraged to constructively debate workplace values and decisions, thereby enhancing their commitment to the corporate culture. Schormair and Gilbert (2021) identify a five-prong procedural framework toward what they term "discursive justification." The goal of this process is to discourage stakeholder value dissensus and encourage stakeholder value consensus.

## **Cognitive Biases**

Ariely (2008) uses the latest research to demonstrate that people are predictably irrational; they use heuristics or rules of thumb to make decisions. Heuristics may be seen as "cognitive shortcuts" that humans utilize when there is much-required information to collect to make a correct decision, but time and/or money are limited. Using rules of thumb may help a person make quick decisions but might lead to a systematic and predictable bias. Many of these biases interfere with constructive negotiations (Caputo, 2013). To have productive discussions, one must be aware of the various cognitive biases that interfere with rational decision-making. The following are just a few examples of relevant cognitive biases.

### **1. Certainty Bias/Overconfidence Bias**

Kolbert (2017) highlights that "People believe that they know way more than they actually do." This overestimation of the knowledge we possess is known as the overconfidence effect. Sloman & Fernbach (2017) also speak of the "knowledge illusion"; we do not understand how little we actually know. With certain kinds of questions, answers that people think are "99% certain to be correct" turn out to be incorrect 40% of the time (Kasanoff, 2017).

Burton (2008a, 2008b), a neurologist, believes that human beings cannot avoid certainty bias —a "potentially dangerous mental flaw" — but can moderate its effect by realizing that feelings of certainty are not based on logic and reasoning. These feelings result from "involuntary brain mechanisms" that have little to do with the correctness of a belief. This is why intuitions, hunches, premonitions, and gut feelings must be empirically tested. Critchley (2014) relates the concept of uncertainty to a tolerance of others and attributes the existence of Auschwitz to certainty bias. Lloyd (2017) also feels that moral certainty is dangerous and a threat to humankind. It should not be surprising that expert predictions usually turn out wrong (Kahneman 2011, pp. 218-219, Tetlock, 2005).

### **2. Confirmation Bias**

Once people form an opinion, they tend to only listen to information supporting their preconceptions and reject information not in conformity (Heshmat, 2015). People may have the ability to see flaws in their opponent's arguments, not their own opinions. Given the enormous amount of research available to scholars, it is not difficult for a researcher to cherry-pick the literature and only reference studies supporting a particular opinion (confirmation bias) and exclude others. Even if individual studies are done correctly, this does not guarantee that a

researcher writing a state-of-the-art review paper will write an accurate, undistorted synthesis of the literature. Indeed, Celia Mulrow demonstrated that many review articles were biased (Goldacre, 2011).

### **3. Fundamental Attribution Error**

The fundamental attribution error refers to the tendency of a person observing another person's behavior to attribute it to internal factors or personality and to underestimate the effect of situational causes (i.e., external influences). Their own behavior, however, is attributed to external situational factors. In other words, we believe others do what they do because of their internal disposition. Thus, if you see someone fighting with another person, you will probably attribute it to the fact that the person has a violent temper, not that he is being mugged.

### **4. Loss Aversion**

The pain of losing something we own outweighs the joy of winning by as much as two to one. Thus, for example, the pain of losing \$1000 that you currently have is about double the intensity of the joy you would experience getting \$1000. Thus, individuals are more willing to engage in risky behaviors or even act dishonestly to avoid a loss than to make a gain (Schindler and Pfattheicher, 2017).

### **5. Status Quo Bias**

Status quo bias is a cognitive bias that occurs when people favor the familiar and prefer that things remain the same rather than opting for change. It also manifests itself when inertia results in people continuing with a previously-made decision rather than trying something new; inaction is easier than making decisions. People are more upset by the negative consequences of a new decision than by the effects of not making any decision (Kahneman and Tversky, 1982).

Taylor (2013) highlights several ways to reduce these biases, which can result in poor decision-making. First, one must be aware of the different types of biases, and by studying and understanding them, one can reduce their impact. Second, he asserts that collaboration is probably the most powerful tool for minimizing cognitive biases. Kahneman speaks of "adversarial collaboration," which means bringing together two researchers who disagree and having them conduct an experiment jointly as a way to reduce confirmation bias (Matzke *et al.*, 2013; Kahneman, 2012). This is why it is crucial to have diverse groups (groupthink is also a bias) to work together to make a decision.

## **Battles Between the Academies of Hillel and Shammai**

Hillel the Elder, who lived during the last century BCE and the early first century CE, was appointed Nasi (President of the Sanhedrin) in about 30 BCE. Hillel and his descendants served as heads of the Sanhedrin for the next fifteen generations. Hillel's school, known as Beit Hillel (literally the house of Hillel), disputed the views of the School of Shammai, whose opinions were usually much more textually rigid and harsh than those of the Hillelites, who were more flexible. The Talmud records more than three hundred Jewish legal, philosophical, and theological disputes between the two academies.

Hillel's influence may have been much broader than initially thought because he and his



followers influenced more than just Jewish thinking. Falk (1985) asserts that Jesus followed the views of Hillel and that his criticism of the Pharisees was directed at the School of Shammai. Falk (1985, p. 124) states that the Shammaites took control of the religion between 20 BCE and 10 BCE. There seems to have been a theological war between the two schools that resulted in the physical confrontation of the Hillelites by the Shammaites (Jerusalem Talmud, Shabbat 1:4; Lau, 2007, pp. 223-224). There was to be a vote on many crucial laws, some concerning ritual purity, and many other laws, due to their concerns over the possible destruction of the temple and the continuity of the Jewish people. In order for the Shammaites to ensure that they were in the majority when these laws would come to a vote, they prevented the Hillelites from joining the voting quorum. There is an argument about whether they just used threats (see *ibid*: Korban HaEdah and Pnai Moshe) to prevent attendance or killed Hillelites. (The Shammaites, using swords, succeeded in preventing many Hillelites from voting, thereby becoming the majority, and passed eighteen stringent measures (sometimes referred to as the "18 ordinances" or "18 decrees"). These measures erected a ritualistic barrier between Gentile and Jew, making it difficult for the two groups to socialize (Schmidt, 2001, pp. 140-141). The Babylonian Talmud (Shabbat 17a), referring to when the Shammaites controlled the religion, notes: "that day was as bad for Israel as the day on which the Golden Calf was made." On the day the Golden Calf was made, there was a civil war, and brother killed brother (Exodus 32: 27).

The early Christian Jews would have been unhappy with a religion controlled by the Shammaites. Saul of Tarsus (Paul) clearly stated (Acts 22:3) that he was a disciple of Rabbi Gamliel, a leader of the Sanhedrin and grandson of Hillel (Herford, 1962, p. 35). Hillel advocated loving peace and loving all people, not only Jews (Avot 1:12). Paul would certainly have felt extremely comfortable with this philosophy. Thus, Hillel was responsible for spreading values such as ethical monotheism throughout the Western world. Not only Jews but many Christians recognize that they are Hillelites. The following sayings of Hillel demonstrate his great compassion and love of humanity.

"Be among the disciples of Aaron, loving peace and pursuing peace, loving people..." – Hillel (Avot 1:12).

"'What is hateful to you, do not do to your fellow-man,' that is the whole Torah, the rest is commentary." – Hillel (Babylonian Talmud, Shabbos 31a)

"If I am not for myself, who will be for me? But If I care only for myself, what am I? If not now, when?" – Hillel (Avot 1:14)

"Do not judge your fellow human being until you have been in his place." – Hillel (Avot 2:4)

The Talmud explains why the law follows the School of Hillel and not the School of Shammai. Interestingly, it required divine intervention to establish the law. Typically (as the famous Oven of Akhnai story demonstrates; see Babylonian Talmud, Baba Metzia 59b), the Sages ruled that 'It [the Torah] is not in Heaven' (Deuteronomy 30:12), which means that since the Torah was already given at Sinai, we therefore pay no attention to Heavenly voices. It is apparent that the Talmud establishes a paradigm for constructive arguing using the following narrative, and they

felt that in this case, it was necessary to heed the Heavenly voice. This would especially be true if the followers of Shammai resorted to violence to win the debates.

For three years the School of Shammai and the School of Hillel debated each other. These said the *halacha* is in agreement with our view, and these said the *halacha* is in agreement with our view. Then, a heavenly voice (*bath kol*) went forth and announced: both opinions are the words of the living God, but the *halacha* is in agreement with the School of Hillel... What did the School of Hillel do to merit that the *halacha* is according to their view? Because they were kindly and modest and studied their own opinion and those of the School of Shammai. And not only that, but they would mention the opinion of the School of Shammai before their own (Babylonian Talmud, Eruvin 13b).

The Talmud concludes that the School of Hillel had humility, and whoever searches for greatness, it flees from him. One who humbles himself, the Lord lifts up. The way to debate properly is to value the opinions of one's opponent. By listening to the other side's view and appreciating it, one learns from it. The ability to compromise is also crucial in constructive arguing. That is the secret of Talmudic debate: respecting the opinion of others and emphasizing truth, not winning arguments.

The Babylonian Talmud (Berachot 28b) describes a prayer instituted upon entering the study hall. Its purpose was to ensure that the scholars understood that legal debates are not about winning but discovering the truth. One prays to God that the correct decision is made. Moreover, the prayer is also about not causing colleagues to sin (and be divinely punished) for rejoicing over a blunder made by an associate. If it is only about winning, it is easy to fall into the trap of being ecstatic when someone makes a blunder. No one rejoices over another party's error if everyone works together to seek the truth.

## Conclusion

Any organization which finds a way to allow people to disagree constructively will thrive. Unfortunately, we often see the opposite, and disputes get out of hand. The following are some principles that should be followed in all relationships: Avoid blaming the other party; Respect one's debating partner; Possess humility and patience; Understand the viewpoint of one's debating partner; Knowing that truth is what matters, not winning the argument; Eliminate the need-to-win strategy; Be aware of cognitive biases.

The bottom line is that if you want your relationships or organizations to flourish, you must learn to avoid destructive disagreements.

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# **Statistics as Science and Art: The Importance of NNT (Number Needed to Treat) and the Danger of Overreliance on Statistical Significance**

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## **Abstract**

This paper demonstrates how the concept of statistical significance should not be the gold standard of research and results in too many false positives. The replication crisis affecting science and other disciplines is due to the overreliance on statistical significance. The correct way to use p-values is to examine effect sizes and confidence intervals. This is why a discussion of healthcare measures such as NNT (Number Needed to Treat) and NNH (Number Needed to Harm) should be used in teaching statistics to enhance critical thinking and demonstrate the proper way to evaluate the effectiveness of drugs and medical procedures. Patients deciding whether to take a prescription drug or undergo surgery or a medical test should understand essential evaluation criteria and not rely on brochures and advertisements focusing on misleading information such as RRR (Relative Risk Reduction) or statistical significance.

**Keywords:** Misuse of statistics, the danger of relying solely on p-values, healthcare statistics, ARR, RRR, NNT, NNH.

## **Introduction**

The ubiquity of statistical reasoning is making quantitative skills essential. Virtually all higher education institutions are offering degrees and courses in areas such as Data Science and Business analytics. Unsurprisingly, employers seek to hire employees with quantitative skills (Gerstein & Friedman, 2016). Quantitative skills only work well in combination with critical thinking skills because statistics is as much an art as a science. The purpose of this paper is to demonstrate how such concepts as statistical significance and NNT should be taught to demonstrate the value of statistics and, at the same time, sharpen critical thinking skills.

The primary cause of accidental death is medical error. Indeed, deaths by medical error surpass the number of deaths from all other unintentional causes. As many people die from medical errors as from COVID-19, even before vaccines became available. Almost everyone knows that heart disease and cancer are the major causes of death in the United States, yet few people realize that medical errors are the third major cause of death (Saks and Landsman, 2021). People who understand the statistical concepts discussed in this paper will hopefully know when to undertake a procedure, especially one that might require hospitalization. Many decisions about whether or not to undergo a procedure or even take medications could and should be seen as simple probability problems.

## **The Danger of Overreliance on P-Values**

Ziliak and McCloskey (2009) were among the first to underscore the issue of confusing statistical significance (i.e., p-values) with scientific importance. They assert that William Sealy Gosset (aka "Student") was correct and Ronald A. Fisher was wrong about this question.



Examining statistical significance at the .05 level (or even .01 level or better) does not necessarily prove that one has discovered a breakthrough in science or economics. They noted that almost 90% of leading science journals in science, economics, and medicine confused the two concepts. The result of this error “produces unchecked a large net loss for science and society. Its arbitrary, mechanical illogic, though currently sanctioned by science and its bureaucracies of reproduction, is causing a loss of jobs, justice, profit, and even life.” (Ziliak and McCloskey, 2009, p. 2302)

Saleh (2022) also underscored that p-values used alone often yield false positives and say nothing about the importance of one's findings. Saleh concludes that "the false positive rate associated with a P value of .05 is usually around 30% but can be much higher." Two serious problems with p-values are that they do not necessarily reflect effect sizes. It is possible to demonstrate a very low p-value (especially with substantial sample sizes) where the magnitude of the effect is trivial. This is why it is crucial to examine the confidence intervals as well as the p-value. Moreover, it is not difficult for researchers to churn the data or use large sample sizes to effect necessary p-values. An unscrupulous researcher might massage the data to yield a p-value less than 0.05 if that is what it takes to get published.

Ignoring effect sizes has resulted in so many false positives that numerous studies have found that it is challenging to replicate findings in multiple disciplines, especially psychology (Saleh, 2022). Researchers have been talking about a replication crisis. There is a severe problem in reproducing the results of numerous major studies, which is why many scientists and physicians are skeptical of a significant percentage of published findings. “More than 70% of researchers have tried and failed to reproduce another scientist's experiments, and more than half have failed to reproduce their own experiments. Those are some of the telling figures that emerged from Nature's survey of 1,576 researchers who took a brief online questionnaire on reproducibility in research.” (Baker, 2016, para. 1)

Approximately 60% of 100 experimental studies in psychology could not be replicated. The percentage of failed replications in experimental economics was also surprising, 40%. One economist noted that it is unlikely that findings will be reproducible if only a 5% significance level is used (Bohannon, 2016).

Ioannidis (2015) demonstrated that many medical research studies were proven to be false. This is especially true for non-randomized studies, where 80% are later found incorrect (Gutting, 2013). This is because it is difficult and costly to conduct randomized controlled experiments. Therefore, most research is based on correlational data. Furthermore, data mining software enables one to dredge the data and perform hundreds of statistical tests until something appears significant at the  $p < .05$  level (Ioannidis, 2005).

Kahneman (2011, pp. 222-233) is also unimpressed with "expert" research and believes that algorithms often do a better job at predicting than so-called authorities. He describes several situations in which one should rely on a simple checklist consisting of six relevant characteristics rather than relying on an expert. Kahneman discusses a simple algorithm developed by Dr. Virginia Apgar in 1953 (Apgar's algorithm is still in use and has saved many lives) to determine whether a newborn infant was in distress. Her method is superior to the expert judgment of obstetricians since it focuses on several cues.

Kahneman (2011, p. 226) cites the work of Dawes (1979) and claims that a simple formula that uses predictors (i.e., independent variables) with equal weights is often superior to multiple

regression models that use complex statistics to assign different weights to each of the predictor variables. This is because multiple regression models are often affected by "accidents of sampling." Of course, some common sense is needed to select the independent variables most likely to predict the dependent variable accurately.

