



The AFM's view on robo advice

Opportunities, duty of care and points of attention

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The Dutch Authority for the Financial Markets

The AFM is committed to promoting fair and transparent financial markets.

As an independent market conduct authority, we contribute to a sustainable financial system and prosperity in the Netherlands.

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Digitalisation and sustainable financial well-being

The AFM aims to promote the sustainable financial well-being of consumers. A solid pension solution for retirement, a suitable mortgage for the purchaser of a home, the right occupational disability insurance for self-employed professionals. In view of the complexity of financial products and the customer's situation, financial well-being often starts with a sound financial advice¹. Technological developments offer new possibilities to increase the financial well-being of consumers with financial advice. One of these possibilities is robo advice, in which the client onboarding process and the advice are partially or fully automated². This publication takes a closer look at robo advice.

Development and possibilities of robo advice

Robo advice has already been provided for various financial products for a longer period of time, for example, for car and healthcare insurance, and for making comparisons. Automated and semi-automated portfolio management has developed rapidly in the investment world. Now that the technological possibilities are rapidly increasing in this field, robo advice is set to become available for high-impact financial products, such as mortgages and occupational disability insurance. The aim of this publication is to make clear how the AFM thinks about the implementation of robo advice, for instance, in terms of the duty of care. Furthermore, what are the possibilities and points of attention? And what does this mean for the AFM's supervision?

The AFM believes that robo advice can increase the accessibility and the quality of the advice. Accessibility means that an advice channel has a low threshold for consumers. This not only concerns the physical proximity of an advisory office, but also a low threshold for the advice, for example in terms of costs and 24/7 availability from home. In addition, technological progress should increase the quality of advice. Irrespective of the advice channel that the consumer chooses, the advice must comply with laws and regulations so that the customer's interests are safeguarded.

Robo advice and face-to-face advice

The manner in which robo advice and face-to-face advice are developing parallel to each other of course depends not only on the technological possibilities, but also on the customer's needs. The AFM expects that robo advice will initially be suitable, in particular, for product advice and not for an integral advice about a person's total financial situation. It is logical that developers focus

¹ It is deemed to constitute advice when the five cumulative conditions are satisfied as specified in the Guideline for the qualification of innovative services (<https://www.afm.nl/~profmedia/files/wet-regelgeving/beleidsuitingen/leidraden/kwalificatie-innovatieve-dienstverlening.ashx>)

² Besides robo advice, this type of service is also referred to as automated advice or digital advice. In general, these terms are interchangeable. When algorithms are discussed in this paper, then this concerns algorithms such as a decision tree. This paper is not about artificial intelligence and self-learning algorithms. The AFM monitors the growth path of algorithms in financial services and provides additional guidance where necessary.

initially on relatively simple customer situations such as mortgage advice for starters in employment. The added value of face-to-face advice will, in that case, be the greatest for complex customer situations and for integral advice. Therefore, the AFM regards robo advice above all as a new, additional advice channel for those who have a need for this. This is illustrated in the table below.

Table 1. Greatest added value robo adviser and human adviser

	Robo adviser	Human adviser
Complexity of the product	Complex and non-complex	Complex and non-complex
Complexity of the customer situation	Non-complex	Complex and non-complex
Type of advice	Product advice	Product advice and integral advice

Types of advice

The AFM distinguishes between the following types of advice:

1. Full robo advice: in this case, the robo adviser takes over the work of the human adviser completely. The client onboarding is digitalised and the advice is produced and communicated in an automated fashion. The only human role is the further development of the robo advice and, if necessary, resolving any failures in the IT systems.
2. Partial robo advice: this is basically full robo advice, however the human adviser is available in the background to answer specific (advice-related) questions.
3. Hybrid advice: robo advice and human adviser strengthen each other. For example, the client onboarding is digitalised but the advice is given by the human adviser. The role of the human adviser is larger than in the case of partial robo advice.
4. Complete face-to-face advice: the whole advice process takes place offline. Digital tools, such as animations, can also be used.

