Verify or Edit Master Data

DANISH BUSINESS AUTHORITY

Contents

This report was drawn up based on the results of an experiment carried out in 2014. The report's recommendations are solely those of the project group. The Danish Business Authority has not taken a stance on the recommendation at this time.

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Updating Businesses' Master Data

Background

This report describes the experiences and results from the "Updating Businesses' Master Data" experiment. The experiment involved the trying out of nudging elements capable of getting businesses to take responsibility for updating their master data, a task which is legally theirs; but the consequences of businesses not doing this are greater for the Authority than for the individual business. The lessons learnt from this experiment can be used in other contexts where the Danish Business Authority wishes to have businesses perform simple actions when requested to do so. Therefore, reporting also focuses on lessons learnt that the Danish Business Authority can apply to other business areas.

Master data

Danish businesses are required to register basic information about their enterprise during the process of becoming registered in the CVR (VAT) registry. This information comprises the business's master data in the CVR Registry and includes the business's address, telephone number, e-mail address, NACE code and type of business. The business is responsible for ensuring that the information registered is correct at all times. In addition, failing to notify statutory registry information can be a criminal offence.[1]

The Danish Business Authority makes master data available on its website cvr.dk, etc.[2] Anyone can access this website to obtain information about a business's address, etc., for use in their own business, for instance.

In addition to being able to see master data on cvr.dk, businesses can view their own master data on "Mit Virk" (My Business). "Mit Virk" is part of virk.dk, which is the businesses' portal to public reporting and self-service solutions.

Statement of the problems

It is generally a problem that the data registered in the CVR Registry contains errors.

It is a problem if master data are not updated, because public authorities base their administration and contact with businesses on information listed in the CVR Registry. Were the registry to contain high-quality data, the authorities would not have to spend time registering, verifying and updating the businesses' information in their own shadow registries. This would free up resources from administration for the core tasks of the authorities and lay the groundwork for digital case processing.[3]

The Danish Business Authority released CVR data on 1 January 2013. This means that businesses wishing to use data in the CVR Registry can now do so without having to pay for it. Many businesses use CVR data in their business. Therefore, there is a need to ensure and expect that the information in the CVR Registry is

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[1] Section 22 of the CVR Act.
[2] This site is being closed, after which functionalities and information will be available on virk.dk.
[3] Source: Good Basic Data for Everyone, the Government/Association of Local Governments, October 2012.

correct. It is both costly and tedious for other parties involved if businesses' master data in the CVR Registry is not up to date, such as for a hauliers' business that drives to the wrong address.

It is important that CVR data possessed by the Danish Business Authority is authoritative to prevent rumours from circulating to the effect that CVR Registry data is unreliable. Such tales could impair the reputation of the CVR Registry and result in extra work for the Danish Business Authority, as well as bad PR.

The experiment was designed to illustrate two underlying problems:

Insufficient knowledge of the extent of the problem
No one in the Danish Business Authority has a complete overview of the extent to which the master data in the CVR Registry is incorrect. When asked about the percentage of error in CVR Registry addresses, the Authority estimated this to be between 4 and 20%. The volume of returned post in conjunction with the mailing of physical letters to businesses (e.g. invoices) indicates the number of errors. The returned letters indicate that addresses of these businesses in the CVR Registry are incorrect.

The number of returned letters received by the Danish Business Authority is less than it could have been, because Post Danmark forwards post for six months to any businesses which have registered a change of address with them.

Insufficient knowledge of well-timed decision-making points for businesses
The businesses are responsible for updating the information. If the businesses are unaware of this, if they are unable to figure out how to do this or if they are not reminded that they have to do so, the Authority risks being in a situation where businesses do not update their data.

Together, the above-mentioned problems mean that the Authority does not have an overview of the extent of the problem and is accordingly unable to consider whether action needs to be taken to improve the quality of the master data registered.

Choosing "Mit Virk" as an arena for the experiment

In order to design a meaningful experiment, it was necessary to select an arena for the experiment that could illustrate the aforesaid problems. In this context, an arena is defined as all the venues where the Authority meets the business. This could be a letter, an e-mail or a website, for instance, or even a personal meeting. The Danish Business Authority encounters businesses in a wide variety of arenas. The purpose of identifying a suitable arena is to use some of the venues where we already encounter businesses to increase the likelihood of getting them to update their master data.