### **The Costs and Benefits of Medical Testing**

A discussion of Type I and Type II errors (false positive and false positive findings, respectively) can be connected with problems associated with false positives in medicine. Indeed, people may mistakenly believe that the more medical tests done the better. They may also think someone who wants to live a long life should see doctors monthly for a check-up. They do not understand that the dangers of conducting too many medical procedures may be greater than that of performing too few.

Developments in medical technology have provided doctors with tests that can probe for various conditions, and the sensitivity of such tests has only increased with time. This allows doctors to discover maladies earlier and more likely than ever before. Technology has also allowed for cheaper medical tests that can be performed more frequently. This does not mean, however, that increased testing is a pure good. The more tests a doctor performs, the greater the likelihood of finding genuine problems, but, at the same time, performing more tests can create increased costs, which go beyond the monetary costs of performing the test.

One such cost comes from the danger of over diagnosis (Welch, Schwartz, and Woloshin, 2011). As our capability to see more of what is happening inside the body via high-resolution scans increases, so does the likelihood of an over diagnosis. Welch, Schwartz, and Woloshin (2012, p. 36) report that in people with no gallbladder disease symptoms, approximately 10% will exhibit gallstones in ultrasound scans; 40% of people without any symptoms will show damaged knee cartilage (meniscal tear) with MRI scans; MRI scans will show bulging lumbar discs in more than 50% of people with no back pain. In a study consisting of a sample of 1,000 people with no symptoms willing to undergo a total-body CT screen, 3,000 abnormalities were found; 86% of subjects had at least one. The danger of overdiagnosis means a diminishing return to performing additional tests. As more tests are completed, the greater the likelihood of finding actual problems and the greater the chance of finding spurious ones. This has serious implications on an individual as well as on a societal level.

Another problem is that such tests can cause much suffering. In addition, many tests, such as mammograms and prostate exams, can be frightening and uncomfortable; many can also have harmful side effects that last a lifetime. The (sometimes unnecessary) results of those tests, for example, a radical prostatectomy, can suffer from harmful side effects, including incontinence and impotence (Blum and Scholz, 2010). It is not clear, then, whether the increased probability of finding a genuine instance of disease is worth the harm caused to multiple patients. Bach (2012), for example, notes that "with routine mammography, you'd have to screen more than 1,000 women in their 40's to prevent just one breast cancer death." The guidelines for prostate exams and surgery were changed when it became known that more than 80% of radical prostatectomies performed in the United States are unnecessary. Only one out of 48 men have their lives extended by this type of surgery (Blum and Scholz, 2010). Many more have a diminished quality of life.

## **NNT / NNH**

How, then, to measure the value of additional testing against its costs? One possible way of measuring the value of an additional test is to estimate the amount by which it increases the patient's lifespan. However, if not correctly calculated, this statistic can be misleading. Suppose people with a particular disease live to age 65 on average. If the condition is discovered when people are 60, then we can say that the average person with the illness lives for five years or that the survival time is five years. Suppose with better technology, we can discover the disease earlier, say when the typical patient is 50. Even if patients continue to have the same lifespan, living to the age of 65, it will appear that the survival time has increased to 15 years. Thus, early detection gives the false impression of increasing lifespan because the survival time is calculated from when the disease is discovered. Generally, early diagnosis may not result in a longer life but merely increase the time the disease is found until death. Thus, while it is "true that patients diagnosed early have better survival statistics than those diagnosed late," this does not mean that early diagnosis actually helps (Welch, Schwartz, and Woloshin, 2011: 187).

Another statistic that can be used to measure the effectiveness of a procedure, test, or drug is the difference in occurrence in a treated group and occurrence in a control group. However, such statistics can be manipulated to mislead as well. Suppose an experiment is performed and a large sample of people are randomly assigned to two groups; one group takes a placebo, and the other group takes an experimental drug for, say, five years. If, at the end of the study, 3 out of every 100 people in the placebo group had strokes while 2 out of every 100 people in the experimental group had strokes. Would it be correct to say that the drug reduced the number of strokes by one-third (from 3 to 2)? This makes the drug sound quite effective but is arguably misleading. Only one person out of 100 benefitted from taking the drug; 99 out of 100 got nothing out of taking the drug. This example is not fictitious. This is what Pfizer did in promoting its statin, Lipitor (Heisel, 2010). Pfizer ran a campaign targeted to consumers that declared: "Lipitor reduces the risk of heart attack by 36%... in patients with multiple risk factors for heart disease."

More generally, such studies often suffer from a misunderstanding about the meaning of statistical significance. Statistical significance is about statistics – how sure are we that the observed difference is real, not just the result of some random deviation in the sample or luck? The difference between the two populations may be statistically significant yet completely "insignificant" in a practical or clinical sense. I may be 100% certain that I have a penny in my pocket, but that does not make its value worthwhile. Similarly, it may be true that a drug has decreased the incidence of stroke from 3 in 100 to 2 in 100, but that does not mean that this decrease is of sufficient consequence to warrant the risks involved in taking it. No one would take a daily drug (with known side effects) if it only reduced their blood pressure by one point.

An additional statistic used to measure the effectiveness of a procedure, test, or drug is the Number Needed to Treat (NNT). Heisel (2010) defines NNT as "the number of patients that would need to undergo a particular treatment over a specific time period in order to see their health improve beyond what would have happened had they done nothing or had they undergone a different treatment." Suppose only one in 100 patients who take a drug are cured. Then, for every patient who receives a benefit from taking the drug, there would be 99 who received no advantage or were adversely affected. In this case, since 100 patients must take the drug for one patient to be positively affected, the NNT is 100. The NNT is the reciprocal of the absolute risk reduction – the difference between the proportion of events in the active treatment intervention group and the proportion of events in the control group. A related statistic, which focuses on the potential harm

caused by a treatment or test, is the number needed to harm, or NNH. When evaluating a course of treatment, it is crucial to consider both numbers.

NNT can help clarify the difference in populations. Consider the test above, where a drug reduced the incidence of stroke from 3 in 100 to 2 in 100. In this case, only one person out of 100 benefitted from taking the medication; the NNT is 100. When stated this way, the potential ineffectiveness of the drug is more apparent. There is evidence that the NNT for low-risk patients using statins for five years is 250 (Carey, 2008). If the NNT were made available to the public, it might result in reduced medical costs and better health. Incidentally, medical experts say one should not take a drug with an NNT over 50 (Carey, 2008). This, of course, assumes that the NNH is not a problem. If it is, then even if NNT is low, the concurrent likelihood of being harmed by the course of treatment might militate against taking it.

As another example, consider sinusitis. It is a quite common condition, with 20 million cases a year. It is usually the result of a virus, in which case antibiotics are ineffective. Despite this, many physicians will prescribe antibiotics anyway; 20% of all antibiotic prescriptions in the United States are for sinusitis. Analyzing the statistics for the use of antibiotics in treating sinusitis shows that the NNT is 15, while the NNH is 8. (<http://www.thennt.com/nnt/antibiotics-for-radiologically-diagnosed-sinusitis/>). This means that only one out of every 15 people with sinusitis was helped by taking antibiotics, while one out of 8 were harmed (vomiting, rash, and/or diarrhea from the medication). There are likely a number of patients who, presented with this knowledge, would choose not to take the drug.

The following example further illustrates the different ways of presenting data from the same study and how they can be used to mislead: "You read that a study found that an osteoporosis drug cuts the risk of having a hip fracture in the next three years by 50%. Specifically, 10% of the untreated people had a hip fracture at three years, compared with 5% of the people who took the osteoporosis drug every day for three years. Thus 5% (10% minus 5%) less people would suffer a hip fracture if they take the drug for 3 years. In other words, 20 patients need to take the osteoporosis drug over 3 years for an additional patient to avoid a hip fracture. 'Cuts the risk of fracture by 50%' represents a relative risk reduction. 'Five percent less would suffer a fracture' represents an absolute risk reduction. 'Twenty patients need to take the osteoporosis drug over 3 years for an additional patient to avoid a hip fracture' represents a number needed to treat" (Napoli, 2011).

The ARR (absolute risk reduction) is 5%, RRR (relative risk reduction) is 50%, and NNT is 20. Advertisements and brochures would stress the 50% RRR, creating a false sense of effectiveness. This practice may help explain why we spend too much on health care and have little to show for it. Patients may fall into the trap of choosing treatments with high relative risk reduction but with large NNTs, resulting in few patients being helped. "Treating the many to benefit the few" is an apt description of health care in the United States (O'Dowd, 2001).

## **Discussion**

With the abundance of medical information thrown at a patient, it is vital to give them some basic numbers that they can use to form their decisions. We have seen several ways to present this information, some of which can be misleading. In particular, we have seen that advertisements sometimes tout a sizeable relative reduction in the likelihood of incidence of a disease, while the absolute reduction may be quite small. We have discussed the NNT and NNH and have seen that

those statistics may be more helpful in evaluating treatment. We have also seen that p-values may allow one to get published in a major journal, yet the findings have no real-world benefits. In fact, the results might even be impossible to replicate.

This does not mean that NNT and NNH are without flaws. In particular, while these statistics indicate the likelihood of being helped or harmed by a drug, they do not indicate the magnitude of various benefits or harms. For example, we noted that an NNT of 15 and NNH of 8 might mitigate against treatment for sinusitis. Suppose instead that a treatment for terminal cancer had the same numbers – one out of every 15 patients was totally cured, while one out of every eight patients treated was not cured but developed a rash. Would the evaluation of the treatment still be negative? This is why decision-making using statistics is as much an art as a science.

## Conclusion

This paper demonstrates how a discussion of healthcare measures such as NNT and NNH may be used in an introductory statistics course to make it innovative and exciting. In addition, it can be used to enhance students' critical thinking. Students will see with real-world data why statistical significance is insufficient, and a practical importance measure such as NNT is also needed before a drug is prescribed.

This paper can also teach how statistical data can be used in an unethical way to prescribe harmful drugs, i.e., recommending medications when the NNT measure is high. NNT and NNH can also be used as part of a discussion involving the different types of errors in research. Students need to see that statistics is not a dry course with meaningless formulas. On the contrary, understanding how statistical data can be used and misused in healthcare may save someone's life.

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Simcha Pollack received his Ph.D. in Applied Statistics and Operations Research from New York University. He continued his post-doctoral research into statistical models of perception at Bell Laboratories in Murray Hill, New Jersey. Dr. Pollack is best known for his work in applied statistics. As a professor at St. John's University he has published over 200 papers in scholarly journals and has participated in over 390 scientific presentations in the United States and abroad. Dr. Pollack is primarily interested in the application of statistics to issues affecting health care, with a specialization in sample size estimation via simulation.

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# **Statistics as Science and Art: The Importance of NNT (Number Needed to Treat) and the Danger of Overreliance on Statistical Significance**

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## **Abstract**

This paper demonstrates how the concept of statistical significance should not be the gold standard of research and results in too many false positives. The replication crisis affecting science and other disciplines is due to the overreliance on statistical significance. The correct way to use p-values is to examine effect sizes and confidence intervals. This is why a discussion of healthcare measures such as NNT (Number Needed to Treat) and NNH (Number Needed to Harm) should be used in teaching statistics to enhance critical thinking and demonstrate the proper way to evaluate the effectiveness of drugs and medical procedures. Patients deciding whether to take a prescription drug or undergo surgery or a medical test should understand essential evaluation criteria and not rely on brochures and advertisements focusing on misleading information such as RRR (Relative Risk Reduction) or statistical significance.

**Keywords:** Misuse of statistics, the danger of relying solely on p-values, healthcare statistics, ARR, RRR, NNT, NNH.

## **Introduction**

The ubiquity of statistical reasoning is making quantitative skills essential. Virtually all higher education institutions are offering degrees and courses in areas such as Data Science and Business analytics. Unsurprisingly, employers seek to hire employees with quantitative skills (Gerstein & Friedman, 2016). Quantitative skills only work well in combination with critical thinking skills because statistics is as much an art as a science. The purpose of this paper is to demonstrate how such concepts as statistical significance and NNT should be taught to demonstrate the value of statistics and, at the same time, sharpen critical thinking skills.

The primary cause of accidental death is medical error. Indeed, deaths by medical error surpass the number of deaths from all other unintentional causes. As many people die from medical errors as from COVID-19, even before vaccines became available. Almost everyone knows that heart disease and cancer are the major causes of death in the United States, yet few people realize that medical errors are the third major cause of death (Saks and Landsman, 2021). People who understand the statistical concepts discussed in this paper will hopefully know when to undertake a procedure, especially one that might require hospitalization. Many decisions about whether or not to undergo a procedure or even take medications could and should be seen as simple probability problems.

## **The Danger of Overreliance on P-Values**

Ziliak and McCloskey (2009) were among the first to underscore the issue of confusing statistical significance (i.e., p-values) with scientific importance. They assert that William Sealy Gosset (aka "Student") was correct and Ronald A. Fisher was wrong about this question.

# **Marketing Meal Kits: From Consumer Agency to Corporate Social Responsibility**

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## **Abstract**

Meal kits delivered to the home have become increasingly popular in recent years, particularly during the COVID-19 virus pandemic. Several companies offer these through monthly subscription with a vast range of ingredients and easy-to-follow recipes based on chef-inspired meals that customers can cook themselves. This paper examines the marketing of meal kits from three UK companies in terms of how they discursively construct the agency of the consumer. The study is based on a thematic analysis of web-based marketing material from the companies in terms of more or less coherent rhetorical ways of constructing matters in terms of common place descriptions, tropes, figures of speech, and metaphors. The findings point to several ways in which such a positioning is achieved under four thematic headings: the creative and committed consumer, the ethical consumer committed to sustainability, the consumer as an efficient time-saver, and the consumer aligned with corporate social responsibility. It is argued that this marketing approach is more elaborate than conventional identity approaches associated with brands, in that it taps into the consumer's sense of agency both with and beyond the product.

**Keywords:** meal, kits, discourse, agency, corporate, social, responsibility

**Main Conference Topic:** Marketing

## **Introduction**

The Covid-19 virus pandemic and resulting behavioural restrictions across national populations impacted the food industry, and in particular dining out in restaurants. However, while this was problematic for the restaurant industry it has also created more of an opportunity for companies that produce home meal kits (Estrella, 2020; Webb, 2020). These ready to cook boxed kits involve a set of raw or sometimes minimally prepared, ingredients (cut, trimmed, peeled, washed etc.) that require cooking once delivered to the home (Costa et al., 2001). These kits pre-date the COVID-19 pandemic and were originally developed as a means of offering the consumer the convenience of home cooked recipes, often to restaurant standard quality, without shopping for ingredients and with easy-to-use recipe cards (Levy, 2018). It is now possible to purchase meal kits on a subscription basis with company websites offering tips and blogs and often with recipes that stress ease and relatively short cooking times. Moreover, these companies stress the fact that the pre-portioned ingredients save on food waste and spending time on supermarket shopping. Instead, they offer the consumer the appeal of cooking high quality meals with an appeal to 'doing cooking' and enjoying the food experience in the convenience of their own home (Hill & Maddock, 2019). In offering selected fresh produce with a variety of meal plans and recipes, the meal kit companies tend to stress the healthy nature of the produce they offer the consumer rather than traditional convenience foods that have sometimes become associated with highly processed ingredients with artificial preservatives and so on. In this regard, meal kits can be considered as

“convenient food provision, cooking and eating” (Halkier, 2017, p. 136). However, as the current cost of living crisis has struck, meal kit subscriptions may be considered as a somewhat expensive means of food provision for households. It is therefore in light of the current economic conditions that meal kit companies find themselves having to come up with a strategic approach to marketing these products that will maintain their marketability.