This publication focuses primarily on the first three types of advice, in which in any case part of the advice process is automated. Although this paper focuses on robo advice, most of the points of attention are also applicable to face-to-face advice. The reason for this is that the laws and regulations that apply to financial advice do not make a distinction between face-to-face advice and digital forms of advice. However, the specific application of laws and regulations with regard to robo advice deserves a further elaboration.

The requirements that advice has to satisfy according to the AFM have been laid down in the publications on advice on mortgages³ and advice on occupational disability insurance⁴. In

³ <https://www.afm.nl/~profmedia/files/rapporten/2015/advieskwaliteit-hypotheken.ashx>

⁴ <https://www.afm.nl/~profmedia/files/rapporten/2015/advieskwaliteit-aov.ashx>

addition, the AFM published a manual for online service provision earlier [Handboek Online Dienstverlening]⁵. The points of attention cited in this publication are not exhaustive.

Execution-only channel will decrease

At present, the execution-only channel is the only option when robo advice is not yet available for a high-impact financial product, but the consumer does wish to purchase such a product in an easily accessible manner from home. With the introduction of robo advice, the consumer who wishes to purchase a product in an easily accessible manner has the choice between execution-only and robo advice, in the future probably at comparable costs. It can be expected that this will lead to a decrease of the execution-only channel. The AFM would consider this a desirable development. A form of assistance when taking decisions that affect the consumer's financial situation helps to increase the quality of the decision-making process. The degree of assistance that is desired is not only determined by the complexity of financial products, but also by the complexity of the customer's situation.

Market examples

The points of attention in this publication are frequently illustrated with examples. Some of these examples are derived from robo advice in actual practice, or from existing concepts or from discussions with developers. In addition, a few examples are an elaboration of earlier guidance provided by the AFM, such as Customised Services [Dienstverlening op Maat]⁶. An example could be the compliance with a statutory minimal requirement and/or an elaboration of the use of technology in the customer's interest.

Customer survey

The market for robo advice for high-impact financial products is still relatively new in the Netherlands. Therefore, it is even more important to carefully test new concepts and the examples mentioned in this publication by means of customer surveys, as it is not always clear in advance how a customer will act within robo advice. The development phase of robo advice offers an excellent opportunity to conduct a behaviour experiment.

In an earlier publication, the AFM described seven steps for conducting a reliable behaviour experiment.⁷ An example is examining whether the questions asked and their explanations are understandable for customers and whether customers give answers that are in accordance with their situation. Another possibility is a/b testing. With a/b testing, (a part of) a client onboarding is presented to two groups of customers, one version slightly different from the other. The

⁵ <https://www.afm.nl/~profmedia/files/onderwerpen/online-dienstverlening/handboek-online-dienstverlening.ashx>

⁶ <https://www.afm.nl/~profmedia/files/wet-regelgeving/beleidsuitingen/leidraden/dom-financiele-dienstverlening.ashx>

⁷ <https://www.afm.nl/nl-nl/professionals/onderwerpen/consumentengedrag-experimenten>

outcomes of the two groups are then compared to determine which client onboarding results in the most appropriate overview.

Applicability of the AFM's view on robo advice

The examples in this publication concern robo advice on mortgages and occupational disability insurance; however, the points mentioned also apply to robo advice on other high-impact financial products, such as second-pillar pension products. Although investment firms can learn things from this guideline, the investment market is structured differently and specific laws and regulations apply. Therefore, the AFM has published a separate guideline for automated and semi-automated portfolio management.

1. Opportunities

The AFM aims to promote innovation in financial services as innovation offers the possibility to increase both the accessibility and the quality of advice. These opportunities are discussed in more detail in this chapter.

1.1 Accessibility of advice

1.1.1 Availability

The introduction of robo advice adds a low-threshold advice channel for the consumer. This makes advice more easily available. Consumers can receive advice about a financial product they are interested in at home at a time that is convenient for them. This lowers any barriers in the form of travel, time and effort. Robo advice is accessible 24/7 and consumers can go through the advice process at their own speed. Moreover, robo advice is in keeping with the preferences of groups of consumers who have grown up in or become accustomed to the digital era. As a result, robo advice can feel more easily accessible than face-to-face advice.

