Updating the Nutrition Registry Database
This report was drawn up based on the results of an experiment carried out in 2013. The report’s recommendations are solely those of the project group. The Danish Business Authority has not taken a stance on the recommendations at this time.

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This report describes the results obtained and the lessons learnt from the “Nutrition Base Registry Update” experiment. It also focuses on lessons learnt that the Danish Business Authority can apply to other business areas. The experiment involved introducing nudging elements in a letter. The insight gained from the experiment can be used to improve other letters sent by the Authority to businesses to encourage them to register in statutory schemes or registries.

Background

The Nutrition Base

The Nutrition Base (Næringsbasen) is a publicly accessible registry of the Danish Business Authority in which all businesses engaged in the sale or transport of foodstuffs to consumers, including catering businesses, restaurants and food-wholesale businesses, must be registered in order to lawfully operate their enterprise. As a general rule, all businesses that sell foodstuffs to the value of more than DKK 50,000 a year must be registered in the Danish Nutrition Base Registry. This also means that some enterprises which do not consider themselves food businesses must be registered in the database. This applies to DIY stores, for instance, which sell sweets at the check-out counter. In this context, foodstuffs are defined as any type of food, e.g. beer, wine, soft drinks, sweets and other foods.

Normal procedure

Authorities such as the Danish Veterinary and Food Administration and the Danish Customs and Tax Administration typically discover during an inspection that a food business is not registered in the Nutrition Registry. They subsequently submit a notification to the Danish Business Authority’s Business Support. After this, the Danish Business Authority creates an official case:

1. The Danish Business Authority sends an official letter to the business, pointing out that the business is not registered in the Business Registry.

2. If the business does not respond either by becoming registered in the Nutrition Base Registry or by submitting a reasoned objection (within around four weeks/20 working days) explaining why the business is not covered by the requirement, the Danish Business Authority will issue an additional official letter giving the business two weeks to be registered in the Nutrition Base Registry, and stating that if the business does not comply with this deadline, the Danish Business Authority will report the business to the police requiring a fine, which is usually DKK 10,000.

3. If this also fails to elicit a reaction from the business, the Authority will report the business to the police with a view to a fine being imposed.

Statement of the problems

When the Danish Business Authority was due to undertake a large-scale update of this database, in collaboration with the Danish Veterinary and Food Administration, it was deemed relevant to look at how the system could get the best possible results and get as many businesses as possible to register with the
Nutrition Base Registry using as few resources as possible. In a test process, the Danish Business Agency chose to send letters to 37 businesses. More than 50% of these businesses responded. If the Danish Business Authority does not hear from a business, the Authority must expend administrative resources on sending an additional letter and then frequently also reporting the business to the police. This incurs large costs for the Authority, which could be reduced if the percentage of businesses responding could be increased.

**Preferred behaviour**

As part of tidying-up and updating the Nutrition Base Registry, in 2013 the Danish Business Authority contacted more than 10,000 businesses listed by the Danish Veterinary and Food Administration. The Danish Veterinary and Food Administration expects that 70–75% of the businesses receiving letters are under an obligation to be registered in the Nutrition Base Registry. Therefore, another aim of the experiment was to get the right businesses to register so that the inclusion rate approaches the level expected. If a business has a legitimate reason for not being included in the Nutrition Base Registry, the Danish Business Authority would like that business to contact the Authority. The business can file an objection using the contact form, so that it can be removed from future lists. This will save time and inconvenience both for the Danish Business Authority and for the business.

**Experiment**

To achieve the desired behaviour and increase the response rate, we chose to edit the letter. We based these changes on the diagnosis. Five different letters were issued during the experiment.

1. The original letter.
2. A new letter with several changes (the nudge letter).
4. The new letter with social comparison (social norm).
5. The new letter with a rewording of the obligations relating to the competences required (“What’s in it for me?”).