Meal kit providers are in the business of offering the consumer convenience and in so doing conform to traditional marketing associated with the likes of frozen food or ready meals in terms of the promise of speed, ease of cooking, and freedom of choice (Smith, 2001). Providers such as Gousto, Hello Fresh, and Mindful Chef stress these features in their marketing, and in particular appeal to the “time-poor” consumer (Brewis & Jack, 2005). Such appeals are attractive when combined with a discourse in which meal kits are presented as offering the consumer “new combinations and configurations of doing” (Shove, 2009, p. 26) in terms of the relationship between food provisioning and cooking. As such the marketing of meal kits provides an alternative food script for the consumer (Block et al., 2011) as well as their agency and subject positions (Hall, 2000; Serazio & Szarek, 2012). While for some, this type of alternative script is something to be critiqued in terms of the power imbalance in favour of the meal kit provider and a distancing of food provisioning from the consumer (Hill & Maddock, 2019), it can also be considered in terms of the rhetorical construction of consumer agency. In other words, a key focus of this work is on how the consumer’s agency is “worked up” in the marketing material such that the purchase of meal kits is presented as a form of enhanced agency in relation to key issues in today’s society. These come in many forms, but previous research has identified some of the main ways in which they are marketed as addressing these issues. Perhaps one of the most pressing and obvious issues is that of food waste and this is often related to over-buying groceries when supermarket shopping, both in-store and online. There has been a growing concern at the amount of food waste, particularly in developed nations. Meal kits can therefore be marketed as assisting consumers by saving them time grocery shopping and helping them in reducing food waste through portion control and ingredient usage (Troy & Acosta, 2017). It is also the case that the time-poor consumer can be receptive to the marketing of the idea of cooking with meal kits with the benefit of a desirable way to increase quality time with family (Hill & Maddock, 2019). Another aspect in the marketing of these kits lies in the idea of a being creative and skilful cook without the pre-requisite experience. In other words, the easy-to-follow recipes and instructions enable consumers to feel creative and confident in their cooking (Levy, 2018). There is also an element of learning culinary skills here but in the privacy of a home setting. Finally, and now rising up the agenda of consumer concerns is that of purchasing food that is marketed in terms of environmental sustainability. Recent research by Heard et al. (2018) found that on average, regular grocery life-cycle meal greenhouse gas emissions are 33% higher than meal kits. This kind of statistic presents meal kit providers with a key marketing message in terms of sustainable food provision. Marketing related to sustainability may also strengthen the positioning of meal kits as premium products worthy of a relatively high price. Consumers tend to see green products as having higher prices than non-green alternatives (Gleim et al., 2013), and therefore a discursive marketing strategy based around sustainability may serve to further legitimise the higher prices of meal kits compared to cheaper supermarket alternatives.

The features outlined above can make meal kits a highly marketable product, albeit on aimed at a segment of the population with sufficient disposable income and cultural capital (Bourdieu) to purchase them. From the point of view of the present study what is interesting is how this type of marketing is accomplished rhetorically and how it positions the consumer with an enhanced sense of agency in moving beyond food provision as a mundane activity

towards one that speaks to the issues outlined above. The following section lays out the methodological position adopted in the study in examining this issue and the sample of material examined.

## Methodology

The study involved data collected from the websites of three of the main UK meal kit companies: Gousto, Hello Fresh and Mindful Chef. The marketing statements made on these websites, including company claims about their meal kits, customer testimonials, and blog entries were drawn upon in order to produce a set of themes that could then be analysed in more detail. Thus, the data was analysed in two stages. The first involved informed a broad thematic analysis (Braun & Clarke 2006) which consisted of reading, re-reading and coding the data set. These initial codes were based upon were collated in order to establish an outline of potential themes that were derived from the both the online company material as well as the academic literature outlined above.

The themes were then examined as potential “interpretative repertoires” underpinning the meal kit marketing rhetoric. An interpretative repertoire can be defined as a “recognisable routine of arguments, descriptions and evaluations, distinguished by familiar clichés, common places, tropes and characterizations of actors and situations” (Edley & Wetherell 2001, 443). These were considered in terms of the meal kit consumer and the ways in which their agency was constructed, either directly or indirectly. The relevant exemplars below are drawn from across the three company websites that most clearly illustrate each of interpretative repertoires identified.

## Analysis

### *The creative and committed consumer*

The foregoing analysis of the various company website promotional material considers how the identity and agency of the consumer is discursively constructed as paramount. This can be examined under four main interpretative repertoires: (i) the consumer as a creative and committed cook, (ii) the ethical consumer committed to sustainability, (iii) the consumer as an efficient time-saver, and (iv) aligning the consumer with the socially responsible company.

In order to market meal kits effectively, the consumer must be discursively positioned as an active agent in the cooking process. In other words, the agency of the consumer must be forefronted in such a way that the creativity involved in cooking can be identified with. This is apparent in the following promotional material.

#### Gousto

*Butter chicken or 'murgh makhani' is a mild Indian curry that the whole family will love. You'll create a fragrant, silky smooth base for succulent chicken with tomato, spices and golden-fried onion, before serving over fluffy coriander rice. Butter than a takeaway!*

*We've taken inspiration from the flavours of a 'parmigiana' – a classic Italian baked aubergine dish – for this easy, cheesy, incredibly tasty pasta bake. You'll combine golden-fried aubergine, rich tomato sauce, pasta and two cheeses to create a truly delicious meal the whole family is sure to love.*



What is analytically interesting in this material is the active use of the contracted “You’ll” based on the pronoun “you” and active “will” with the immediately following verb “create”, all of which constructs the agency of the consumer as a creative cook. This contracted form also is less direct than “you will” and as such fits with the informality of the descriptions “fragrant, silky smooth base” and “easy, cheesy, incredibly tasty pasta bake”. It is also worth pointing out how these descriptions make copious use of adjectives to describe the meals (“... a fragrant, silky smooth base.”; “... succulent chicken...”; “...golden-fried onion...”; “... fluffy coriander rice”; “...golden-fried aubergine, rich tomato sauce, pasta..”). This kind of over-lexicalisation serves the purpose of enhancing the marketing of the meals as of chef-grade standard.

This kind discursive construction can also be seen in other providers where the active and creative consumer-cook is also presented in the form of testimonials. In the examples below references to “enjoyment” related to the creative act of cooking.

#### Gousto

*So... I'm about to gush... @goustocooking is AWESOME. It's made me cook. I love how zen it all makes me after a long day. The food is absolutely spectacular too. Just cooked my first ever authentic Moroccan tagine, which is my favourite food. I'm buzzing. Thanks Gousto.*

*I cannot thank Gousto enough. What a fantastic idea! I have always struggled with time and ideas around what to cook. Now I am producing delicious, fresh and 'made from scratch' meals for my family...*

#### Hello Fresh

*I'm enjoying receiving meals from HelloFresh, as the variety of recipes has rekindled my interest in cooking, choosing and cooking the recipes with my son has awakened an appreciation of cooking tasty meals without the hassle of shopping for the ingredients.*

*My husband does all the chopping and I cook which is great, Wide choice of meals so lovely not to have to decide what to have every day!!*

#### Mindful Chef

*We've been using Mindful Chef for over three years! In all that time we've never had a meal we haven't enjoyed. Getting fresh ingredients for interesting, healthy and very generously portioned meals saves having to think about a delicious dinner three evenings a week.*

Again, we can see how the agency of the meal kit consumer is foregrounded in terms of what they have produced (“Just cooked my first ever authentic Moroccan tagine...”; “Now I am producing delicious, fresh and 'made from scratch' meals for my family...”; “cooking the recipes with my son has awakened an appreciation of cooking tasty meals...”; “....I cook which is great...”, “...we've never had a meal we haven't enjoyed.”). Allied with this construction of agency is the positive personal impact in terms of excitement (“I'm buzzing.”); coming up with ideas of what to cook (“I cannot thank Gousto enough. What a fantastic idea! I have always struggled with time and ideas around what to cook.”; “...Wide choice of meals so lovely not to have to decide what to have every day!!”); and returning to cooking as a pleasure (“...the variety of recipes has rekindled my interest in cooking...”). Using meal kits is therefore presented in terms of the activity of cooking as associated with

pleasure and contrasted with life's mundane issues ("I love how zen it all makes me after a long day."; "I have always struggled with time and ideas around what to cook."; "...without the hassle of shopping for the ingredients."; .... so lovely not to have to decide what to have every day!!", "...saves having to think about a delicious dinner three evenings a week.").

### ***The ethical consumer committed to sustainability***

Another way in which the agency of the meal kit consumer is constructed is in terms of their purchase as involving a commitment to sustainability.

#### *Gousto*

*In our quest to make sure every meal leaves the world better off, we've received some very exciting news. A weekly Gousto box reduces your carbon emissions by a whopping 23% compared to buying the same food at a supermarket.*  
<https://www.gousto.co.uk/blog/carbon-emissions>

*If UK households replaced supermarket dinners with meals from Gousto for just one year, we could save 10.3 million tonnes of CO2.*

*That's the same as taking 141,910 buses off the road!*

#### *Hello Fresh*

*By giving you the exact amount of ingredients you need, we cut food waste. For many customers, food waste starts at the supermarket. Over-shopping often results in unnecessary ingredients (which are often over-portioned for the specific need) that don't get used and end up in the bin. At HelloFresh, we have a simple solution for this problem. Our ingredients are delivered to the consumer in pre-measured portions, which leave consumers with little to no food waste or leftovers. They receive and use exactly what they need based on their household size. We also educate our customers in meal planning and conserving the quality of food.*

#### *Mindful Chef*

*An astonishing 400 million meals worth of edible food is wasted by supermarkets & manufacturers in the UK each year. We are on a mission to change this.*

*At Mindful Chef, we operate a 0% food waste model. How do we achieve this? We go straight to the supplier and only order exactly what our customers need every week. Every ingredient is pre-portioned into the exact amount required for your meal so you won't end up throwing away any wilted bags of veg at the end of the week.*

*We believe this is the future of grocery shopping and are proud to be at the forefront of this revolution.*

*Lifestyle changes are personal. To be successful, understand your motivations. Are you after a health overhaul? Concerned about animal welfare? Want to reduce your carbon footprint? Or are you simply up for Veganuary?*

*Whatever your reason, keep in mind you're more likely to persevere by focusing on what you're gaining over what you're giving up.*

What is apparent in these extracts from company websites is the focus on reducing food waste. This can be accomplished in terms of giving agency to the consumer through

comparison with supermarket grocery shopping (“A weekly Gousto box reduces your carbon emissions by a whopping 23% compared to buying the same food at a supermarket.” ; “For many customers, food waste starts at the supermarket. Over-shopping often results in unnecessary ingredients (which are often over-portioned for the specific need) that don’t get used and end up in the bin.”; “you won’t end up throwing away any wilted bags of veg at the end of the week.”). All of the meal kit providers construct the agency of the consumer as a partner in the process of environmental sustainability, sometimes through using the possessives “our and “your” in referring to themselves and then the consumer (“In our quest to make sure every meal leaves the world better off.” [followed by] “A weekly Gousto box reduces your carbon emissions...”).

In other cases, the partnership between company and consumer in engaging in sustainable consumption is fostered through the possessive “our” and generic “consumer” (“Our ingredients are delivered to the consumer in pre-measured portions, which leave consumers with little to no food waste or leftovers.”). It is also the case that categories of meal kit consumer, notably vegans, are catered for in relation to their lifestyle and ethical values (“concerned about animal welfare? “Want to reduce your carbon footprint?”). The personalisation of such choices as deriving from values is therefore central to the positioning of the agency of the consumer in relation to their food choices (“Lifestyle changes are personal.”).

### ***The consumer as an efficient time-saver***

Although much has been made of the time-poor consumer in the marketing of meal kits, less has been examined in terms of the positioning of the construction consumer’s agency in terms of being efficient in saving time. The following extracts from the company websites draw the consumer into this world of speedy meal preparation as representing an efficient use of time.

#### *Gousto*

*This ragù develops an incredible depth of flavour in just 10 minutes thanks to our British slow-cooked pulled pork. You'll make a super speedy tomato sauce, flavoured with roasted garlic paste, before stirring through quick cook spaghetti and a good scattering of cheese!*

*Dinner, but not as you know it. Our big red recipe boxes will help you whip up wholesome, impressive meals no matter your skill level, with all of the flavour and none of the fuss.*

#### *Hello Fresh*

*HelloFresh is great for busy lifestyle and saves you shopping for ingredients etc.*

*We deliver everything you need to create delicious dinners from scratch so you spend less time shopping!*

#### *Mindful Chef*

*Get healthy, save time, reduce waste. Discover the UK’s highest rated recipe box.*

*A weekly box containing 2 to 4 healthy recipes for 3 to 5 people*

*Easy to follow recipes with meals ready in as little as 15 mins*

*You'll be cooking things you love - from bubbling fish pies for the family, to a spicy Bibimbap or a Sri Lankan curry.*

*With 20 recipes to choose from each week, there are no recipe ruts here. Discover flavours from all over the world - with a Mindful Chef healthy twist.*

What is interesting about these descriptions is how they position the meal kit consumer as someone who saves time and can still cook good quality meals efficiently with minimal effort. This can be accomplished through the quickness in cooking the meal itself ("This ragù develops an incredible depth of flavour in just 10 minutes.... You'll make a super speedy tomato sauce.... before stirring through quick cook spaghetti.."); "Our big red recipe boxes will help you whip up wholesome, impressive meals". "Easy to follow recipes with meals ready in as little as 15 mins.") through to traditional appeals to saving time shopping ("...great for busy lifestyle and saves you shopping for ingredients.."; "...you spend less time shopping!"); through the utilising time for the enjoyment of cooking and eating ("You'll be cooking things you love..", "...there are no recipe ruts here.") In these discursive formulations the consumer is positioned as someone who decision to purchase meal kits is a savvy choice rooted in maximising their time and enjoyment of cooking and meals. The meal kit consumer knows how to maximise convenience and their agency in this process is confirmed through their purchase.

### ***The consumer aligned with corporate social responsibility***

Given the current cost of living crisis associated with relatively high price inflation and rising heating costs, there is an increased pressure on consumers to scale back their spending due to having a lesser amount of disposable income. This places meal kit companies in a difficult position, given that they rely on what some may consider as relatively expensive subscriptions from customers for their products. Although introductory discounts are offered by most of these companies, these only last a limited time before the full subscription rate is applied. It is also the case that the media often highlights the issue of food poverty and those who are less fortunate having to fall back on charities and food banks in order to meet the needs of those who face food insecurity. It is therefore the case that the present economic circumstances meal kit companies with face a challenge both in terms of the 'luxury' status of their products and in being seen to assist with tackling food insecurity.

In order to address the above issues, the meal kit companies have begun to stress their corporate social responsibility credentials. This is achieved through various strategies, some putting more stress on previous marketing appeals in terms of saving on food waste as well as energy for both the company and consumer.