Some people will prefer face-to-face advice, for example, because robo advice feels too distant. However, people may also opt for face-to-face advice for one financial product, and opt for robo advice for another financial product. For example, a self-employed professional opts for face-to-face mortgage advice and then concludes an occupational disability insurance based on a robo advice. It is thus conceivable that the preference for an advice channel differs depending on the financial product.

1.1.2 Lower costs

Robo advice will probably become cheaper in the future for all (high impact) financial products than face-to-face advice.⁸ Although the development of robo advice demands investments, the advice costs will go down in the future. A similar development has been visible in the shift from traditional to automated and semi-automated portfolio management. As this market becomes increasingly digitalised, a clear trend of lower costs can be seen and market parties expect that this trend will continue.

1.1.3 Comprehensibility

Robo advice offers possibilities to make complex matters understandable by making use of visuals and other interactive applications. If desired, the customer can review the explanation and animations in the robo advice in a digital environment whenever he wants to. Making use of behavioural science insights helps to increase the understandability of financial advice for both

⁸ As also described in *The next frontier: The future of automated advice in the UK* (<https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/financial-services/deloitte-uk-updated-robo-advice-new-horizons-layout-mww8.pdf>)

digital and face-to-face advice. An example is taking biases into account, a subject about which the AFM published earlier, also in connection with consumer credit and⁹ financial decision behaviour¹⁰.

1.2 Quality of the advice

In addition to the increased accessibility, the AFM also sees opportunities for robo advice in terms of quality. First and foremost, the AFM expects the highest possible quality of advice from both the human adviser and the robo adviser.

1.2.1 Processing information

New products or changed product features can be included directly in the analysis via an algorithm if this has been programmed. The speed and processing of new information by the algorithm is a core quality of the robo adviser. Algorithms are discussed in more detail in chapter 4.

1.2.2 Consistency

A well programmed algorithm will always produce consistent high-quality advice. Consequently, robo advice offers the possibility to increase the quality of advice market wide.

1.2.3 Use of customer data

The algorithm underlying robo advice can combine and analyse various sources of customer information. For instance, the information that the customer enters will be compared with additional sources, for example, information about the customer's income or spending pattern. The more accurate the client onboarding, the more accurate the advice that is based on this can be. This is discussed in more detail in chapter 3.

⁹ <https://www.afm.nl/~profmedia/files/rapporten/2016/consumentengedrag-consumptief-krediet.ashx>

¹⁰ <https://www.afm.nl/~profmedia/files/rapporten/2015/standaardproducten.ashx>

2. Duty of care

No distinction is made between robo advice and face-to-face advice in the Dutch Financial Supervision Act (Wft). Therefore, robo advice has to satisfy the same statutory requirements as advice that is provided by a person. It is the AFM's point of departure that the standard for robo advice with regard to fulfilling the duty of care¹¹ is no different than for face-to-face advice. The points of attention from the studies¹² that the AFM has published on, for example, advice about occupational disability insurance and mortgages, therefore apply equally to robo advice. In addition, there are specific points of attention for robo advice with regard to the duty of care which will be discussed in more detail in this chapter. The two elements of the duty of care which are discussed below, i.e. the client onboarding and the provision of information, are not exhaustive.

2.1 Client onboarding

When Section 4:23 of the Wft is applicable to providing advice on a product, robo advice also has to satisfy this requirement. This means that information about the financial position, risk tolerance, objectives and knowledge and experience, insofar as reasonably relevant, should be obtained, after which the advice must also be based on the information that has been obtained. When two customers receive advice together, the above-mentioned information must, obviously, be obtained for both customers. The principles of Customised Services also apply equally in the event of robo advice. In addition, specific points of attention apply for robo advice with regard to the client onboarding. These are specified further below.