As no arena exists in which the Authority only encounters businesses whose master data contains errors, we realised that any given experiment would have to be addressed to businesses both with and without master-data errors. For the same reason, it was not viable, for instance, to send a letter to the businesses because it would not reach those with postal-address errors in the CVR Registry. At the same time, we had learnt from previous experiments that the likelihood of achieving positive results increases if the arena in which the experiment is being conducted is identical to the one in which the business must implement the desired modification. For instance, it is more likely that recipients will click on or use a link if it is presented

to them in an e-mail than in a physical letter, if the action requires the business first to go online, open a browser and then enter the information.

For this reason, "Mit Virk" was selected as the arena. Incidentally, one reason for developing "Mit Virk" in the original business case is articulated as follows:

> *"Being able to access, view and edit one's own master data will also enhance data quality, which will reduce the amount of resources authorities have to use to handle data errors." [4]*

A possible disadvantage of choosing "Mit Virk" to be an arena is that we only encounter businesses here which already use "Mit Virk". We run the risk that many of these businesses will have already corrected their master data because they regularly enter the universe ("Mit Virk") where they have to make the changes. We have no data to confirm or dispel this assumption, however. For the same reason, "Mit Virk" is the best site for obtaining data on the number of businesses that have not brought their master data up to date. If the percentage of data that has not been brought up to date is high among regular users of "Mit Virk", there is reason to expect an even higher percentage of data that has not been brought up to date among businesses which do not use "Mit Virk".

Preferred behaviour

We want businesses to verify their master data, either by confirming that the data is correct and that it is up to date or by editing it if it is incorrect.

Experiment

Our purpose with the intervention is to have businesses confirm or edit their master data. The businesses are presented with a pop-up containing their master data. We do this because we want everyone who is requested to do so to actively consider whether their data is correct and modify it if so required.

In so doing, we will test the effect on the quality of CVR data, while also heightening the visibility of the master data to the business giving the business more direct access to modifying data in the existing reporting solutions.

Typical process for changing a business's master data

When a business relocates to a new address or changes its contact information (e-mail address or telephone number), the business must update its master data in the CVR Registry. This can be done by using the digital online registration solution for companies, the digital reporting solution "Change business registration" on virk.dk, or by filling in the company registration form.

Also, businesses usually notify Post Danmark of a change of address. This is done independently of a change of address in the CVR Registry, as data is not exchanged between Post Danmark and the CVR Registry (in either direction).

This is what usually and preferably happens:

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[4] Businesses' Personal Entry Point, Ministry of Finance, et al., 2011.

1. the business relocates to a new address/gets a new e-mail address/changes its telephone number;
2. the business registers the change in the CVR Registry using a digital solution on virk.dk;
3. the business receives a letter from the Danish Business Authority confirming that a change has been made in the CVR Registry.[5]

Diagnosis

The diagnosis process assessed, categorised and evaluated the problem to identify areas where it would be beneficial to make changes. The diagnosis was carried out by iNudgeyou/DNN. The work is based on behavioural knowledge that is used to identify areas with room for improvement. The diagnosis consisted of identifying any barriers to the changing of master data in the existing process.

We identified the following barriers during the diagnosis:

1. Insufficient awareness

The reasons why a business ought to change its master data can include several factors, such as relocation, new contact information, changes to the type of company, etc. These require the business to be aware of its obligation to modify its master data, however. The failure to change master data could be due to insufficient awareness of this obligation. At present, the Danish Business Authority does not specifically endeavour to make businesses aware of their obligation.

2. Insufficient knowledge

In addition to being insufficiently aware of the obligation, we assume that many businesses are insufficiently knowledgeable concerning the procedure they have to use to make changes. We assume that those responsible for this in many businesses take it for granted that a change of address registered with Post Danmark will automatically be registered in all relevant databases.

Arena-specific diagnosis

Arena-specific problems

On the existing "Mit Virk", a business can find its own master data by clicking "See business data" in the right-hand column:

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[5] This letter states, among other things, that it may take up to 24 hours before the change can be viewed in publicly accessible systems.

This takes the user to the "Registrations" tab. There is no link from this page to a page on which it is possible to edit data.