The letters were sent in ten different mailings. Different letters were sent in each mailing, and data was compiled concerning the number of businesses responding and the number of businesses that became registered in the Nutrition Base Registry. The new nudged letter was the only letter to be sent out in the fifth and sixth mailings.
Diagnosis of the original letter

The diagnosis process assessed, categorised and evaluated the letter to identify areas that could benefit from changes being made. The diagnosis was carried out by iNudgeyou/Danish Nudging Network. The defining principle for these tasks is to identify areas that are believed to have the potential for change, based on behavioural knowledge derived from behavioural economics, cognitive psychology, social psychology, etc. Specifically, this diagnosis consisted of several components. Part of the diagnosis involved knowledge about interventions that work or have worked in other situations. Another aspect involved using the actions which the letter wants the recipient to carry out as leverage in a rewritten letter.

We generally assume that certain factors apply to recipients of the vast majority of letters from the public sector (and the private sector, for that matter):

- limited time devoted to reading the letter;
- limited attention to the letter’s contents;
- the likelihood of several steps having to be taken between the receipt of a letter and the execution of the actions specified in the letter, e.g. if a letter received in a physical mailbox has to be processed using a computer if the actions need to be carried out online;
  - risk of mislaying the letter;
- uncertainty about the letter’s importance.

The original letter contains information about the Nutrition Base Registry; the conditions for mandatory inclusion in the Nutrition Base Registry (food business with a turnover in excess of DKK 50,000); why the recipient is receiving the letter; what the recipient should do (comply or respond); the procedures for response or compliance; what will happen if the recipient does not respond or comply; instructions; and a deadline.

The original letter:
First diagnosis element: The question “Is your business required to have a ”Nutrition letter”?

Skal din virksomhed have et næringsbrev?
Fødevarestyrelsen har oplyst Erhvervsstyrelsen om, at

The diagnosis assumes that the question “Is your business required to have a ”Nutrition letter”?” enables the opening of a mental negotiating space, despite the fact that the business meets the conditions for having to have a “Nutrition letter”. Basically, it can be said that the question allows the recipient to respond and makes it possible for him/her to manipulate the response within the recipient’s mental negotiating space into “No, thank you”.

One of the brain’s central functions is to process our perception of the world so that it appears meaningful and coherent. Specifically, this means that in instances involving conflicting information or incompatible courses of action, we clarify these in our “mental negotiating spaces”. Conflicting information leads to what is known as cognitive dissonance. We negotiate our perception of reality in our mental negotiating space to serve us personally in the best way possible, frequently fulfilling our short-term preferences. This means,
for example, that it is possible to be on a diet and eat a piece of cake at the same time, if the dieter has promised himself/herself to go for a run the following day (regardless of whether he/she actually does so) in his/her mental negotiating space.

**Second diagnosis element: Use of the word “presumably”**

The word “presumably” in the sentence “The Danish Veterinary and Food Administration has informed the Danish Business Authority that [the business] is presumably required to have a “Nutrition letter” also helps to enhance cognitive dissonance, as described above, and thus the possibility of opening the mental negotiating space.

**Third diagnosis element: Use of conditions**

The conditions which determine whether a business meets the requirements for having to establish a “Nutrition letter” are not highlighted and are not very clear. This is problematic for two reasons: First and foremost, this is the most essential piece of information explaining why the recipient is receiving the letter in the first place and why the recipient is required to be registered in the Nutrition Base Registry. The underlying hypothesis of the intervention is that, as we would generally like to explain or justify our actions, the reasons why the recipient must respond should be emphasised clearly and unequivocally. The failure to make the reasons explicit also helps to widen the scope for cognitive dissonance.

**Fourth diagnosis element: Design and weighting of actions**

The conditions which determine whether a business meets the requirements for having to establish a “Nutrition letter” are not highlighted and are not very clear. This is problematic for two reasons: First and foremost, this is the most essential piece of information explaining why the recipient is receiving the letter in the first place and why the recipient is required to be registered in the Nutrition Base Registry. The underlying hypothesis of the intervention is that, as we would generally like to explain or justify our actions, the reasons why the recipient must respond should be emphasised clearly and unequivocally. The failure to make the reasons explicit also helps to widen the scope for cognitive dissonance.
The letter requests the businesses to do one of two things. The businesses can either establish a “Nutrition letter” or notify the Authority if they do not think that they are required to have a “Nutrition letter”. These possible courses of action are described in two paragraphs, “Establish a “Nutrition letter” quickly and easily” and “Please notify us if you are not required to have a “Nutrition letter””. The wording of these sections describes what needs to be done, but does not show how to do it. In other words, the specific action or actions expected of the recipient are not indicated. Specifying clear procedures for taking action minimises the perceived difficulty and, in other experiments, has turned out to be a more effective method than trying to motivate or influence people with arguments.