2.1.1 Make clear what information is being requested

In the event of full robo advice, contrary to face-to-face advice, the customer does not have the possibility to ask a question directly if something is not clear. Even if there is the possibility to obtain an extra explanation via a pop-up or a chatbot, it is recommended to ask all client onboarding questions directly as clearly and concretely as possible without too much technical jargon. A thorough assessment of the customer beforehand helps to determine whether the questions and any answer categories are understood as they are intended and are not open for more than one interpretation. For example, it can be examined whether necessary customer information is obtained unambiguously. Without an unambiguous, clear formulation of a question, there is the risk that customers will interpret the same question differently.

When questions are asked without customer research beforehand, there is the risk that non-suitable advice is provided. When a customer interprets a question differently than intended, he will also answer differently than intended. If an analysis is then made based on this information

¹¹ In this context, the duty of care is the statutory duty of care (in, among others, Section 4:20, 4:23 and 4:90 of the Wft), ensuring compliance with the duty of care in the organisation and the additional duty of due care.

¹² <https://www.afm.nl/nl-nl/nieuws/2015/apr/advieskwaliteit>

this will result in a non-suitable advice. Of course, this also applies to a face-to-face client onboarding; however, clarity is even more important in the event of a full robo advice, because there is no human adviser who can check whether there are incorrect interpretations or who can observe non-verbal communication. With robo advice, the customer cannot ask the human adviser questions directly.

2.1.2 Financial position

Whether information about the customer's financial position is obtained by a human adviser or a robo adviser, it is very important that the information that is provided by the customer is comprehensive and correct. Just as a human adviser will check whether the information is correct, the algorithm (provided that it is programmed to do so) can also check whether the information is plausible. A robo and a human adviser should be able to rely on the information provided by the customer; however, it is the adviser's responsibility to ask additional questions in the event of evident mistakes or improbable answers.

Cross-checking the information obtained: an example

When filling in information on his income, an employed starter claims that his income is € 300,000. The algorithm understands that this is an improbably high income, certainly in view of the customer's age. Therefore, a text block appears in which the customer is requested to check whether the income that he has filled in is correct. After that, the customer can proceed with the client onboarding process. When the underlying documents are submitted in a later stage to substantiate his financial position, it is checked once again whether the information about his income was entered correctly. In this manner, it is ensured that the advice is based on the correct income information.

Cross-checking the information obtained: an example

It turns out that many customers often find it difficult to estimate how much money they spend on what per month. This is why estimates are made of the customer's spending pattern in the background based on their personal and income data and based on NIBUD (National Institute for Family Finance Information) standards, which are not visible for the customer. A notification appears when the amounts filled in by the customer differ significantly from the estimate. The customer can then consider again whether his own estimate is correct. This increases the probability that the customer's estimates are in accordance with the customer's actual spending pattern.

2.1.3 Risk tolerance

Applying technology can lead to an accurate estimate of the customer's risk tolerance. This is possible by examining the customer's risk tolerance by means of smart questions: instead of a standard questionnaire that is the same for every customer, a dynamic questionnaire is presented to the customer which zooms in further based on the answers given by the customer.

In addition, there is the possibility of using visuals that are based on the customer's data. The customer who wishes to take out a mortgage sees the financial effect of an interest rate increase at the end of the fixed interest rate period. This assessment of the customer's risk tolerance thus becomes less of an abstract exercise.

Assessment of risk tolerance for occupational disability insurance: an example

In order to make the drop in income in the event of occupational disability visible in the online environment, the customer can see in an interactive graph what occupational disability will lead to financially in his situation. For instance, the customer can see what 30% occupational disability means concretely in his available income compared to his desired situation, which is also based on the earlier estimated spending pattern. The customer's risk tolerance can be determined more concretely based on this insight and further questions.