#### ***Hello Fresh***

*Reduction and avoidance of food waste is at the core of how HelloFresh operates and what we offer to our customers. Our make-to-order business model pulls exactly the right quantities from the supply chain based on consumer orders. Only 2.2 grams of food per every meal we sell is wasted in our facilities and our operations generated 82% less food waste than traditional food retailers.*

*Our vertically integrated supply chain is easy to follow: The ingredients are shipped from our suppliers to our production facilities, we produce the meal kits and send the boxes to our customers. This enables us to reduce a lot of transportation emissions by*

*not having to ship our products from one warehouse to another and putting it on display for customers. It also leads us to another example for how our business model is inherently sustainable.*

*Compared to traditional supermarkets we save a lot of emissions by not having to operate stores and warehouses that need energy, heating and cooling. We are also currently working on transitioning the distribution centres in our markets to green energy.*

*With a HelloFresh subscription, you'll have fresh, pre-portioned ingredients for your chosen recipes delivered to your door for an affordable price every week. And best of all, as a cheeky pre-Christmas treat, HuffPost UK readers can get 60% off their first box, as well as 25% off for the next two months, and free gifts, with the exclusive code FRESHPOST60.*

*With the 60% discount, you can get your hands on three two-person recipes per week, for just £11.40 – rather than £28.49 – offering you huge value for money.*

What is interesting to note about the above marketing material extracts is the strategy of stressing both how the company saves on waste and energy as well as how the consumer can also do so. The HuffPost is a liberal news aggregator and blog, with localized and international editions. By advertising in this media source, the company has its sights on a particular audience who are more than likely to be young adult professionals, interested in engaging in environmental sustainability issues, and are prepared to shoulder an increased cost for such a commitment. Note the use of “pre-portioned ingredients delivered to your door” which implies less waste for the customer in both food and fuel than if they were to purchase food through conventional supermarket shopping. However, to add to this there is the inducement of a substantial discount offering “huge value for money”. This marketing strategy involving a discourse that aligns the consumer with corporate social responsibility is also present in a different context in terms of the offer by Gusto.

*Gusto Blog post (4 August 2022)*

*Everyone should be able to enjoy tasty, nutritious meals, but today there is an 81% increase in need for emergency food compared to five years ago and we want to help.*

*We've worked with the Trussell Trust a lot over the years, and donated meals to their food bank network. But as the cost of living crisis bites, we need to do more.*

*We're working alongside one of the busiest food banks in their network, Hammersmith & Fulham Foodbank, to pilot a test that will update their emergency food parcels into healthy meal kits for that area.*

*Our nutritionist Ellie Bain has designed meal kits chock-full of wholesome ingredients, nutritional advice, and tailored recipes by the Gousto chefs.*

*We're pleased to share that each recipe will have at least two of your five-a-day. Our chefs have worked hard to include a delicious balance of wholegrains and healthy fats too, like nuts, seeds, eggs and avocados.*



*None of the recipes take more than 30 minutes to cook. And to save on energy, all the recipes are super easy to make and can be cooked without an oven. Food bank customers can look forward to a delicious variety of colourful, fresh, veg-packed meals from over nine different global cuisines too.*

*Due to the cost-of-living crisis, the need for emergency food has increased by 29% compared to last year. Your donations could help people facing hardship. If you'd like to, you can donate directly to Hammersmith & Fulham Foodbank.*

### Mindful Chef

*15 million school meals donated*

*In September 2017 we partnered with the charity One Feeds Two, so that for every Mindful meal sold, we donate a school meal to a child living in poverty.*

*Buy a meal. Give a meal. Helping with every mouthful.*

*Malawi is one of the poorest countries in the world so supporting kids like Lexi is life-changing. For far too many of them, a hot school meal is the only meal they will eat that day.*

In the first blog we can see the company elevating their corporate social responsibility by point to the work they are doing with food banks to update “emergency food parcels into healthy meal kits for that area”. By making this claim it is evident that Gusto are claiming to offer something much more than the standard donated tinned food and this is prefaced by the use of the extreme case formulation of “Everyone should be able to enjoy tasty, nutritious meals, but today there is an 81% increase in need for emergency food compared to five years ago and we want to help.” The health message is reinforced through the claim that “each recipe will have at least two of your five-a-day.” Also note the named nutritionist which personalizes the company’s operations. Stress is also put on the energy saving cooking of these kits (“And to save on energy, all the recipes are super easy to make and can be cooked without an oven.”). Finally, the consumer is invited to align with the companies stance on corporate social responsibility by making a donation (“Due to the cost-of-living crisis, the need for emergency food has increased by 29% compared to last year. Your donations could help people facing hardship.”).

Mindful Chef also makes a point of stressing its corporate social responsibility, again aligning the consumer with their work with the charity One Feeds Two. This is stressed through the three-part strapline (“Buy a meal. Give a meal. Helping with every mouthful.”) which effectively makes the point of how the consumer’s purchase of meal kits contributes to the programme. The named country, Malawi, and its levels of poverty id drawn attention to as is the naming of a child, Lexi, and the “life-changing” effects of the charitable provision of hot meals.

## **Results**

In summarising the analysis, what is apparent across these interpretative repertoires is the discursive construction of the meal kit consumer’s agency in partnership with the companies concerned. The idea that customers “cook with” these companies transforms the purchase of meal kits as something more than a financial transaction and instead supplants this with the consumer as gaining experiences of cooking and food with others, including family and a wider community of users. The meal kit consumer is therefore drawn into the

material practice of cooking through the ways in which their agency is actively constructed through the marketing of these products. Food is thus presented a more than mere sustenance, a point noted Herakova and Cooks, 2017, p. 2) who point out that making food involves social relations and cultural understanding. We also see how it is presented as being creative through working with raw ingredients to transform them into quality chef-like meals. This can also involve more ‘exotic’ culinary offerings drawn from other cultures which can be seen as enhancing the sense of agency and satisfaction of the meal kit user. This transformation of ‘natural’ ingredients into the cooked meal plays to a deep-seated sense of human agency working upon the natural world (Morton, 2007; Khan & Sowards, 2018). The creation of a recipe-based meal plays to this kind of sense of creativity which is further enhanced by the material embodiment of eating food as enjoyment involve the human sensorium. Of course, this is made all the more enjoyable in terms of the meal kit user as someone who can do this by being efficient with the time and effort. The delivery of the ingredients, as we have seen, plays to the idea of the time-poor consumer who exerts their agency by opting for the ‘smart’ choice in subscribing to this service. This is one of the key marketing messages of meal kit companies: they source and deliver the ingredients; the consumer saves time and only has to do the cooking. We also have seen how meal kits are marketed as contributing to environmental sustainability. The agency of the consumer is presented as doing so through the act of choosing to purchase meal kits. This kind of subtle marketing offers a discursive alternative that elides the gloom and doom of some environmental discourse or the hope and possibility alternatives (Hall, 2014). Finally, we have seen how meal kit companies have signalled their corporate social responsibility through charitable involvements. The customer is encouraged to align with this stance through making a donation.

## **Conclusion**

The discursive construction of the meal kit consumer’s agency is a key aspect of the marketing strategy deployed by these companies. This can be considered an effective approach given that consumers of meal kits purchase them to engage in cooking and thus are active in that sense. However, the marketing strategy also draws upon a wider sense of agency in which the consumer, through their purchase, is positioned as actively contributing to environmental sustainability. This places the agency of the consumer into the realm, not only of cooking as an enjoyable activity related to the provision of everyday meals, but also as a practical and symbolic demonstration of an ethical stance. The notion of the ethical consumer is further strengthened through the association made with corporate social responsibility and food bank provision or charitable work with developing countries. What makes this discursive strategy effective is that it is not simply rooted in the conventional identity marketing associated with brands, but rather taps into the consumer’s sense of agency both with and beyond the product.

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# Policing the Discourse: The Discursive Anatomy of a National Police Strategy Report

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## Abstract

Police reporting has become subject to similar practices found in the corporate and commercial world. A key aspect of this is the strategic report which lays out the future of the organization in terms of the vision of senior executives. This paper considers the discursive construction of a police strategy report. Police reports in general belong to a wider reporting genre while strategic plans can be considered as part of a colony of planning genres. The discursive anatomy of this kind of report can be considered in terms of communicative purpose and the set of discursive moves involved that reflect normative expectations associated of the intended audience. These features are examined by way of a discursive analysis of a contemporary Police Scotland strategy report.

**Keywords:** Scotland, police, strategy, report, discourse

**Main Conference Topic:** Management

## Introduction

Strategic management has become a commonplace beyond the world of corporate management and has colonized different domains of organizational life (Brandtner et al., 2017; Carter, 2013; Greckhamer, 2010; Greckhamer & Cilesiz, 2022; Kornberger & Clegg, 2011). As Carter et al., 2010: 573) point out the organizational world is “saturated by strategy” and indeed Carter (2013: 1047) characterizes it as “the master concept of contemporary times”. This is also reflected in the production of strategy documents, and most pervades the discourse of public sector organizations where there has been a trend towards the adoption of managerialization. However, the rhetorical form of these documents and how they seek to justify strategic choices is a relatively under-researched area. This paper examines such a document: Police Scotland and the Scottish Police Authority’s *Joint Strategy for Policing (2020): Policing for a safe, protected and resilient Scotland*. This document sets out the priorities and plans for the future direction of policing in Scotland in the coming years and represents a refresh of an earlier strategic plan from 2017. The discourse analysis undertaken on the document reveals how strategy is discursively constructed as necessary and also draws attention to the rhetorical features of the text that enable it to convey a sense of setting out an uncontestable course of action. The examination of the discursive anatomy of this document denaturalizes the normative way in which strategy is constructed within the realm of public sector organizations.

The field of strategic management developed as an academic field within business education (Bowman et al., 2002; Hambrick & Chen, 2008) and tends to focus on such aspects within the logic of a planning and the monitor of outputs (Alvesson & Willmott, 1995; Carter et al., 2010; Carter & Whittle, 2018; Ezzamel & Willmott, 2010; Grandy & Mills, 2004). The development of this type of approach led to an accompanying growth in corporate discourse framed around presenting projections and decisions expressed within strategy documents



(Alvesson and Willmott, 1996; Balogun et al., 2014; Phillips & Dar, 2009). Much of this type of discourse is associated with a growing trend in the logic of managerialism (Alvesson and Deetz, 2000; Mueller and Carter, 2007) which has infused the public sector and orientated them towards the organizational practices found in the commercial and corporate world (Clarke & Newman, 1997; Jensen, 2021; Yeatman, 1993).

The turn towards managerialism within the police service has been commented upon by scholars who have examined the focus on targets and performance indicators. In a wide-ranging review of the nature and potential deleterious effects of managerialism in the Australian police service Vickers & Kouzmin (2001) drew attention to what they saw as several problems with this kind of approach, and most notably that its technocratic and rationalist focus could be counter-productive to public service people-facing work. Cockcroft & Beattie (2009) found widespread resistance by officer towards a concern with these type of indicators with the view that they are too narrow in focus on do not represent the breadth of the role. Martin (2003) provides a historical overview of U.K. policing and the ways in a focus on performance indicators as a measure of efficiency has led to various problems in the focus on statistics and targets meaning that government priorities dominate local concerns and agendas. Maguire & John (2006) in an assessment of intelligence-led policing which is based upon a strategic approach through the analysis and management of problems and risks, argue that it runs the risk of running up against police cultural attitudes and misunderstanding and of becoming dominated by centrally set targets. More recently, Beckley (2021) has drawn attention to issues associated with a culture of managerialism with the Australian police service. She points to many of the issues addressed above including, the over-zealous focus on targets and performance indicators at the expense of focusing on a high-quality public service. On the other hand, she acknowledges that the latest model of public sector management is now entering the field of police strategic thinking based upon new public governance (Morgan & Cook 2015; Osborne, 2009; Sorrentino et al., 2018; Torfing & Triantafillou, 2013). This model incorporates “public values” into decision making and strategic aims. It is based upon the recognition that public services rely upon inter-relationships and inter-dependencies, and that these services work across multiple boundaries with diverse stakeholders in terms of what constitutes “public value.” Nonetheless, Beckley concludes that the police service must confront several historical issues to reach this stage of organizational development.

### **The Strategy Report in Policing**

The widespread adoption of strategic management has meant that police forces now are required to produce longer range organizational plans. This has developed from the introducing strategic planning techniques in public sector organizations (Ferlie & Ongaro, 2015) based upon clear goals and strategies that define approaches to achieve these (Bryson, 2018). However, the effectiveness of strategic planning in police forces has been the subject of question and there has been a skepticism expressed about the use of strategic management approaches in the public sector, (Williams & Lewis, 2008; Boyne & Gould-Williams, 2003). One of the few studies of the ways in which strategic planning is implemented in the police service was conducted by Elliot et al. (2020) who found that strategic plans have an indirect role in appearing to facilitate higher level middle managers in adopting a more effective strategic role as well as providing more clarity for the processual nature of interactions with external stakeholders.

Reports and plans can be considered in terms of belonging to genres of communicative purposes Bhatia (2004). Police reports belong to a wider reporting genre while strategic plans

can be considered as part of a colony of planning genres. It is of course possible that there is a combination of both in a given document. Genres can be considered in terms of their communicative purposes and involve a set of discursive moves that reflect normative expectations associated of their intended audiences in terms of content and format (Bhatia, 2004; Swales, 1990). Investigations into the nature of strategic reports have focused on the discursive construction and rhetorical forms of the texts. For example Vaara et al. (2010) used a critical discourse analysis approach in examining how a strategic city plan in Finland achieves discursive power through features such as self-authorization where the text refers to its own importance as a strategy documents (e.g. “Strategy is a central tool for leading a city”: Vaara et al. 2010: 690; technical discourse and terminology in terms of indicators and factors (e.g. SWOT-analysis); the use of key buzzwords (e.g. “service offerings” and “individual responsibility”, Vaara et al. 2010: 693; forced consensus where the decision options are presented in a limited way (e.g., “Services will not be provided according to production capacity, but will be based on real customer need.”, Vaara et al. 2010: 695; and the use of declaratives that turn into imperatives (e.g., “The city’s finances will strengthen to the extent that the contribution margin will suffice to cover all net investments and even pay off the debt.”, Vaara et al., 2010: 696).

However, not all strategic plans are as authoritative in terms of the power they convey, and this is particularly the case in public sector organizations who have multiple stakeholders such as the police service. In order to accommodate these stakeholders, the discursive construction of a strategy report may rely upon a degree of ambiguity where multiple interpretations are possible and so permitting stakeholders to read into such a report their own interests. This is referred to by Benders & Van Veen as ‘interpretative viability’, and by Giroux (2006) as ‘pragmatic ambiguity’. Both concepts refer the notion that stakeholders have leeway to interpret the text and have the potential to do so in a way that fits their own concerns and purposes. Drawing upon a conversation analytic perspective Pälli et al. (2009: 313) point out that these kind of strategy documents are part of a language game where “the choices made in the strategy text do have several possible meanings even to the strategists themselves”. This has indeed been found in studies of strategic planning in public and non-profit sector organizations which indicate that discursive ambiguity is inherent in meeting the interests of various stakeholders. This is apparent for example, in hospital strategic plans that offer a degree of vagueness in terms of development recommendations (Denis et al., 1991) or in the plan of a government granting agency (Davenport & Leitch, 2005).