Fifth diagnosis element: Stipulation of deadline

| Har vi ikke har hørt fra dig senest fredag d. 29. juni 2012, vil Fødevarestyrelsen blive orienteret herom. |

Even though the deadline for the action expected is emphasised, it is not very clear. In addition, it is not completely clear whether the deadline applies only to responding to the Danish Energy Authority or whether it also applies to the establishment of the “Nutrition letter” (by virtue of the wording “if we have not heard from you”). In addition, the consequence of failing to “hear from” the recipient is not clear, apart from the fact that the Danish Veterinary and Food Administration will be notified.

Sixth diagnosis element: Description of risk

| Bemærk:  
Det er ulovligt at drive fødevarevirksomhed uden at være optaget i Næringsbasen.  
Du risikerer en bøde på mindst 10.000 kr.  
Det er dit ansvar, at alle forretningssteder, hvor der handles, transporteres eller håndteres fødevarer, er optaget i Næringsbasen. |

The risk of remaining inactive (a fine of at least DKK 10,000) is specified in a box at the bottom of the letter. From studies of subjects using eye-tracking scanners, many people stop reading before they reach the bottom of a letter. In other words, even though the box theoretically highlights the risk, it is probably not the most effective method in practice.
The new nudged letter
This letter was designed based on the analysis results. The letter is worded using five tactics.

The first two tactics had not been tried out in a Danish context before.

First tactic: Limiting the mental scope
The new letter emphasised the conditions for inclusion in the Nutrition Base Registry. This was done using ticked “boxes”. Having the boxes already ticked (i.e. not empty) indicates to the recipient that the sender thinks the recipient meets the conditions. It serves the additional purpose of curbing spurious objections.

The word “presumably” was deleted and was replaced by “must” as, in the assessment of the Danish Veterinary and Food Administration, 70–75% of the businesses were required to register.

Second tactic: Providing instructions about how to respond
The instructions for the Nutrition Base Registry were depicted using graphics. This clarified the action required of the recipient.

The next three tactics are well-defined and have proven their worth previously in other contexts.
Third tactic: Personalisation
The original letter was addressed to the business. To increase the sense of responsibility, the new letter was personalised and sent directly to the appropriate employee.

Fourth tactic: Emphasis of key information
The response deadline is emphasised using a highlighting colour, and a single word was replaced: “reason” is replaced by “objection”. The overall effect is to tighten the tone.

Fifth tactic: Emphasising the risk
The fine of DKK 10,000 is also emphasised by being highlighted with a colour.

In addition, a second page is used. Page 2 describes how it is possible to file an objection. Moving this information to page 2 removes it from focus. If the assessment of the Danish Veterinary and Food Administration is correct, this will apply to 25–30% of the businesses.

Versions of the new nudged letter

Red stationery
The only difference between this version and the new nudged letter is that it is printed on red stationery. Red is a signal colour familiar from traffic signs and traffic lights. The tactic of using a red colour aimed to prevent the letter from being mislaid.

The new letter with a degree of social norm

A well-known tactic in other contexts is to elicit social comparisons. The tactic works because we largely navigate our world by comparing our actions to those of like-minded people. In the wording of letters, this is exemplified by writing “nine out of ten people pay their tax on time”.

In the letter, this social comparison is introduced in a reworded introductory paragraph. The text was modified from “The Danish Veterinary and Food Administration has notified the Danish Business Authority that your business should have a “Nutrition letter” in the Nutrition Base Registry, as it is assessed that...” to “Unfortunately, your business is one of the remaining businesses that has still not established a “Nutrition letter.””.