2.1.4 Objectives

It can be a challenge in the case of robo advice to make the customer's objectives as concrete as possible. After all, there is no face-to-face contact where the adviser can ask additional questions when the objectives are not sufficiently concrete. Obtaining an as concrete possible objective is, however, essential in order to provide a suitable advice. Therefore, it is recommended to present as concrete as possible objectives, so that this can be taken into account in the advice.

An example of presenting a too general objective is stating as a possible objective for occupational disability 'Insurance against occupational disability'. It is imaginable that many customers consider this objective to be applicable, as it is so broad. However, it is so general that it cannot be taken into account in the robo advice. Therefore, just as would be necessary for face-to-face advice, additional questions have to be asked. Does the customer wish to be able to continue his present standard of living in the event of occupational disability and is that the primary objective of the insurance?

2.1.5 Knowledge and experience

The information obtained about the customer's knowledge and experience can be used to tailor the tone and explanation of the robo advice. It is recommended to test the customer's knowledge objectively, where testing knowledge is to be preferred above subjective questions that can be answered with a yes or a no such as "Do you have sufficient knowledge of...".

If it appears that the customer has no or very little knowledge and experience, this means that the robo adviser will have to provide more assistance to the customer in order to ensure that he understands both the advice and the product. For instance, a more detailed explanation can be chosen with extra verification questions to determine whether the customer understands the explanation sufficiently. Visuals that are geared to the customer's situation can be used as an explanation. Verification questions can then be asked to see whether this explanation is sufficiently clear.

2.2 Provision of information

All information in the robo advice must be concrete, clear and not misleading, in accordance with Section 4:10 of the Wft. For instance, the information must be written in understandable wording. This is even more important for robo advice, because the customer cannot immediately ask a human adviser to provide a clarification and a human adviser is not present to interpret non-verbal communication. The use of visuals can help to present information as understandable as possible. Here again, verification questions help to check whether the explanation is sufficiently clear.

3. Points of attention

In addition to the duty of care in robo advice, there are various points of attention that have to be taken into account in the development and implementation. These are discussed and explained further below.

3.1 Determine target group

The robo advice provider will have to carefully determine for which target group the robo advice is suitable. In the first place, this has to do with the technical possibilities of the robo advice. For example, it is imaginable that robo mortgage advice is first only provided to the least complex situations, for example an employed starter who is buying his first home. New target groups can be added as robo advice is developed further, for example, the self-employed professional who wishes to buy a second home.

In addition, customers should only be given access to this concept when robo advice is suitable for them. When it appears that customers have a preference for face-to-face advice before or during the advice process then it is important that the customer is referred to this channel. This can be apparent, for example, from the answer to a verification question, in which the customer indicates that he requires face-to-face contact to discuss product features while that is not possible within the robo advice offered. Finally, it is only possible to determine which products are suitable for this target group when the target group has been carefully defined.

Determining the target group: an example

Before the client onboarding starts, the possibilities and impossibilities of robo advice compared to face-to-face advice are pointed out to the customer via a clear explanation, for example, by making it clear that no human contact is possible within the concept. It should then be examined whether the customer understands and desires the possibilities of robo advice. The outcome could be that robo advice is not suitable for the customer. This increases the likelihood that the customer will choose the most suitable advice channel. The robo advice provider assesses whether customers who make use of robo advice are suited to this concept.

3.2 Determine product group and products

It must be clear for the customer at the beginning of the advice process which financial product groups and products are included in the robo advice. The robo advice provider will first determine which products are included in the robo advice, such as mortgages. When robo advice is not available for the product group desired by the customer, the customer can opt for face-to-face advice in good time.

It is then determined which products within this product group are suitable for the customer. This is an important step in the prevention of foreseeable disappointment on the part of the customer. The customer must be able to trust that the offered products are cost efficient, useful, safe and comprehensible.¹³ It is the responsibility of the robo advice provider to only include products in the robo advice that are suitable for the determined target group.

3.3 Making use of target group assumptions

In a suitable advice, the customer's characteristics are taken into account in all product features. Therefore, defaults should not be used in a suitable advice. Standard extensive coverage for a product feature can lead, for example, to an unnecessary high premium, whereas the customer would have made a different choice after a careful client onboarding process and a suitable advice. However, target group assumptions can be used.