If a user clicks "Edit business data" in the right-hand column, the user is taken to the relevant "virk" solution (Change business registration). But the text on the introductory page for "Change business registration" does not explicitly state that it is possible for a business to modify its own master data:

3. Difficult procedure

The existing procedure for modifying master data comprises many steps. If a user clicks through to "Registrations" on Mit Virk to see his/her master data and discovers that the data is incorrect, the user must go to the box on the right to find the "Edit business data" link. After clicking "Edit business data" on Mit Virk, the user is taken to "Change business registration" where the description is:

Tilføj siden til genveje på Mit Virk.dk ➕

Ændre virksomhed

Registrér eller afmeld virksomheden for moms, import/eksport, lønsum mv. samt som arbejdsgiver. Opret eller afmeld administrativt SE-nummer eller reklamebeskyt virksomheden.

Start

Change business registration

Register or deregister the business for VAT, import/export, being an employer. Apply for a SE number or protect your business from advertisers.

The fact that "Edit business data" takes the user to "Change business registration" is not very apparent. Worse still, whereas "Edit business data" aptly describes what the editing of master data is expected to entail, "Change business registration" sounds more like a sweeping change of the business's general status than a change of address, for instance.[6]

Whereas the act of editing business data implies a relatively easy process involving easily accessible data, a business change sounds like a more sweeping and significant type of change to the business. This could potentially be a barrier to businesses with employees who are empowered to change data such as an address, but whose sphere of responsibility does not include redefining the whole set-up for the business.

Elements of the experiment

When logging on to Mit Virk, a prompt appears to show the user the business's own master data (address, e-mail address and main telephone number).[7] Essentially, a prompt is the creation/introduction of a well-timed decision-making point.

The user can choose to verify (using the "Verify" button) or update (using the "Edit" button) his/her business's master data. It is also possible to select the button "I am not responsible for master data".

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[6] Other more sweeping changes can also be carried out using the solution.
[7] The master data for the CVR no. under which the user has logged on at Mit Virk.

Stamdata

Erhvervsstyrelsen har følgende oplysninger om virksomheden, Erhvervsstyrelsen med CVR-nummer 10150817

Navn   Erhvervsstyrelsen
Adresse: Langelinie Allé 17
               2100 København Ø
Telefon: 35291000
E-mail: Mangler

[Bekræft]   [Ret]

[Jeg er ikke ansvarlig for stamdata]

If the user presses the "Verify" button, data stating that the user has verified the business's master data is sent to the experiment. A message is also sent to the page, stating that the user should not be prompted again. The prompt closes. Other users who log on from the CVR no. will not be prompted after this.

If the user presses the "Edit" (update) button, data stating that the user chose to update the business's master data is sent to the experiment. A message is also sent to the page, stating that the user should not be prompted again. By pressing "Update", the user will be directed through to the introductory page, "Change business registration".

The text on the introductory page has now been edited to state that it is possible to update master data in the solution:

Tilføj siden til genveje på Mit Virk.dk ⊕

Ændre virksomhed

Opdater stamdata. Registrér eller afmeld virksomheden for moms, import/eksport, lønsum mv. samt som arbejdsgiver. Opret eller afmeld administrativt SE-nummer eller reklamebeskyt virksomheden.

[Start]

Change business registration

Update master data. Register or deregister the business for VAT, import/export, being an employer. Apply for a SE number or protect your business from advertisers.

If the user presses "I am not responsible for master data", this user will not see the prompt again. Other users from the same CVR no. will continue to be met with the prompt until a user selects "Edit" or "Update".

In terms of the diagnosis, the intervention affects two out of three diagnosis elements:

1. The business's insufficient awareness of its responsibility for updating its own master data will be resolved. The prompt makes the user aware of the possibility of editing master data. In addition, the prompt signals that the business is responsible for editing this information.
2. The situation of being insufficiently knowledgeable will be resolved for users of Mit Virk, because the prompt makes businesses directly aware of their obligation to keep their master data up to date.

As regards the third element – the difficult procedure – it was not possible within the scope of this experiment to change the actual procedure. However, the text on the introductory page has been edited so it now states that it is possible to edit master data from within the solution.

During the experiment, we collected data concerning the number of users who click "Start" on the introduction page to change the business; we did so to monitor the number of users who actually edit the information after clicking the "Edit" prompt. The data indicates the degree of difficulty involved in beginning to edit and the extent of the user-perceived barrier to pressing "Start".