The new letter with “What’s in it for me?”
Before you can register in the Nutrition Base you are required to pass a test proving that you are aware of a number of specific rules and regulations. For some businesses that means that you can’t register right away. The Authority encounters many objections and frustrated responses from individuals who are dissatisfied with having to pass a test. The reasons most frequently cited are that they have taken and passed a hygiene course, and therefore consider this test to be redundant.
Many businesses cannot be included in the Nutrition Base Registry until they have taken the Business Test. The test contains a wide range of questions about rules and regulations in the following areas:

- taxes and charges, including deposits on packaging;
- occupational health and safety;
- foodstuffs legislation.

The test is always kept up to date in relation to the latest legislation. Therefore, it will be possible at all times to stay abreast of the latest rules by keeping up to date with the material for the test. This is emphasised by using the phrase “Get an overview of the primary rules through free self-study”.

To illustrate the difference between a hygiene course and a business test, the sentence “If you have not been included in the Nutrition Base Registry previously, you must either have passed a certified study programme or take the business test” is written on the first page of the letter.

The back page also refers to where it is possible for the recipient to read about exemptions from the obligation to be included in the Nutrition Base Registry, which includes canteens, VAT-exempt businesses, primary producers, etc.

The following was added to the first page of the letter:

Hvis du ikke tidligere har været optaget i Næringsbasen, skal du enten have en godkendt uddannelse eller bestå næringsprøven.

This was followed up on the reverse page of the letter with:

FÅ OVERBLIK OVER DE PRIMÆRE REGLER VIA GRATIS SELVSTUDIUM
Du kan forberede dig til næringsprøven ved at tage et online selvstudium, der handler om de gældende regler, du skal have indstigt i, når du driver fødevarevirksomhed. Du kan derudover med fordel bruge materialet til løbende at holde dig ajour med de væsentligste regler for fødevarevirksomheder.

Du kan finde selvstudiet samt læse mere om næringsprøven og godkendte uddannelser på: http://www.erhvervsstyrelsen.dk/naeringsproeven

Results

What difference did modifying the letter make?
Modifying the letters made a big difference, and the difference remained constant across all mailings. The results of the first four mailings when the original control letter was sent are depicted in Figures 1 and 2. The nudged letter achieved a combined inclusion rate of 42%, which was 12 percentage points higher than the control letter. This figure has high statistical certainty.¹

¹ Significant by 1%.
As shown in Figure 2, the total percentage of businesses which responded to the nudged letter was 68%, compared to 57% for the control letter. The difference is significant, but is solely due to the difference in the percentage included. The percentage of businesses that responded in a different manner was identical across the two groups.
Did the nudged letter have a lasting effect?
The percentage of businesses responding and the percentage of businesses subsequently included in the database based on the nudged letter remained relatively stable across all ten mailings (see Figure 3), but declined in mailing 10.

Figure 3: Response trends for the nudged letter

![Response trends for the nudged letter](image)

Did further changes to the letter have an effect?
During the course of the experiment, the project group tried out various other versions of the nudged letter to determine whether it was possible to increase the number of businesses that were subsequently included in the database.

The other versions did not help to further increase the percentage of businesses that were subsequently included in the database. Neither the “social norm” letter or the “What’s in it for me?” letter generated results that were significantly different from the nudged letter; the red-stationery letter did have a slight, but significantly lower, inclusion rate than the nudged letter (see Figure 4).
Going forward, it would make good sense to rewrite the letter using the same principles as in the original nudged letter. We know from data that using social norms or a “What’s in it for me” tactic do not give added value. This could still be a relevant parameter to try out, however, particularly in areas where there is a clearer gain and/or greater social benefit for the business.

**Conclusions**

This was the first experiment to be implemented by the Danish Business Authority which uses insight taken from behavioural economic theory. As the results illustrate, there are potential benefits from taking a systematic approach by introducing insight gleaned from experiments and behavioural economics – popularly referred to as nudging – into the Authority’s tasks.