Taking the points made in reviewing the literature, the aim of this research is to examine the strategic plan of Scotland’s Police Service (Police Scotland) with a view to identifying some of the key discursive issues identified above, including if the selected strategy document makes use of: (i) conventional strategizing in terms of use of figures, technical terms, buzzwords and the like; (ii) the use of new public governance discourse that is more inclusive in tone; (iii) the use of declaratives and modal verbs such as “will” and so on. The next section describes in more detail the methodological approach undertaken in the study.

## **Methodology**

Police Scotland’s strategy report *Scotland’s Joint Strategy for Policing (2020): Policing for a safe, protected and resilient Scotland* forms the basis of the analysis presented in this paper. This report is a key consultative document that lays out Police Scotland’s future direction for policing in terms of community relations:

“This Strategic Police Plan recognizes the unique role of policing in the communities we serve. It reflects the need to refocus and redirect resources to ensure that officers and staff are fully supported as they respond with commitment and professionalism to the needs of communities.” (p. 5)

Moreover, this strategic report is a legal requirement under the terms of the Police and Fire Reform (Scotland) Act 2012 Sections 34 and 35 with ministerial approval prior to publication and was laid before the Scottish Parliament on 9 April 2020. It is jointly produced by the Scottish Police Authority and Police Scotland and at some forty pages in length can be considered as a high-level strategy document that sets out policing priorities and plans in line with the Scottish Government’s revision of Strategic Police Priorities.

Police Scotland was established as on 1 April 2013 as the single body responsible for policing across Scotland. It is the second largest police force in the UK after the London Metropolitan Police. It is comprised of thirteen local divisions with each being responsible for meeting local needs and priorities, although the overall strategic direction is centrally governed. Apart from the 2020 *Joint Strategy for Policing* document, Police Scotland also provides an annual police plan which aligns with the aforementioned strategic document.

Following Cornut et al. (2012), the strategy document has been examined in terms of key features of the genre of strategic reporting, and specifically with regard to policing in the context of inclusion and diversity and how these feature in terms of the discursive construction of the report and its reference to inter-relationships and any consequent scope for stakeholder interpretation. The structure of the report is examined, its reference to an outcomes focus, its tone in terms of optimism and commonality, and its grammatical construction in terms of the use of modal and deontic verbs and self-referential pronouns.

## Analysis

### *The Contents Page*

The main aspect of discursive anatomy of importance is the structure, akin to a skeleton of the report. This in large measure corresponds with Allison & Kaye’s (2011) guide to *Strategic Planning for Nonprofit Organizations* in which it is suggested that the following headers are used to structure such reports: Introduction by the President of the Board; Executive Summary; Mission and Values Statement; Organization Profile and History; Summary of Core Strategies; Programme Goals and Objectives; Financial, Administrative and Governance Goals and Objectives; Appendices. In comparing the Police Strategy report with Kaye’s guide then it is possible to see how there is a high degree of correspondence, particularly in terms of laying out key statements such as Mission and Values (Values, Purpose and Vision in the report), Summary of Core Objectives (Strategic Police Priorities in the report), and Programme Goals and Objectives (Outcomes 1 -5 in the report). The Organizational Profile, including key financial information is laid out in the report in graphical form with the following sub-headers: About Us, Wider Context, and Improvements Under Way. One of the first features that is apparent is the contents page and structuring of the report which sets up a mixture of outcomes discourse with terms that imply stakeholder inclusion and inter-relationships with communities. This mix indicated a twin focus on the traditional outcomes and measurement features of strategic plans with a more stakeholder and new public governance orientation.

## Contents

Foreword . . . . .	5
Introduction . . . . .	7
Values, Purpose and Vision . . . . .	10
Strategic Police Priorities . . . . .	12
National Strategic Assessment . . . . .	13
Strategic Outcomes . . . . .	14
Outcome 1 – Threats to public safety and wellbeing are resolved by a proactive and responsive police service	
Outcome 2 – The needs of local communities are addressed through effective service delivery	
Outcome 3 – The public, communities and partners are engaged, involved and have confidence in policing	
Outcome 4 – Our people are supported through a positive working environment enabling them to serve the public	
Outcome 5 – Police Scotland is sustainable, adaptable and prepared for future challenges	
Delivering change . . . . .	34
Implementation . . . . .	36
Measuring progress and assessing performance . . . . .	37
Engaging with us . . . . .	40

Another feature that is apparent is the contents page and structuring of the report which sets up a mixture of outcomes discourse with terms that imply stakeholder inclusion and inter-relationships with communities. This mix indicated a twin focus on the traditional outcomes and measurement features of strategic plans with a more stakeholder and new public governance orientation. Note the discursive tone in these headers that convey efficiency and effectiveness: “a proactive and response police service”; “effective service delivery”; “confidence in policing”; “positive working environment”; “sustainable, adaptable and prepared for future challenges”; “delivering change”. This discourse conveys a tone of forthright optimism in the police service and therefore sets the report up as positive and including deliverables’.

### *Strategic Moves: Context and Priorities*

One of the key rhetorical means through which the strategic reports seek to justify their priorities is to point to a changing context that necessitates these priorities. This provides the musculature of the report, the strategic moves that it makes and its driving impetus. The police report does so by making several points concerning the changing nature of society in order justify a need for change in the way that policing is conducted. The following statements from the report show how the is built into the rhetorical format of the discourse with points made about changing nature of society followed by what this means for policing priorities.

“Society is changing. We find ourselves moving at an ever-increasing pace from the physical to the digital world; a move that creates opportunities for new and complex crime types. This shift also affects traditional crime, much of which now has a digital element. To protect people effectively, Police Scotland will evolve, sharpening its focus

on keeping people safe from harm, whilst embracing innovative technologies and partnerships.” (p.14)

“The pace of technological change means that people increasingly feature or are active participants in a digital world. Policing will reflect this in how resources are allocated, ensuring the services provided are inclusive and proactive in meeting the needs of all communities.” (p.18)

It is evident from the above the changing nature of society is framed in terms of digitization and the threat of cybercrime. Note the rhetorical use of descriptions to enhance this claim (“ever-increasing pace”; “pace of technological change” “affects traditional crime”). This change which constitutes a threat to law-abiding citizens is then used to justify the priority of “keeping people safe from harm” but also utilizing “innovative technologies and partnerships”. The key point here is that these changes are presented as being at “pace” and therefore requiring the police service to literally keep pace with them.

However, there is also contained within the report that the police service itself must stay at the forefront of modernization, that it must adapt to ever-changing technology. An example of this discourse can be found in the extract in which the new technology is presented as being beneficial to modern policing.

“Our frontline officers are being equipped with mobile devices, making them more autonomous and allowing them to spend more time in communities. We will continue to identify and improve functionality so that our people can be effective where they are needed most. As we change our fleet, our vehicles will become mobile working environments. As new technologies for policing become available, we will consider how they will support our frontline delivery for the public.” (p.20)

What is interesting to note about this extract is the way in which the use of new technology is rhetorically presented as a means for police officers to spend more time in communities (presumably without having to return to desktop computers within a police office environment). The focus on inter-dependencies and interaction in communities is a key driver within the strategic aims of the document. This is set within the context of meeting the needs of diverse communities:

“Our understanding of the term ‘community’ has evolved over time and is no longer limited to communities of geography. People also identify as part of communities formed through other shared characteristics, beliefs and experiences. This includes online connections, with people feeling part of multiple community groups. We will continue to improve the services we provide as society evolves.” (p. 21)

“We will work collaboratively with the communities we serve, drawing on expertise and experience to inform our work. We will embed accessibility and inclusivity into our service design. Accessibility standards will be applied across our technology, processes and systems, both internally and externally.” (p.21)

Our workforce must be representative of all our communities. Following recruitment drives for under-represented groups, our workforce is increasingly diverse. We must, however, do more to attract the brightest and best candidates to policing as a positive and inclusive employer.” (p. 21)



“Engaging with people strengthens relevance, responsiveness and accountability and builds trust. It helps us learn about people and create services that meet their needs. We will improve and refocus our engagement activities where these are not reaching diverse communities and are not representative of the society we serve.” (p.25)

What is apparent from the above is the term ‘community’ is presented as reflecting modern conception of identity and that this is presented within the notion of ‘inclusivity’. Clearly this echoes the model of strategic planning as part of a new public governance model. This is extended to the workforces as “being representative of all our communities” and recognizes the need for recruitment from under-represented groups. Note the tone with which this is set given that there has been public criticism of police forces for their lack of diversity. This is put more positively as a ‘to do’ by noting that Police Scotland must “do more to attract the brightest and best candidates to policing as a positive and inclusive employer”. This kind of discourse rhetorically sidesteps criticism and instead put the drive for inclusivity in affirmative terms. Likewise, rhetorical impetus is given to “engagement activities where these are not reaching diverse communities and are not representative of the society we serve.” Again, although there is a recognition that the police service does not engage with certain communities, these are left unspecified and instead a more positive tone is stressed in terms of a general attempt to reach such communities.

### *Outcomes and Measurements*

The report focuses on five outcomes which can be thought of as the major organs of its discursive anatomy. These are laid out in sections that state the nature of each followed by declarative statements of intent explanatory comments on each. Thus, the five outcomes and statements run as follows:

#### **Outcome 1**

Threats to public safety and wellbeing are resolved by a proactive and responsive police service

To achieve this outcome, Police Scotland will:

1. Keep people safe in the physical and digital world
2. Design services jointly to tackle complex public safety and wellbeing challenges
3. Support policing through proactive prevention

#### **Outcome 2**

The needs of local communities are addressed through effective service delivery

To achieve this outcome, Police Scotland will:

1. Understand our communities and deliver the right mix of services to meet their needs
2. Support our communities through a blend of local and national expertise
3. Support the changing nature of communities

#### **Outcome 3**

The public, communities and partners are engaged, involved and have confidence in policing

To achieve this outcome, Police Scotland will:

1. Embed the ethical and privacy considerations that are integral to policing and protection into every aspect of the service
2. Protect the public and promote wellbeing across Scotland by providing services that are relevant, accessible and effective
3. Work with local groups and public, third and private sector organisations to support our communities

#### Outcome 4

Our people are supported through a positive working environment, enabling them to serve the public

To achieve this outcome, Police Scotland will:

1. Prioritise wellbeing and keep our people safe, well equipped and protected
2. Support our people to be confident leaders, innovative, active contributors and influencers
3. Support our people to identify with and demonstrate Police Scotland values and have a strong sense of belonging

#### Outcome 5

Police Scotland is sustainable, adaptable and prepared for future challenges

To achieve this outcome, Police Scotland will:

1. Use innovative approaches to accelerate our capacity and capability for effective service delivery
2. Commit to making a positive impact through outstanding environmental sustainability
3. Support operational policing through the appropriate digital tools and delivery of best value

These declarative strategic statements are familiar as part of conventional managerialist planning and reporting. Each is numbered as a set of objectives and in so doing this serves to draw attention to their importance as major statements of intent. Furthermore, in the section of 'Measuring Progress and Assessing Performance' it is pointed out that "The five strategic outcomes provide a clear message to the public and stakeholders on how policing in Scotland is expected to improve as a consequence of implementing this Strategic Police Plan." (p.37). This section goes on to explain the measurement process, but given the high-level nature of the document, does not specify this in detail but instead notes that:

"The policing performance framework consists of a set of measures agreed between the Authority and Police Scotland, and an accompanying public reporting regime. For each of the agreed measures, a baseline position is established at the outset, and the direction of travel is agreed." (p.37)

"Progress against each of the framework's measures is reported by Police Scotland to the Authority's Policing Performance Committee for initial consideration, and to the Authority's Board meeting for full review on a quarterly basis." (p.37)

"The Scottish Police Authority draws on a range of publicly available information and data to produce its Annual Review of Policing, including material contained in the quarterly performance reports provided by Police Scotland during the reporting year. In

compiling this comprehensive view of Policing Performance, the Authority also reaches out to each Scottish local authority, Her Majesty's Inspectorate of Constabulary in Scotland and other partner organisations for their views on the impact of policing, in order to reflect a wide range of data and opinion sources." (p.37)

The rhetorical effect of this kind of statement is to provide confidence that there is indeed a means of measure how far outcomes have been achieved, and moreover that these rely upon tangible data drawn from a range of sources. What is left unspecified is the extent to which such data leads to adjustments or criticisms should outcomes not be considered as being achieved or on the way to being so.

### *The Grammar of Strategy*

The document is discursively driven along through various strengths of modal and deontic verbs such as "will", "required", "requires" "encourage" and self-referential pronouns such as "we", "our", and "us". This can be thought of as the discursive nervous system of the document in that it relays messages through grammatical channels that act to energize the statements made. Examples of these types of grammatical features (underlined) are set out below.

"Police Scotland will continue its programme of transformation to ensure better efficiency and effectiveness within the financial allocation, whilst articulating clearly the level of resources required for current and future services." (p.7)

"Greater investment here will allow us to focus our resources on partnership, prevention and early intervention, enabling us to find effective solutions together. We will utilise our unique policing insights to demonstrate a clear case for change, building a solid evidence base for targeted investment in preventative measures to address vulnerability, mental ill-health and substance misuse." (p. 17)

"Local engagement is critical. To do this meaningfully and effectively requires genuine dialogue, respect, integrity, transparency and accountability." (p.19)

"We will improve how we manage public contact and the end-to-end user experience. This will create an accessible and seamless public experience with inclusive services. It will expand our digital and online options significantly. Our aim is to get it right first time, giving the public a better service and operating more efficiently as a modern police service." (p. 24)

"Our people have been subjected to a recent rise in violent assaults whilst performing their duties. We will learn from each of these instances and ensure staff have the right training and equipment to deal safely with all incidents they attend." (p.27)

We will continue to encourage our people to challenge the status quo, recognising when they suggest better, more efficient ways of doing things. We will encourage proactivity and problem-solving. (p.31)

"We will work in partnership with other public, third and private sector organisations to identify opportunities and threats, collectively seeking innovative solutions." (p. 31)

“If you have something to tell us about the Strategic Police Plan or our service, please contact us at: <https://www.scotland.police.uk/contact-us> (p.40).

What is evident from the grammatical features drawn attention to is how they provide inclusive and yet firm statements of intent and action. In particular, the use of the modal verb “will” provides a channel for making clear the action to be taken but when combined with the pronoun “we” rather than a third person versions such as “it will” or “this will”, adds to the apparent strength of resolve and accountability behind the statements made. In addition, words such as “required” add strength to the claim being made in terms of what is needed.

## **Results**

The foregoing analysis can be summarized as follows. The report is written in a conventional strategic management format. This is apparent from the outset in the Contents Pages set out in terms of overall strategic vision, priorities, outcomes, implementation and measurement. This is carried over into the way in which strategic priorities are prefaced by a section on the changing societal context in which there are shifting notion of ‘community’ towards a more inclusive focus with diversity being increasingly recognized. Also flagged in this section is the increasing shift towards a digital society and how the police service is adapting to this change. The declarative outcomes statements are again in line with a conventional strategic management document focus with several high-level statements followed by deliverable objectives. These statements are rhetorically constructed so as to communicate that the police service and seeking to improve their level of performance and contact and work with local groups and communities. Finally, it was noted that there is a grammatical feature of the document that is also a commonplace feature of strategy and planning documents; the use of modal and deontic verbs such as “will”, “encourage”, “require” and self-referential pronouns such as “we”, “us” and “our”. The net effect of the usage of these words in combination serves to provide a clear sense of intentional force to the claims being made. Thus, while the report does indeed conform with conventional managerial strategic planning and reporting, it nonetheless conveys elements of new public governance where the discursive tone acknowledges the value of diverse ‘communities’ and commits the police to working with various local groups in terms of an ethos of service.