Assumptions about the target group to which the customer belongs, such as explained in the third principle of Customised Services, offer opportunities to obtain customer information more efficiently. These assumptions have to be based on objective factual research, must be current and must be verified with the customer by the robo adviser. The step-by-step plan to arrive at the assumptions is described in the Customised Services guideline.

Target group assumptions: an example (based on AFM publication on Customised Services)

Two starters, both age 25, wish to buy their first apartment together and request robo advice on their first mortgage. The algorithm has been programmed (or has learned) that most people in this situation move again within ten years. It therefore understands that a portability clause is probably important for these customers.

The robo adviser verifies the assumption by presenting this to the customer. "You are both under 30. Research among people who are in a similar situation shows that you may want to move within ten years or in any case would like to keep that option open. Is this correct?" It is possible to obtain the customer information more efficiently in this manner.

3.4 Respond to doubt

A human adviser can detect when customers have doubts, both through verbal and non-verbal communication and can discuss this. As this human adviser is not present in the case of robo advice, the algorithm must be able to identify doubt and ask additional questions. This starts by asking questions that are as clear as possible. In order to obtain as much certainty as possible about the customer's answers, verification questions can be asked. Furthermore, the customer's behaviour on the website can be measured to detect any doubts.

¹³ <https://www.afm.nl/nl-nl/professionals/onderwerpen/productontwikkeling>

Using the customer's click behaviour to detect doubts: an example

A customer clicks back and forth several times between two pages during the assessment of his risk tolerance. He also changes his answer several times. The algorithm notices this and a pop-up appears with the question whether the customer needs help. This help can be given, for example, in the form of an extra explanation. Verification questions can help to determine whether the customer is no longer in doubt. Finally, the conclusion could also be drawn that face-to-face advice is more suitable for the customer.

3.5 Signal contradictory answers

A customer can give answers that are contradictory or appear to be contradictory for several reasons. As an adviser would notice this, the robo adviser must also be able to detect this. This prevents the customer from making mistakes in the onboarding phase, causing him to subsequently purchase a product that is not completely suitable for his situation.

Signalling contradictions when obtaining customer information: an example

During the client onboarding for an occupational disability insurance, the customer indicates that his priority with regard to occupational disability insurance is that he can continue to live in his present home. If the customer is then asked in which areas he can cut costs in the event of a drop in income and the customer fills in that his housing expenses could be decreased from € 800 to € 400 per month.

The robo adviser observes this and asks additional questions in connection with this answer: how do these answers relate to each other? It could possibly be a well-considered answer (for example the customer possibly included monthly extra repayments of his mortgage in his housing expenses), it is also possible that the answers are contradictory and the customer will have to revise one of the two answers.

3.6 Determine the correlation between the information obtained

An advice is ultimately produced by the robo adviser based on the client onboarding. When producing the advice, the robo adviser not only looks at the separate elements but also at the relationship between these elements. Any contradictions have been noticed before the advice moment and are no longer present.

Asking additional questions when the customer's preferences are unclear: an example

When concluding occupational disability insurance, most customers seek an optimal balance between the product features and the premium. For example, a customer indicates that he does not want to cut costs much in the event of occupational disability, but he considers the premium for maintaining his income at the same level to be rather high. The algorithm poses additional questions in order to determine the customer's preferences as accurately as possible. Based on this, it can advise the customer about the most suitable product features.

3.7 Explain product features carefully

Part of a suitable advice is to ensure that the customer understands the product and the advice. In the most 'traditional' form, the customer is presented with a text, also based on his knowledge and experience, in which all features of the financial product and the advice are explained. However, the real risk exists here that the customer will not take the time to read the text thoroughly or that the customer still has questions, even though this concerns high-impact decisions.