If a business has not registered an e-mail address or a telephone number, the word "Lacking" will be written next to this field. We considered using alternatives, such as "Empty", "Not available" or leaving the field blank. However, we chose the word "Lacking" as this – by contrast with the other options – indicates that the business is responsible for ensuring that the information *should* be there, as implied by the word "lacking". At the same time, it implies that the Authority expects this. These hints are not unimportant in relation to eliciting a response from users, as we cannot expect them to respond if they do not feel they ought to or should.

Results

The pop-up containing the business's master data was viewed a total of 14,377 times during the experiment period from 23 April 2014 to 12 May 2014. Out of the users who viewed the pop-up, 7,544 verified their data, equivalent to 52.5% (see Figure 1). Similarly, 41.6% pressed "Edit" after viewing their master data. Only 6% stated that they were not responsible for master data.

Figure 1: Clicking data for the master-data prompt
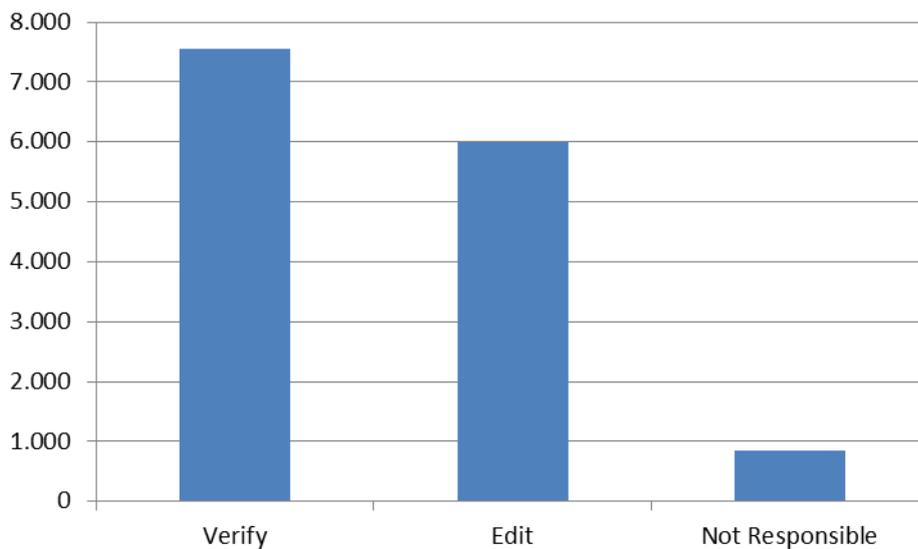
The experiment lasted a total of twenty days. For the last eight, a counter was set up to determine the number of users who clicked "Edit" and who also went on to click "Start" when they entered the introduction page of the "Change business registration" solution.

We assume that some users who clicked "Edit" did so simply to get rid of the box. Those who started on the "Change business registration" solution were motivated to change their master data. However, we also learned through user surveys carried out by Mit Virk's editorial staff that the solution's "Start" button does not in itself cause users to abandon their venture.[8]

A total of 58% of the users who clicked "Edit" actively used the solution. Conversely, 42% dropped out when they encountered the "Start" button on the introduction page for "Change business registration".

The 58% who pressed "Start" on the introduction page are equivalent to 24% of the users to whom the box prompt was shown. Assuming that a corresponding percentage started the solution throughout the period, the results are as shown in Figure 2. In this event, around 3,500 users started to change their master data.