## **Conclusion**

The Police Scotland strategic plan analyzed within this study contributes to an understanding of how such public sector documents at times mimic the genre of strategy reports in the corporate and commercial world as well as deploying elements of the new public governance model that seeks to adopt a more inclusive and “for the public good” tone. We have chosen to depict the analysis as seeking to understand the discursive anatomy of the report as this seems an apt metaphor in getting into the ‘body’ of such writing. However, it should not be lost on the reader of such reports that they are more than just high-level statements of intent; that they are living documents where the actions of the police force are assessed in relation to those statements. Although the rhetorical construction of the report does not set hard targets in terms of quantifiable outcomes with specified target dates, it does have an indirect impact on policing practice in terms of the strategic role adopted by higher middle level managers as the recent work of Elliot et al. (2020) has found. The discursive construction of such reports therefore serves as a guide, however loosely, operational police matters. However, what is also striking about the police strategy report is that its audience is the wider ‘public’ in the sense that it is a public document that is open to scrutiny. Perhaps

this fact, more than its role in guiding operational practices that is where its audience lies; not with police officers but with the wider public who are entitled to know how the police operate, their problems, shortcomings, successes, and plans for the future.

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## **Economic Consequences of Climate Change in the Arctic Region**

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### **Abstract**

The article aims to deal with the changing environment in the Arctic region. In the context of ongoing climate change, to explain the ongoing impact on climate change and the subsequent study of the economic and security implications of these transformation on the changing importance of the Arctic region. The study looks at the identification of threats from different perspectives and take into consideration five sectors namely: Military, Environmental, Societal, Political and Economic sectors as defined by the Copenhagen School. Given the wide range of interest of many international parties (institutional, investors as well as respective governmental bodies) in the region, a comparative case study methodology was chosen to compare the interests and security implications that the dominance efforts in the region can bring to actors.

**Keywords:** the Arctic, climate change, raw materials, the Northern Sea Route, territorial disputes

### **Introduction**

Melting of the Arctic ocean in particular, the region is now becoming increasingly more accessible and opening new sea routes as the quest to exploit hydrocarbon resources in the region intensifies. So far, the majority of this frozen area has managed to preserve the fauna, flora, as well as mineral resources, which have been left almost intact. Given the changing dynamics in the region, the activity of both state and non-state actors interested in acquiring a share of the wealth in the region is increasing rapidly.

However, the area's ownership, powers, national responsibilities and territorial borders have not yet been satisfactorily clarified in the area, which, among other factors, may also complicate the security situation in the Arctic region in the future. The study tries to explore some of the impact and challenges within this specific geographical landscape as the region increasingly becomes a major focus for interested parties trying to stake their claim on the previously untapped territory gearing to exploit raw material assets in the region.

The Arctic has always been a frozen and inaccessible wasteland for the surrounding nations, which only attracted scientists and explorers. This region gained greater importance only during the Cold War, when during the bipolar division of the world, the shortest possible link between the two rivals - the USA and the USSR - led here. In connection with the development of the air force, but also of long-range missiles, which could directly threaten the territory of its rival, the area acquired new strategic importance. The area of eternal snow and ice was also a suitable place to hide nuclear-powered submarines, which were equipped with nuclear-tipped ballistic missiles.

Tensions in this region began to ease from 1986, when the top representatives of the USSR and the USA, Mikhail Gorbachev and Ronald Reagan, met in Reykjavík, where they discussed the possibilities of reducing the number of nuclear weapons<sup>1</sup>.

This was even followed by considerations of the complete nuclear disarmament of the Arctic region, which was first expressed by Mikhail Gorbachev in 1987 during his speech in Murmansk. Mikhail Gorbachev said then: „*Let the North of the globe, the Arctic, become a zone of peace*“<sup>2</sup>. He therefore called this area without weapons of mass destruction the „zone of peace“<sup>3</sup>.

After the collapse of the bipolar division of the world and the end of the Cold War, it was assumed that the Arctic region would once again become just a kingdom of ice and snow without further strategic use. However, climate change and the accelerating warming of this area have fundamentally affected the situation<sup>4</sup>.

The Arctic is now warming about twice as fast as the global average - see Figure 1. This is mainly due to melting snow and ice, which reflect more of the sun's rays than the darker layers below. As a darker background is revealed, the amount of solar energy that is absorbed increases and the area gets warmer. But the causes of global climate change are much more complex. It is also related to increasing the amount of greenhouse gases in the atmosphere. For many centuries, impurities from the atmosphere, especially carbon dioxide, were deposited in the glaciers. Now the glaciers are melting and the carbon dioxide stored by natural processes is being released back into the atmosphere in large quantities. This further accelerates climate change and global warming. Faster melting of glaciers is also related to atmospheric currents. However, the reasons for ongoing climate changes are not related to the content framework of this research, and you can find more detailed information about everything related to climate change, for example, on the NASA<sup>5</sup> or National Geographic<sup>6</sup> websites. This work focuses mainly on presenting the impacts of these changes on the Arctic region.

<sup>1</sup> RAFFERTY, John P., ed. Reykjavík summit of 1986: UNITED STATES–SOVIET UNION HISTORY. In: *Encyclopaedia Britannica* [online]. Dec 29, 2013 [cit. 2020-01-18]. Dostupné z: <https://www.britannica.com/topic/Reykjavik-summit-of-1986>.

<sup>2</sup> GORBACHEV, Mikhail. MIKHAIL GORBACHEV'S SPEECH IN MURMANSK AT THE CEREMONIAL MEETING ON THE OCCASION OF THE PRESENTATION OF THE ORDER OF LENIN AND THE GOLD STAR TO THE CITY OF MURMANSK [online]. In: . Murmansk, 1 Oct. 1987 [cit. 2020-03-08]. Dostupné z: [https://www.barentsinfo.fi/docs/Gorbachev\\_speech.pdf](https://www.barentsinfo.fi/docs/Gorbachev_speech.pdf).

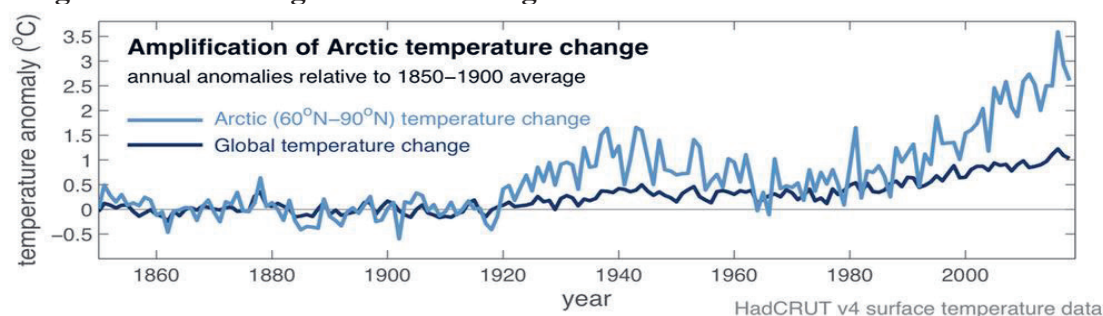
<sup>3</sup> ÅTLAND, Kristian. Mikhail Gorbachev, the Murmansk Initiative, and the Desecuritization of Interstate Relations in the Arctic. *Cooperation and Conflict* [online]. Sage Publications, 2008, 43(3), 289-311 [cit. 2020-01-20]. Dostupné z: <https://www.jstor.org/stable/45084526>.

<sup>4</sup> HOŘEJŠOVÁ, Tereza, Bohumír JÁNSKÝ a Vendula VLKOVÁ. Význam arktické oblasti v mezinárodních vztazích pro zájmy ČR: Vědecký projekt Ministerstva zahraničních věcí ČR. In: Ministerstvo zahraničních věcí České republiky [online]. 31.12.2010 [cit. 2020-01-20]. Dostupné z: [https://www.mzv.cz/file/625949/RM\\_03\\_02\\_10\\_Arkticka\\_oblast.pdf](https://www.mzv.cz/file/625949/RM_03_02_10_Arkticka_oblast.pdf).

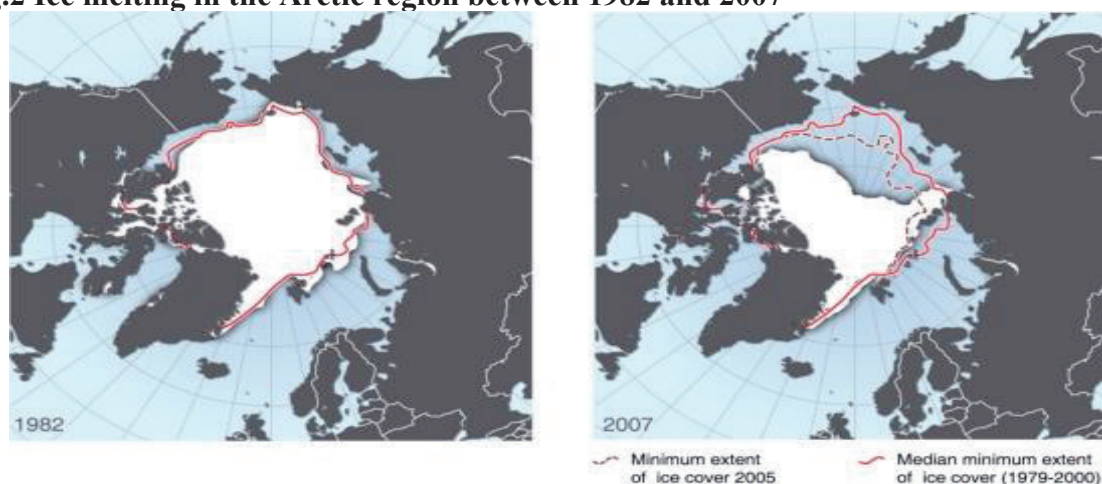
<sup>5</sup> NASA: *Global Climate Change* [online]. [cit. 2020-01-26]. Dostupné z: <https://climate.nasa.gov/>.

<sup>6</sup> What is global warming, explained: The planet is heating up—and fast. *National Geographic* [online]. [cit. 2020-01-26]. Dostupné z: <https://www.nationalgeographic.com/environment/global-warming/global-warming-overview/>.



**Fig.1 Significant warming of the Arctic region**

Source: OLSEN, Steffen M. Amplification of Arctic temperature change: annual anomalies relative to 1850 - 1900 average. In: *The Conversation* [online]. July 2, 2019 [cit. 2020-02-10]. Dostupné z: <https://theconversation.com/time-will-tell-if-this-is-a-record-summer-for-greenland-ice-melt-but-the-pattern-over-the-past-20-years-is-clear-119307>.

**Fig.2 Ice melting in the Arctic region between 1982 and 2007**

Source: AHLENIUS, Hugo. Arctic sea ice minimum extent in September 1982 and 2008. In: *GRID-Arendal* [online]. 2008 [cit. 2020-02-10]. Dostupné z: <https://www.grida.no/resources/7152>.

There are basically two direct consequences of climate change in the Arctic region. The first is the reduction of ice, both in terms of area and thickness of the ice layer. The second consequence is an increase in the average temperature in the area. Due to the climate changes described above, the Arctic region is becoming more accessible for the extraction of local raw materials, fishing, the use of shorter transport routes, and so on. It is not a continent, but a partially frozen Arctic Ocean, the use of which is governed by the UN Convention on the Law of the Sea. The current situation is that the Arctic states have not yet fully clarified their territorial interests among themselves, in accordance with international law.

Last but not least, other actors are also involved in the area, state actors who do not have any territory here, but also non-state and multinational corporations. Based on the above, it can be expected that sooner or later there will be territorial, power and economic clashes in the area.

The study looks at the identification of threats from different perspectives and takes into consideration five sectors namely: Military, Environmental, Societal, Political and Economic sectors as defined by the Copenhagen School. Given the wide range of interest of many international parties (institutional, investors as well as respective governmental bodies) in the region, a comparative case study methodology was chosen to compare the interests and security implications that the dominance efforts in the region can bring to actors.



## Copenhagen School

First, the securitization process itself will be explained. This concept was formulated in the nineties of the last century by Ole Wæver<sup>7</sup>. The theory was further developed at the Conflict and Peace Research Institute of Copenhagen. The term Copenhagen School was first used by one of its critics, Bill McSweeney<sup>8</sup>, in 1996<sup>9</sup>. The main representatives of this "Copenhagen School" and supporters of this theory are Barry Buzan, Ole Waever and Jaap de Wilde<sup>10</sup>, who further developed the theory in their scientific work *Security: A New Framework for Analysis*<sup>11</sup>. According to their concept<sup>12</sup>, a specific area becomes a security problem when it is presented to the relevant audience by the securitizing actor as a security threat. Here, Buzan places particular emphasis on the speech act, while this actor can be, for example, a politician or another publicly known and influential person. The authors draw attention to the fact that with this procedure this so-called securitization actor can influence public opinion to adopt extraordinary measures or to obtain funds to solve this problem.

Signs of social constructivism appear here, when threats are subjectively constructed according to the authors' understanding. Thus, even topics that are not really that serious, but have only been identified as a threat, can become a fundamental security threat.

This ultimately led representatives of the Copenhagen School to expand the traditional view of the concept of security beyond the conventional military domain and define four additional, i.e. non-military, domains. Specifically, threats can also come from the political, economic, environmental and social sectors.

As part of the research, each priority area of interests of the individual Arctic states was aggregated into one of the five listed sectors. A comparative analysis was then carried out over these areas, using the optics of these sectors.

## Research Methodology

This chapter will present the perspective from which the issue of security in this region will be viewed in the research activity. The work is limited to examining the area from the perspective of the five coastal states of the Arctic region. These are the following countries: Canada, the USA, Russia, Denmark and Norway, because from these actors we can expect the greatest economic interest in the future and therefore the escalation of disputes of a territorial nature.

Traditional security studies during the Cold War saw the field of international security from a relatively narrow perspective. These studies were mainly based on realist theory and therefore perceived the concept of security in its military and political-power meaning<sup>13</sup>.

<sup>7</sup> WÆVER, Ole. Securitization and Desecuritization. In: LIPSCHUTZ, Ronnie D., ed. *On Security*. Columbia University Press, 1995, s. 46-87.

<sup>8</sup> MCSWEENEY, Bill. Identity and security: Buzan and the Copenhagen school. *Review of International Studies* [online]. 1996, 22(1), 81-93 [cit. 2020-02-23]. Dostupné z: [https://www.cambridge.org/core/product/identifier/S0260210500118467/type/journal\\_article](https://www.cambridge.org/core/product/identifier/S0260210500118467/type/journal_article).

<sup>9</sup> COLLECTIVE, C.A.S.E. Critical Approaches to Security in Europe: A Networked Manifesto. *Security Dialogue* [online]. 2016, 37(4), s.452 [cit. 2020-02-22]. Dostupné z: <http://journals.sagepub.com/doi/10.1177/0967010606073085>.

<sup>10</sup> PADRTOVA, Barbora. Frozen narratives: How media present security in the Arctic. *Polar Science* [online]. September 2019, vol.21,s.37-46[cit. 2020-01-17]. Dostupné z: <https://ezproxy.techlib.cz/login?url=https://www.sciencedirect.com/science/article/pii/S1873965218301208?via%3Dihub>.