An essential aspect of this work is to introduce experiment designs which support efforts to generate and collect the information required to be able to assess the results. In this experiment, data was collected and collated on an ongoing basis. Continuous data collection enables the individuals responsible for the experiment to continuously evaluate the response elicited by the letters sent. In the case of this experiment, this meant that the back page of the letters issued was revised on an ongoing basis.

The back page of the letter developed continuously during the experiment. The changes made were based on responses received from the businesses, etc. The back page worked well as a way of providing an added service to the businesses and also helped to clarify any uncertainties the businesses might have without requiring them to contact the Authority.

In the light of the fact that the experiment covered ten rounds of mailings over the course of about one year, the number of responses and the number of businesses that were subsequently included in the
Nutrition Base Registry were relatively stable. Therefore, it was not possible to conclude whether the time at which the letters concerned were mailed is of any particular significance. In addition, it is worth mentioning that the original nudged letter did not run out of steam along the way.

**Recommendation**

We recommend that the Authority use the lessons learnt from this letter in other letters which encourage recipients to take action. This particularly applies to areas where the matter to which the businesses must respond is specified in the letter itself.

**Value of experiments**

The primary recommendation comprises continuing to make use of an experimental method to study various mechanisms in letters, as the process enables successes and failures to be documented. Regardless of the outcome of an experiment – be it positive or negative – data from a controlled experiment provides knowledge. This knowledge is quite valuable in the Authority’s activities going forward.

**Value of the elements tested**

In relation to the individual elements of the rewritten letters, there is a basis for using the same or similar elements in other contexts. We recommend the use of the following elements:

1. **Restricting the mental scope:** We recommend that the Authority be generally aware of situations in which the Authority opens up the mental scope of the recipient of letters, e-mails and similar, to curb the volume of spurious objections or the failure to respond/comply. How this recommendation will be implemented in practice will largely depend on the model used.

   Specifically, we recommend that the Authority:
   
   - clearly specify what is expected of the business;
   - avoid the use of open questions; and
   - clarify the conditions which require the business to take action (e.g. by listing the conditions in ticked boxes).

2. **Information instructing how to respond:** When the purpose of writing a letter to a business is to get it to take specific action, we recommend that the Authority use information instructing the recipient how to respond. In other words, show the business how to do X, instead of writing that the business must do X.

3. **Personalisation:** Instead of addressing the letter to the business, we recommend that the letter be sent to a named recipient to enhance the sense of responsibility.

4. **Emphasis of key information:** We recommend the emphasising of key information to make this information very clear. Specifically, we recommend that this emphasis be done using mechanisms that clearly stand out, e.g. bright yellow highlighting.

5. **Emphasising the risk:** We recommend that the Authority’s communications emphasise the risks for the recipients.
Facts about the experiment

Population
- Total number of letters = **8,248**
- The number broken down by each letter:
  - Control: **1,128**
  - Nudging: **3,942**
  - Red-stationery nudging: **1,175**
  - Social norm nudging: **1,002**
  - “What’s in it for me?” nudging: **1,001**

What are the data points?
- How many responded?
- How many were included?
- How many did not respond in one way or another?

Which business case was used?
- Estimated savings from reducing the number of official cases
- Estimated improvements in how the letter was perceived by the businesses

Quality assurance
- Randomisation of the various mailing samples

Prerequisites for the validity of the results
- The anticipated number of businesses in each sample receiving the letters – but which do not have to be included in the Nutrition Base Registry – is evenly dispersed.
- The specific businesses which become included in the Nutrition Base Registry can be registered.
- The CRM system correctly registers the responses.

Population considerations
- The population was dispersed among the various samples; this was done based on the principle that there should be an equal distribution over different types of businesses.
- The Danish Veterinary and Food Administration estimates that 70–75% of the businesses contacted should be in the Nutrition Base Registry.

Considerations concerning incoming contacts with the Authority
- The data used was solely extracted from the CRM system. This was done because businesses which file objections by telephone are requested to submit their objection in writing. We cannot consider cases that are not submitted through the CRM system.