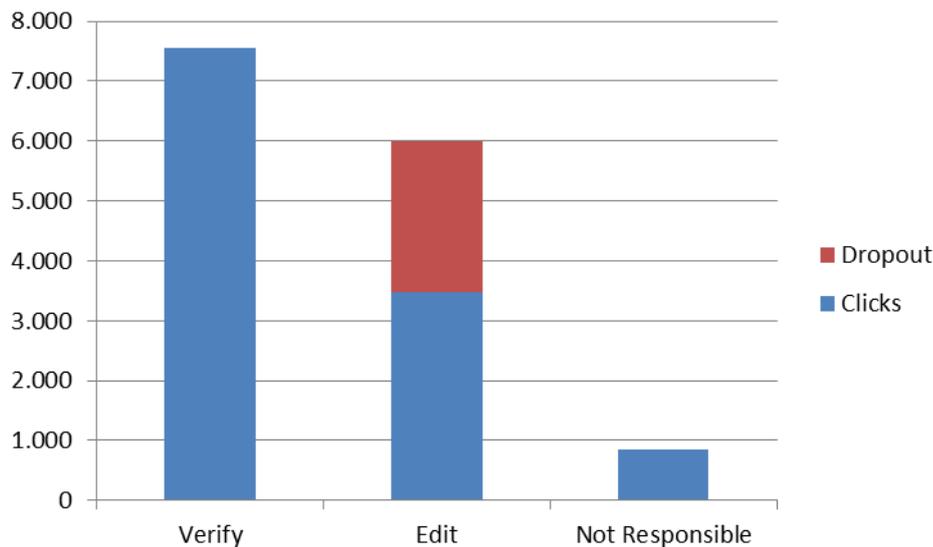## Figure 2: Breakdown of users to whom the prompt was shown

Figure 3 shows the number of address changes in the period up to and during the intervention. It shows a decline just before the intervention and shows that this continues for three weeks during the intervention. By contrast, not very many businesses appeared to change their address during the intervention period.[9] The decline during the intervention period was not significant.

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[8] It was not possible to send users directly from the pop-up's "Update" button to the solution. If this had occurred, we would have been unable to obtain data for the number of users who dropped out. The only way we could see this data was if the user clicked the "Start" button on the front page of the solution. Accordingly, we chose to send users from the pop-up to the introduction page, knowing quite well that this in itself could cause users to drop out.
[9] The address-change module in the "Change business registration" solution was unstable in early May, which could have affected the data.

Figure 3: Number of address changes
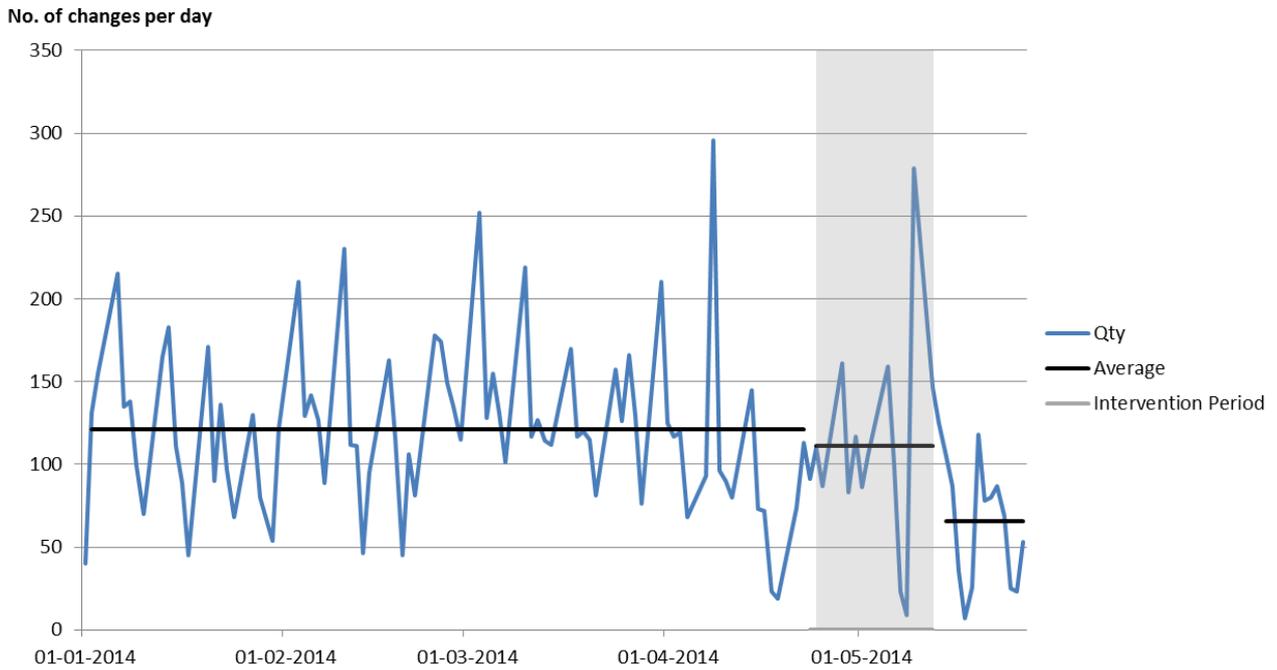
No. of changes per day

Figure 4 shows the changes to master data other than address, i.e. telephone numbers and e-mail addresses. It appears that the number of changes more or less doubled during the intervention process compared to the rest of the year. On average, 175 additional businesses per day changed their master data during the intervention period. This corresponds quite well with the 3,500 businesses that clicked the solution's "Start" button. The difference is highly significant.