<sup>11</sup> BUZAN, Barry, Ole WÆVER a Jaap de WILDE. *Security: a new framework for analysis*. Boulder, Colo.: Lynne Rienner Pub., 1998.

<sup>12</sup> BUZAN, Barry, Ole WÆVER a Jaap de WILDE. *Security: a new framework for analysis*. Boulder, Colo.: Lynne Rienner Pub., 1998, s.23.

<sup>13</sup> BALABÁN, Miloš a Libor STEJSKAL. *Kapitoly o bezpečnosti*. 2., změn. a dopl. vyd. Praha: Karolinum, 2010, s.11.

Security studies is mainly about war, dealing with military forces, and the central figure is the state<sup>14</sup>. However, in today's globalized world, many new global problems and challenges are emerging, where the state is no longer the only central actor, but other actors such as multinational companies or international non-governmental organizations are also appearing. For these reasons, the conventional realist interpretation of security appears somewhat limited and new theories of security are emerging. One of these modern theoretical lines is the Copenhagen School, which offers not only a new perspective for security analysis, i.e. a new way of investigating security topics, but also a series of theoretical concepts. In this article, the issue of the Arctic region will be analyzed through the lens of the Copenhagen School.

The actual research process took place in the following steps. The first step was to determine the type of comparative study in terms of objectives. This was followed by specification of variables and selection of cases. It included operationalization of variables and data selection. Finally, methodological work comes to the fore. That is, the choice of method and its implementation. The last step was to verify the veracity of the hypotheses and evaluate the conclusions reached.

From the point of view of the specific goals of comparative research, this work focused primarily on the macro-causal interpretation of the issue of the Arctic region. Thus, the dependencies between variables across different cases of macro-level structure that belong to the economic, political, environmental, military and societal sectors were investigated. Specifically, we sought an answer to the working question, "Will the economic potential of the region be a focus of future conflicts?".

As in case studies, so also in comparative studies, we must define the investigated theoretical concepts in the form of concrete variables<sup>15</sup>. Variable specification answers the question, what are the dependent variables to explain? And what are the independent variables? While the independent variable<sup>16</sup> indicates the presumed cause, the dependent variable the presumed consequence<sup>17</sup>. Since the comparative case study is one of the basic scientific methods<sup>18</sup> and is traditionally used in cases with a small number of investigated cases and a large number of variables, a parsimonious approach in defining the independent variables is recommended<sup>19</sup>. In this study, the reduction of the number of relevant independent variables will be achieved by aggregating them into five core variables. That is, variables that are assumed to be the cause and with the help of which it will be possible to explain the future state values of the dependent variable. In line with the Copenhagen School and its five security sectors, the military, political, economic, environmental and social conditions will be discussed, as well as the security sectors by the Copenhagen School.

This work uses the method of data collection in the form of document study (form of content analysis)<sup>20</sup>. The first step was the selection of the analyzed documents. This research mainly concerned documents related to the Arctic strategy of individual actors. The second phase was the determination of semantic units whose occurrence in the examined documents

<sup>14</sup> WALT, Stephen M. The Renaissance of Security Studies. *International Studies Quarterly* [online]. 1991, **35**(2), s.2012-2013 [cit. 2020-02-21]. Dostupné z: <https://academic.oup.com/isq/article-lookup/doi/10.2307/2600471>.

<sup>15</sup> DRULÁK, Petr. *Jak zkoumat politiku: kvalitativní metodologie v politologii a mezinárodních vztazích*. Praha: Portál, 2008, s.67.

<sup>16</sup> HANZL, Daniel. *Metody a techniky sociálního výzkumu*. Jihlava: Vysoká škola polytechnická, 2014, s.35.

<sup>17</sup> DRULÁK, Petr. *Jak zkoumat politiku: kvalitativní metodologie v politologii a mezinárodních vztazích*. Praha: Portál, 2008, s.16.

<sup>18</sup> LIJPHART, A.: Comparative Politics and the Comparative Method. *American Political Science Review*, 1971, vol. 65, s. 682–693.

<sup>19</sup> DRULÁK, Petr. *Jak zkoumat politiku: kvalitativní metodologie v politologii a mezinárodních vztazích*. Praha: Portál, 2008, s.67.

<sup>20</sup> DVOŘÁKOVÁ, Ilona. Obsahová analýza / formální obsahová analýza / kvantitativní obsahová analýza. *AntropoWebzin*. Plzeň: AntropoWeb, **2010**(2), 95-100.

was recorded. Not only the frequency of their occurrence was evaluated, but also the priority and importance attached to the topic by each of the actors.

Subsequently, these qualitative parameters were quantified. To determine the values of the variables in this research, the fuzzy set method<sup>21</sup> was used, where individual variables were assigned a value from 0 to 1, depending on how much weight the states attach to specific areas in their foreign policy, and especially how they perceived them in their arctic strategies.

In this work, the fuzzy-set method is used, which assigns individual investigated cases to a specific "fuzzy" set. These values range from 0 to 1 depending on the values of the dependent and independent variables. Number one is assigned to those cases that most meet the specified condition. Cases that do not meet the specified condition at all are rated zero. Other cases are assigned some value from the open interval (0,1) depending on the degree of fulfillment of the criteria. Therefore, one will be assigned to the areas to which the Arctic states attach the highest importance in their strategies, zero will be assigned to those cases that the actors do not address at all or only marginally in their strategies. Thus, after their calibration, we obtained a specific numerical expression of the values of the independent variables. Qualitative data quantified in this way are then compared.

The content analysis of Arctic strategies was focused on 17 topics described below. The aim was to evaluate how the five researched state actors approach the defined areas and what weight they attach to them in their Arctic strategy. Each of the areas enters the following research as one of the independent variables.

- 1) the emphasis placed on strengthening the army and the military strategic position in the region (in the next part of the work and especially in the graphs abbreviated as "army")
- 2) efforts to accurately delineate disputed borders (abbreviated as "border")
- 3) emphasis on state sovereignty, state security, protection of its borders (abbreviated as "sovereignty")
- 4) efforts to establish calm and peace in the area (abbreviated as "peace")
- 5) strengthening regional self-government and efforts towards partial decentralization (abbreviated as "autonomy")
- 6) claims to the existence of their continental shelf with the aim of expanding the exclusive economic zone (abbreviated "shelf")
- 7) striving for international cooperation in the Arctic region (abbreviated as "cooperation")
- 8) support of new mining technologies (abbreviated as "technology")
- 9) development of infrastructure for peaceful purposes (abbreviated as "infrastructure")
- 10) emphasis on economic use of raw materials and natural resources (abbreviated as "raw materials")
- 11) efforts to develop and use the Northern Sea Routes (abbreviated as "navigation")
- 12) survey and exploration of the area, especially the seabed (abbreviated as "exploration")
- 13) support of search and rescue and search operations in the area (abbreviated as "SAR")
- 14) support of science and research in non-military areas (abbreviated as "research")
- 15) efforts to protect the environment (abbreviated as "environment")
- 16) search for the causes of climate change and efforts to eliminate these causes (abbreviated as "climate")
- 17) improving the quality of life not only of the indigenous population living in polar regions (abbreviated as "population")

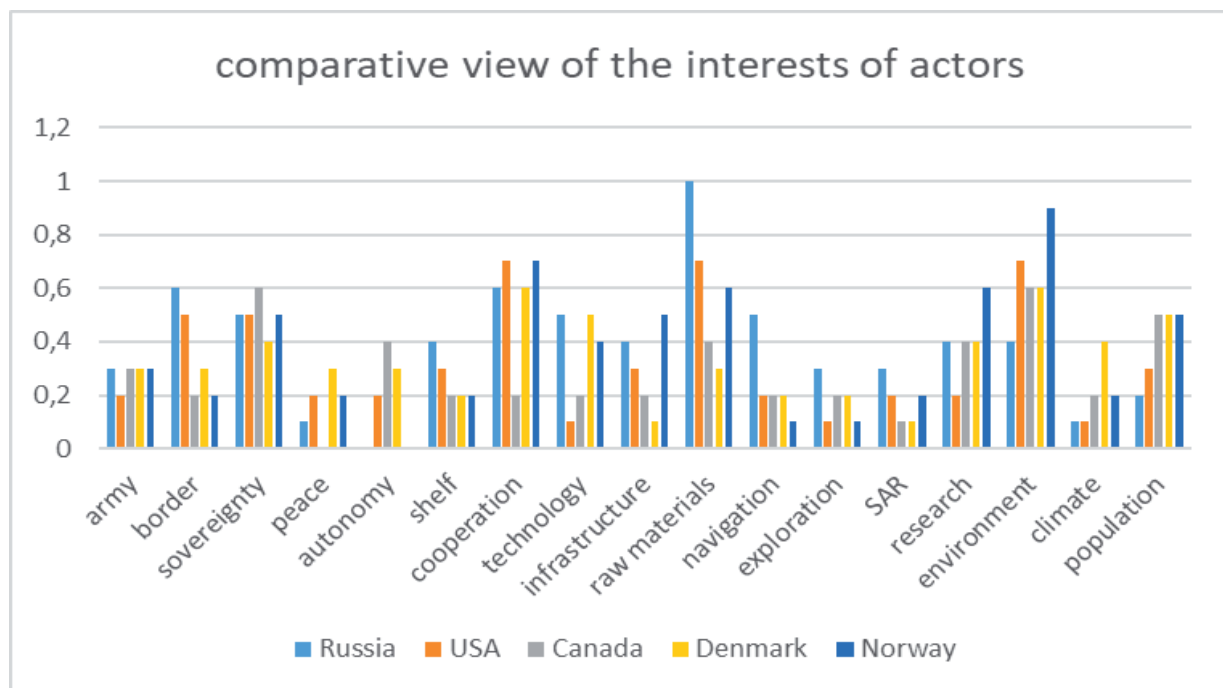
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<sup>21</sup> RAGIN, Charles C. *Fuzzy-set social science*. Chicago: University of Chicago Press, 2000.

## Results

Ratings for all five countries were entered into one three-dimensional model<sup>22</sup>, where the horizontal X-axis shows the regions of interest as independent variables, the Y-axis shows the individual states of the Arctic Five, and the vertical Z-axis shows the weight that the countries give to the respective region in values 0-1. This model has been calibrated so that the case with the highest point rating takes on the values of 1 and the values with the lowest rating take on the values of 0. A graphical representation of this 3D model can be found in Fig.4. The resulting values of this graphical model are shown in the graph in Fig. 3.

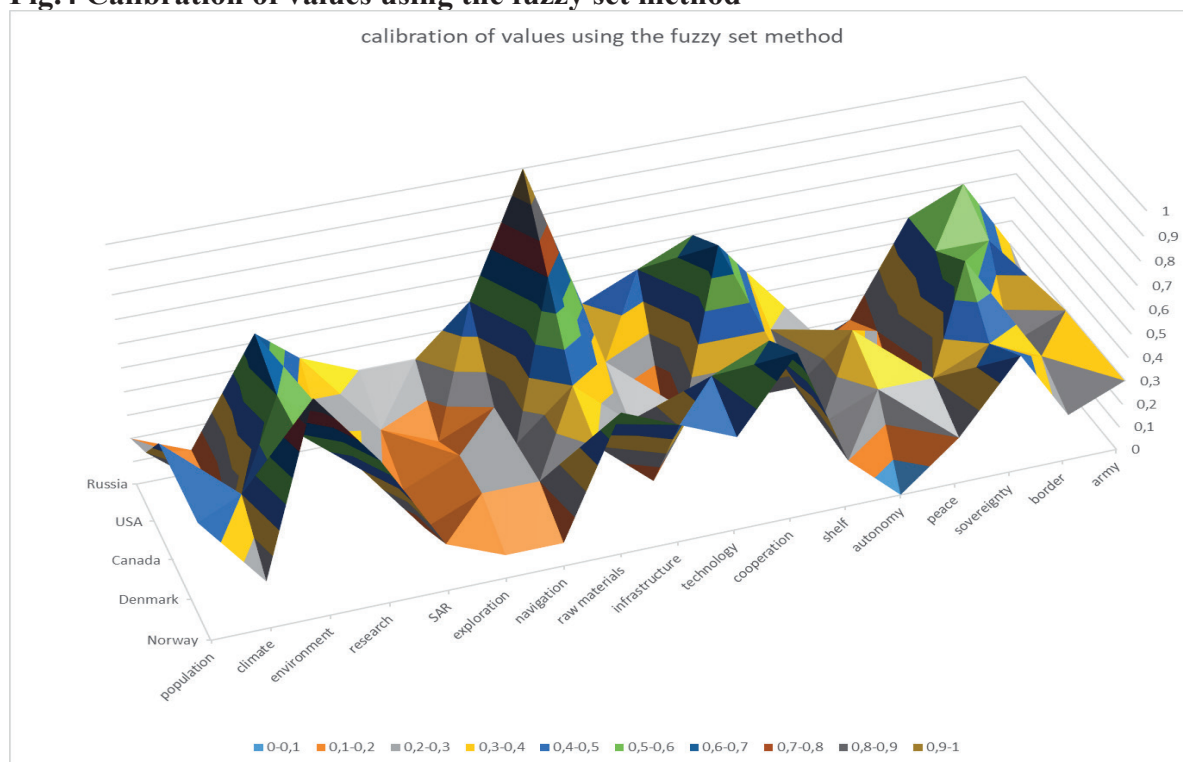
**Fig.3 A comparative view of the interests of actors**



Source: Author's own construction, quantification of qualitative data of arctic strategies

<sup>22</sup> Kratochvil R., Jánešová M.: USE OF CLUSTERING FOR CREATING ECONOMIC-MATHEMATICAL MODEL OF AWEB PORTAL. CTU FTS 2019, Neural Network World 2/2019, 61–70.

**Fig.4 Calibration of values using the fuzzy set method**

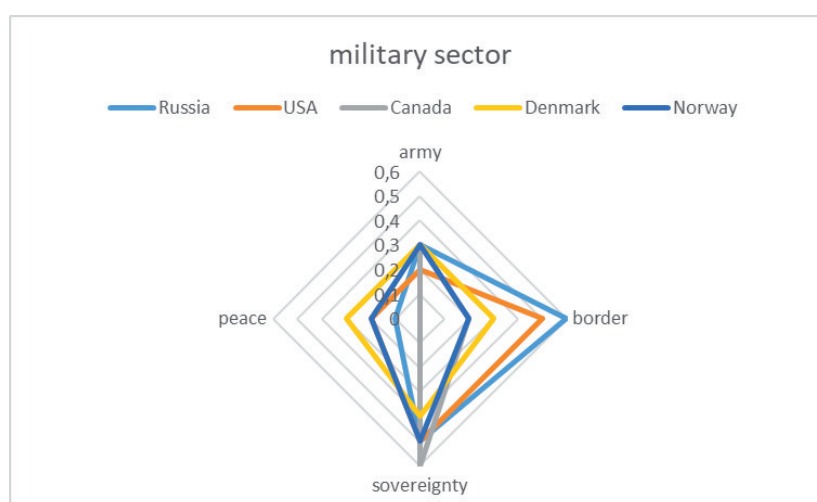


Source: The author's own construction, based on the quantification of qualitative data of arctic strategies.