Digitalisation offers opportunities to ensure that the customer understands the product features better. An example is the use of videos and animations; the difference between a linear and an annuity mortgage can be explained more clearly with an animation than with only text. The concrete customer situation can be taken as the point of departure in this case. Both the human adviser and the robo adviser can make use of this. As in case of robo advice there is no human adviser present to directly ask a clarifying question, the understandability of the information is essential. Therefore, it is recommended to test the information presented, also in terms of wording, beforehand. In addition, the explanation, as mentioned under Knowledge and experience, can be geared to the level of the customer's knowledge.

Detecting lack of clarity about product features: an example

There is a small button after each question in the client onboarding which the customer can click on for an extra explanation. This increases the likelihood that any lack of clarity is removed in time, that the customer understands the question and that the answer given corresponds with the customer's situation. When a customer asks for a further explanation many times, this is taken into account in the texts on the next pages and the explanation of the product features. Although clicking often on the explanation does not necessarily mean that a customer has little knowledge (he can also want to be as sure as possible), it does say something about his need for explanations.

3.8 Explain the advice carefully

As in the explanation of product features, the use of personalised visuals is recommended to clarify the advice. The considerations that have led to the advice also have to be explained in more detail. The customer's knowledge and experience can be taken into account in this case.

Personalised explanation of the advice: an example

After all of the customer information has been carefully obtained and considered, the customer is presented with the advice for his occupational disability insurance. Personalised visuals make it clear to the customer in one glance what the consequences are for his income if he should become completely occupationally disabled in one year. A personalised explanation increases the likelihood that the customer will understand how the advice has come into being, what the advice means and what the personal impact is of this advice.

3.9 Limited deviations from the advice

It is ultimately up to the customer to follow or not to follow the advice. For instance, a customer can decide not to conclude a product at all, but he may also decide to deviate from the advice with regard to certain product features.

In the event of face-to-face advice, the customer can discuss with the adviser which product features he wishes to alter. This is why it is recommended in the event of robo advice to limit any changes of the advice in order to prevent the customer, primarily driven by an as low as possible premium or monthly instalment, from choosing a too limited product compared to the product that was advised. When the customer deviates from the advice, this has to be documented carefully.

3.10 Charge the advice costs to the customer

The costs of advice and intermediary services for products that fall under the ban on commissions must also be charged directly in the case of robo advice. The costs can be paid both before and after the advice moment. The customer must also pay the advice costs if he ultimately does not or cannot purchase a product.

3.11 Robo advice is valid for a limited period

Advice in general, and a robo advice in particular, pertains to a specific moment by definition. On the one hand, there can be changes in the person's personal situation, such as having children or a divorce, and on the other hand, the product range can change, as well as laws and regulations. Therefore, the limited validity of the advice should be pointed out to customers just as this is done for face-to-face advice.

3.12 Provide adequate after care

Digitalisation can make the after care for the customer a lot more efficient. When a face-to-face after-care meeting takes place, the adviser and the customer can be optimally prepared for the meeting if the customer has completed the client onboarding in advance. Of course it is also possible to have the robo adviser check whether changes have occurred in the customer's situation that have implications for the purchased product.

Updating customer information: an example

The customer receives an email with the request to update his information a year after the commencement date of the occupational disability insurance. He receives a reminder email a week later. When the customer has not logged in a week after receiving an additional text message, the customer will be telephoned. This increases the likelihood that the customer will update his information.

3.13 Take customer data and privacy laws into account

The robo adviser can obtain customer data in three ways: via entry by the customer, by making use of external sources and by collecting information about the customer's behaviour.

3.13.1 Entry by the customer

Besides the entries as described in paragraph 2.1, the customer can also add information himself from external sources, such as an appraisal report or information from Mijnpensioenoverzicht.nl (my pension overview).

3.13.2 Use of external sources

If the robo adviser makes use of external sources, the customer must be informed of this and, if applicable, provide permission for this. In addition, the customer can provide or enter information from external sources. Combining these external sources can help to obtain an integral financial overview of the customer with an overview of income and expenditure, all loans and insurance policies, and capital accumulation products. This give the customer insight into his financial situation. If the robo adviser wishes to make use of information about the customer's payment behaviour and financial position, the explicit permission of the customer is required pursuant to the Payment Service Directive 2 (PSD2)¹⁴.