Figure 4: Number of changes to other master data

No. of changes per dag
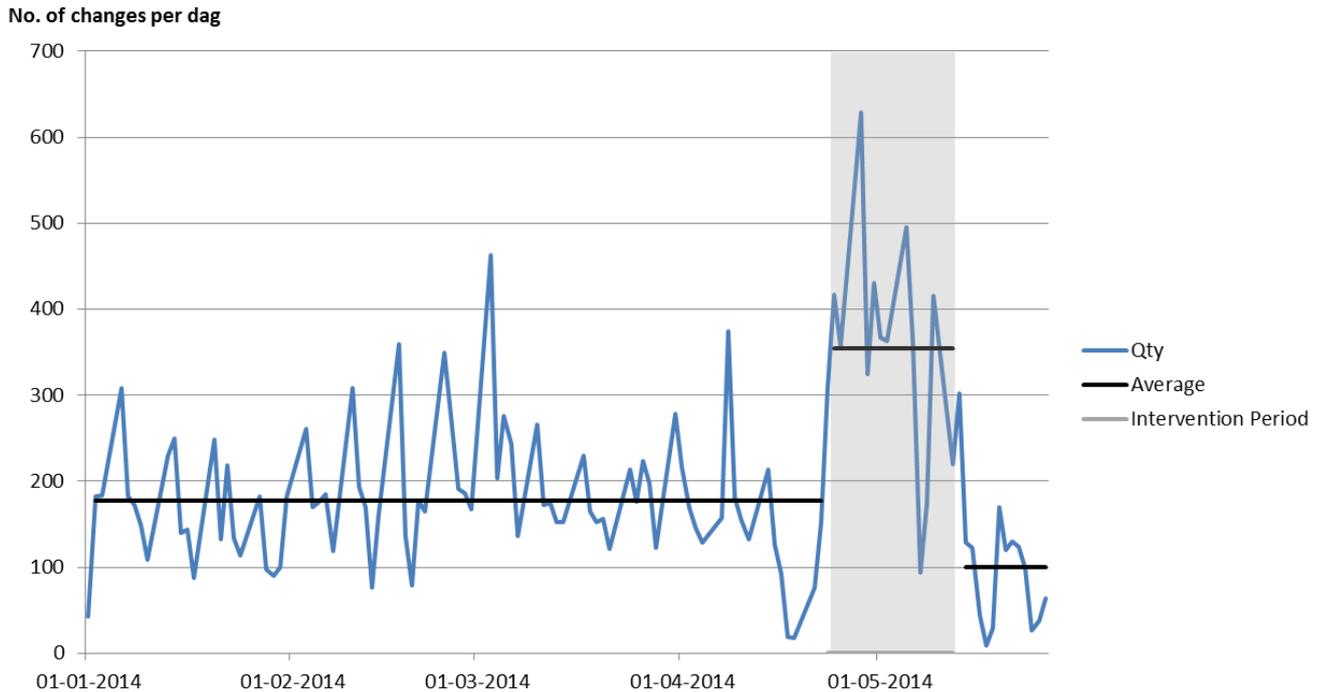
As mentioned above, the intervention lasted for only 20 days, but prompted 3,500 users to update their master data. This equates to 0.7% of the 500,000 businesses in Denmark. We have no figures detailing the number of unique businesses which use Mit Virk during the course of a year, but as 24% of the businesses exposed to the intervention updated their master data, it is likely that the intervention would have a significant effect if carried out for one year.[10]

Conclusions

The pop-up prompted businesses to consider their master data. More than half of the more than 14,000 users whose master data was presented to them verified it. Roughly two-thirds of the 14,000 users verified their master data by either clicking "Verify" or editing incorrect information.