## Military Sector

The graphic representation of the military sector in Fig. 5 revealed that, within the framework of military issues, the states in their Arctic strategies are most concerned with issues of state sovereignty and efforts to demarcate disputed borders. However, they do not pay much attention to strengthening the army and increasing the military's strategic position in the region. However, this finding is in direct contradiction to the currently ongoing militarization of the area. It follows from the above that, although the Arctic states do not mention the strengthening of military forces in their strategies, they are working on military activities.

**Fig.5 A comparative view of the military sector of sub-actors**



Source: The author's own construction, based on the evaluation of areas of interest in the military sector.

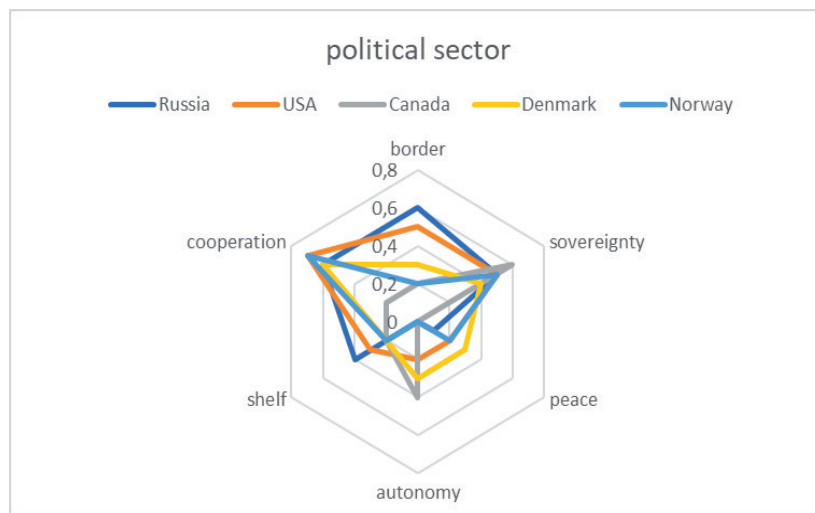


### Political Sector

The graphic representation of the political sector in Fig. 6 did not reveal unambiguous results, as was the case with the military sector. Each of the actors has somewhat differently set political priorities for the Arctic region. However, one area can be seen as a priority in all Arctic strategies. This is the effort for international cooperation. The states' emphasis on international cooperation in the region is evidently a consequence of the situation where the area does not have a unified contractual basis and the political situation in the area is based on international treaties and agreements.

On the contrary, active efforts to maintain calm and peace in the area have the least weight. This finding only confirms the findings reported in the military field. In other words, although the states do not talk about it in their strategies, they strengthen their military forces in the region, and strive for a conflict-free state rather for the reason that they can peacefully promote and realize their strategic interests in the region.

**Fig.6 A comparative view of the political sector of sub-actors**

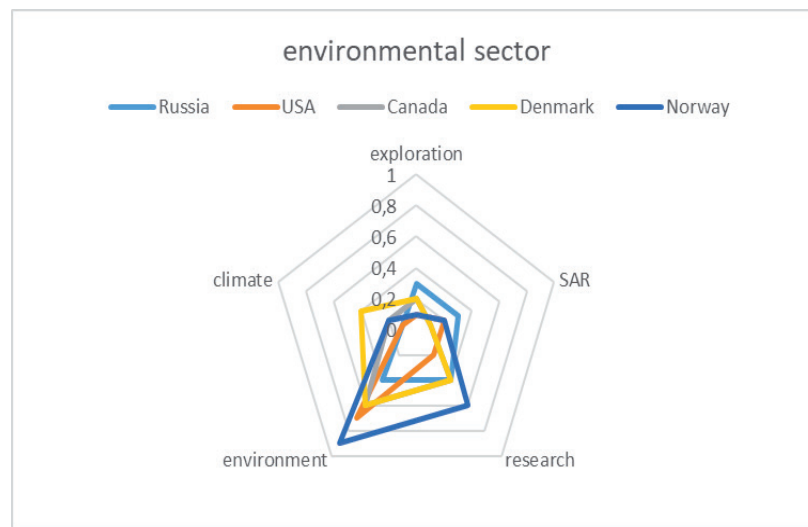


Source: The author's own construction, based on the evaluation of areas of interest in the political sector.

### Environmental sector

By graphically displaying the environmental sector in Fig. 7, it was found that states in their Arctic strategies focus most on activities related to environmental protection, but do not attach too much weight to other areas in this sector. For example, the actors do not devote much attention to the search for the causes of climate change and efforts to eliminate them. In the same way, research in the non-military field, which would indicate efforts to find a way to protect the environment more, is not given much weight in the strategies. The only exception in this case is Norway. So the question arises, how serious are the actors about environmental protection?

**Fig.7 A comparative view of the environmental sector of sub-actors**



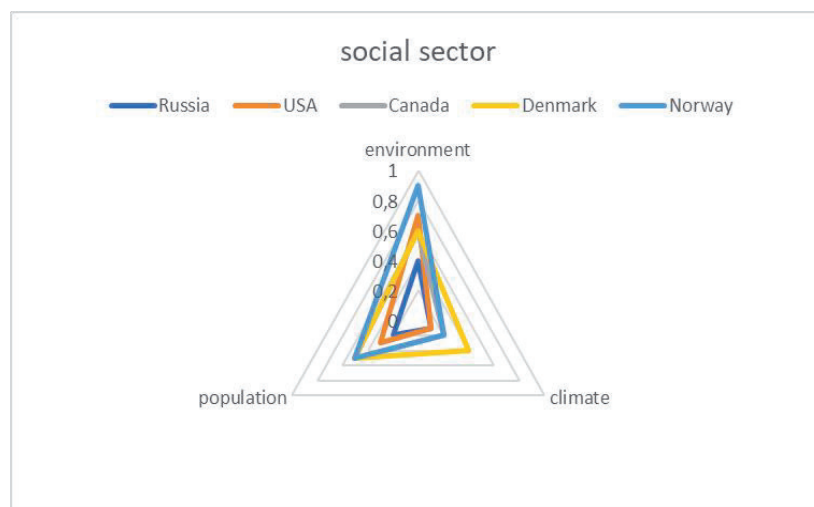
Source: Author's own construction, based on evaluation of areas of interest in the environmental sector.

The result of research in the environmental field indicates that the actors are more interested in the economic use of the area and ensuring access to critical energy resources that are important to meet the essential needs of their residents. However, the states are aware of the importance of media support for the second ethical approach mentioned above<sup>23</sup>, and are therefore apparently trying to hide their priority so that it seems that environmental protection is one of their priorities.

### Social Sector

By graphically displaying the social sector in Fig. 8, it was found that all states in their Arctic strategies uniformly mention the improvement of the quality of life of the indigenous population. However, this activity has not been given too much weight in social sector research. Efforts to protect the environment received the highest priority in this sector.

**Fig.8 A comparative view of the social sector of sub-actors**



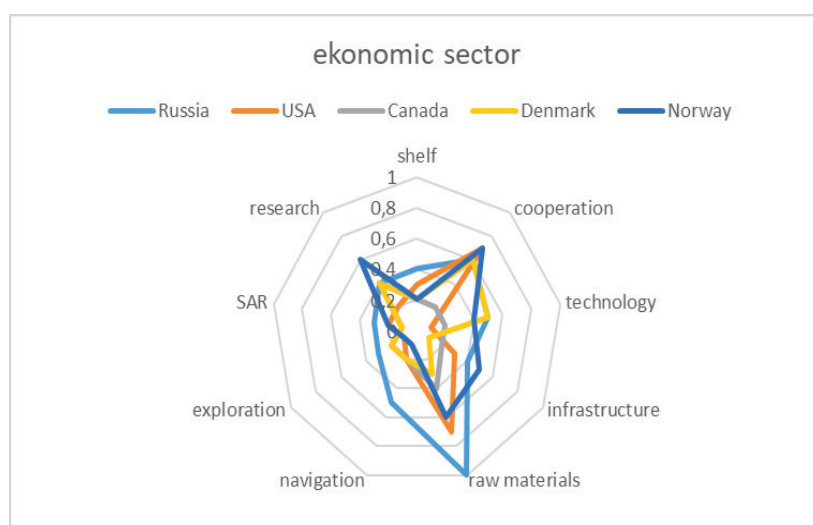
Source: The author's own construction, based on the evaluation of areas of interest in the Soviet sector.

<sup>23</sup> e.g. Greta Thunberg

### Ekonomický Sektor

From the graphic representation of the economic sector in Fig. 9, it follows that this is an area where individual actors have different interests in their strategies. In Russia, the effort to economically use raw materials and natural resources clearly prevails. However, the USA also places emphasis on this area. An important role here is probably the dependence of Russia and the United States on the mineral resources there<sup>24</sup>. In addition to raw materials, the USA, Norway, Denmark and Russia also focus on international cooperation in the region. Norway also places great importance on supporting science and research in non-military fields.

**Fig.9 A comparative view of the economic sector of sub-actors**



Source: The author's own construction, based on the evaluation of areas of interest to the economic sector.

The result of the research on the economic area confirms the above-mentioned majority opinion of the professional public, that the actors are most interested in the economic use of the area with the support of international cooperation. The states are apparently aware that a potential conflict would jeopardize their economic goals in the area.

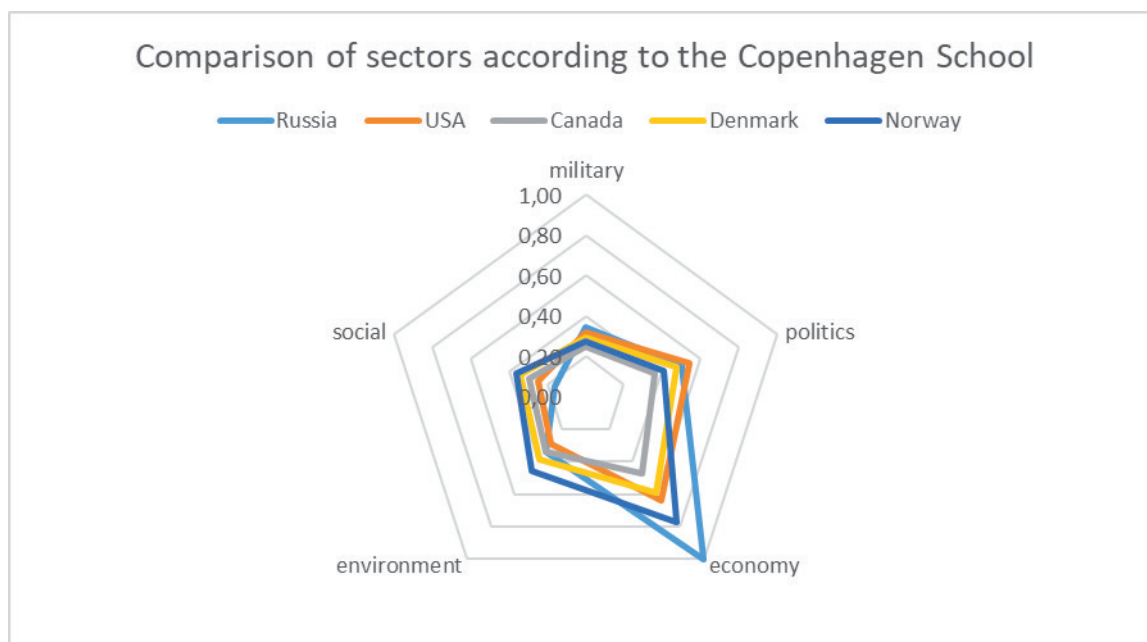
### Comparison by sectors of the Copenhagen School

This part of the research was devoted to the comparison of the areas of interest of Arctic actors within individual threat sectors according to the Copenhagen School. In this part, the study focused on the macro-causal interpretation of the issue of the Arctic region. Specifically, the dependence between variables across different cases of the macro-level structure, which belongs to the economic, political, environmental, military and social sectors, was investigated.

<sup>24</sup> Mining beyond the Arctic Circle accounts for 20% of Russia's GDP. The production in the northern Gulf of Alaska is the source of the third largest production of oil in the USA and thus allows to reduce the dependence of the USA on the oil of the Middle East. Source: KOČÍ, Adam a Vladimír BAAR. VÝVOJ VZTAHŮ RUSKÉ FEDERACE A USA V REGIONU ARKTIDY. SPOLUPRÁCE ČI NOVÁ STUDENÁ VÁLKA? *ACTA GEOGRAPHICA UNIVERSITATIS COMENIANAE* [online]. 2018, 62(1), 3-24 [cit. 2020-02-20]. ISSN 1338-6034. Dostupné z: <https://search-proquest-com.ezproxy.techlib.cz/docview/2085823071?pq-origsite=summon>.

Several authors have already analyzed the Arctic region from the perspective of the Copenhagen School. However, the domestic and foreign authors whose works were studied mostly sufficed with the identification of the actors, the subsequent description of the mentioned five sectors and their qualitative assessment. For example, Jeppsson<sup>25</sup> or Košatková<sup>26</sup> reflect on these questions in their works. A detailed quantification of the qualitative data mentioned in the Arctic strategies and their subsequent comparison with the shifts in the implementation of these strategic plans could not be found.

**Fig.10 A comparative view of sectors according to the Copenhagen school of sub-actors**



Source: Author's own construction, based on evaluation of individual sectors.

The graph in Fig. 10 shows that the interests of states in the Arctic region have the greatest influence on economic conditions. Other areas have half or even less weight compared to the economic sector.

From the previous analysis of the economic sector, it follows that the actors are most interested in the economic use of the area with the support of international cooperation. The states are apparently aware that a potential conflict would jeopardize their economic goals in the area. This also corresponds to the policy of individual states, which in their strategies seem to focus on international cooperation in the region for purely pragmatic reasons.

The sector with the second largest weight is the political sector, during the analysis of which it was found that the emphasis of the states on international cooperation in the region is evidently a consequence of the situation where the area does not have a unified contractual basis and the political situation in the area is based on international treaties and agreements, which only underlines correctness of the above statement.

<sup>25</sup> JEPPSSON, Henrik. *Securing the Arctic: A study of securitization as a cause for state armament in the Arctic region*. Uppsala, 2014. Master's Thesis. Uppsala University. Vedoucí práce Associate Professor Joakim Kreutz.

<sup>26</sup> KOŠATKOVÁ, Iva. *Arktida jako regionální bezpečnostní komplex*. Praha, 2013. Rigorózní práce. Univerzita Karlova v Praze. Vedoucí práce Mgr. Tomáš Weiss, M.A., Ph.D.

## Conclusion

The author's comparison shows that the interests of states in the Arctic region have the greatest influence on economic conditions. Other areas have half or even less weight compared to the economic sector. The states are apparently aware that a potential conflict would jeopardize their economic goals in the area. This also corresponds to the policy of individual states, which probably focus on international cooperation in the region in their strategies for purely pragmatic reasons. The sector with the second largest weight is the political sector, during the analysis of which it was found that the emphasis of the states on international cooperation in the region is evidently a consequence of the situation where the area does not have a unified contractual basis and the political situation in the area is based on international treaties and agreements, which only underlines correctness of the above statement.

On the contrary, active efforts to maintain calm and peace in the area have the least weight. This finding only confirms the findings reported in the military area, where it was confirmed that, although the states do not talk about it in their strategies, they strengthen their military forces in the region, and strive for a conflict-free state rather for the reason that they can calmly promote and implement their strategic hobbies.

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