Apparently those who edited their master data primarily edited e-mail addresses and telephone numbers. This clearly indicates that the word "Lacking" gets businesses to enter the site and update data.

The experiment shows that if we ask something (simple) of a business at a well-timed decision-making point, we can actually get them to do it.

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[10] It would be possible to use the intervention for this to measure the number of unique businesses on Mit Virk.

The costs of developing the solution were relatively low compared to the cost of a traditional campaign, so it proved to be a cost-effective way to handle the updating and verification of businesses' master data.[11]

Lessons learnt for use in carrying out new experiments

The experiment was carried out in an area involving many different players within the Danish Business Authority. Those who participated in the experiment come from different technical entities as well as from sections of the Authority organised under different departments. In practice, this means that there are many different owners of both problem and solution. Accordingly, it was significantly challenging to resolve disagreements and secure the support of the parties involved to carry out the experiment. Experiments of this nature have great potential for the Authority and, for this reason, the Authority should ensure the requisite organisational structure for ensuring a mandate for the experiment and the requisite forum for settling disagreements.

The lessons learnt from the project show that it is beneficial to put someone in charge of implementation in each of the technical entities involved. This will ensure that relevant information about problems, for instance, is collected and forwarded to the proper recipient. In the future, experiments should always involve individuals who are responsible for implementation, to ensure the quality of the experiments and to deal with any problems and uncertainties on an ongoing basis.

Recommendation

The Danish Business Authority should run the pop-up in the future, e.g. once a year. This way, the Authority will receive updated master data and higher data quality as a result. The Authority will also improve its overview of the amount of master data which has been verified as being correct.

At present, the Danish Business Authority is authorised to implement mandatory registration of e-mail addresses as part of master data. This has not resulted in an executive order, however, and is thus not mandatory for businesses. This experiment shows, though, that it is possible for the Authority to prompt businesses to edit/verify their master data without having to invest in additional campaigns, check up on businesses or impose sanctions.[12]

When the pop-up containing master data is presented to the businesses, they should be taken directly into the solution – circumventing the "Start" button on the introduction page of the "Change business registration" solution – when they click "Edit". This will probably lower the drop-out rate, and more businesses will choose to edit their master data.

The master-data pop-up only affects businesses which use Mit Virk. Therefore, the Authority should consider how to get other businesses which do not use Mit Virk to update their master data. (The introduction of the new virk.dk website in the autumn of 2014 will always require businesses to log on to Mit Virk first, before they can begin their activities. This will automatically enlarge the target group.)

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[11] For detailed calculations, please refer to the business case in the worked example.
[12] Specified in Section 11(3) of the CVR Act.

Every nudging solution to a behavioural problem will be conditional on the context or arena in which it takes place. Every arena entails both opportunities and limitations for the solution. Therefore, it is important that the Authority consider the choice of arena in its efforts to find a solution to a problem.

Facts about the experiment

Population
- The box was viewed 14,377 times during the experiment.
- There are currently around 500,000 active businesses in Denmark.

What are the data points?
- The percentage who click "Verify", "Update" and "Not responsible"
- The percentage who, after clicking "Update", click "Start" for the notification.
- The total number of addresses changed during the experiment compared to the levels before and after.
- The total number of telephone numbers and e-mail addresses changed during the experiment compared to the levels before and after.

Which business case was used?
- Costs of setting up the experiment.
- Costs of previous information campaigns in similar areas.

Quality assurance
- Changes of address at Post Danmark.

Prerequisites for the validity of the results
- The percentage who click "Start" for the solution is stable during the period, equivalent to the percentage we have for the specific period.
- The data is contingent on the fact that the solutions were up and working during the period. There are indications that the change-of-address solution was very unstable for a four-day period during the intervention.
- The businesses implement the solution to change master data, i.e. they did not drop out of the solution.
- The users presented with the box are also the users who are supposed to edit the data.

Population considerations
- At least 1,000 viewings were required to be able to assess whether the box had an effect.
- It was agreed that the intervention should run for two weeks or until 1,000 viewings had occurred.
- We expect that businesses which are already high-compliance businesses on Mit Virk thus have a lower error percentage than the rest of the business population.

Considerations concerning incoming contacts with the Authority
- We assessed that it was unlikely that the intervention would generate many queries to the Danish Business Authority. In the event that it did, however, it was made possible for the Danish Business Authority to remove this option manually.