3.13.3 Information about the customer's behaviour

The robo adviser can also collect customer data itself, such as the customer's click behaviour and contradictions in answers (see earlier in this chapter). For every advice that the robo adviser

¹⁴ https://ec.europa.eu/info/law/payment-services-psd-2-directive-eu-2015-2366_en

produces, it must be able to provide insight into the data used, the algorithms used and the information presented to the customer.

3.13.4 Privacy

Parties must protect the customer's privacy, in accordance with the General Data Protection Regulation (GDPR)¹⁵. The GDPR came into effect on 24 May 2016 and, after a transitional period, is applicable as of 25 May 2018. As from that moment, the same privacy law applies in the whole European Union, which strengthens the privacy rights of EU residents. One of the consequences for organisations is the accountability obligation: organisations to which the GDPR applies must be able to demonstrate that the appropriate organisational and technical measures have been taken to satisfy the GDPR.

¹⁵ For more information, see also the website of the Dutch Personal Data Authority [Autoriteit Persoonsgegevens] (<https://autoriteitpersoonsgegevens.nl/nl/onderwerpen/avg-nieuwe-europese-privacywetgeving>)

4. Algorithms

An incorrectly programmed algorithm can immediately have far-reaching consequences. Incorrect advice can be given many times in a short period of time. It is therefore important that an algorithm is carefully developed and tested before it is presented to a customer, and that it is also carefully maintained after that. When designing the robo advice, undesired steering may of course not take place and influencing that is not in the customer's interest may not be programmed.

4.1 Ensuring careful development

There is no human interaction whatsoever in the advice process in the event of full robo advice It is therefore essential to ensure the quality of the algorithm.

4.1.1 Development and maintenance

The design of the system must satisfy the guidelines described in the previous chapters and must clearly describe the objective, scope and the design of the algorithms. In order to ensure the quality of the end product, experts must be involved in the design, testing and acceptance (go/no go for implementation) of the system. The system development and maintenance must satisfy generally accepted standards for IT control.¹⁶ Part of this is testing the system and any changes in the system before it goes live.

The robo advice provider must structure its IT control in such a manner that the following elements are ensured:

- The integrity of general data and customer data
- The confidentiality of general data and customer data
- The availability of the system

Ensuring a careful development of the robo advice is also important because, in many cases, the customer will not be able to notice errors. This basically does not differ from face-to-face advice, where the customer will also rely on the adviser's expertise. As the customer has no or little insight into how the algorithm works, he should be able to rely even more on the quality of the outcomes.

When developing the robo advice, it must be assured that sufficient knowledge of financial products is present in order to ensure that the robo advice is of sufficient quality. As indicated in the legislative letter 2017 of the AFM¹⁷ to the Minister of Finance, the AFM is of the opinion that the requirements regarding professional competence must also apply for robo advice. With this, a level playing field is ensured between the human adviser and the robo adviser. In this manner, the

¹⁶ As laid down in COBIT 5 and the NIST framework for cyber security

¹⁷ <https://www.afm.nl/nl-nl/nieuws/2017/mrt/afm-wetgevingswensen-2017>

AFM aims to optimise the quality of the robo advice beforehand and the customer enjoys the same protection in both advice channels.

4.1.2 Testing and quality

The development and testing of the robo advice must be carried out thoroughly enough that the advice is suitable when the system goes live. An extra means of verification is that the robo adviser, after going live, only presents its advice after a number of hours; in the meantime, the human adviser can check whether the advice is correct.

In order to ensure the quality of the advice, it is necessary that there are employees within the organisation who understand the technology and the algorithms used and can monitor and review these. The robo advice provider must arrange for a constant review of the quality of the advice given. In addition, the algorithms used must be tested and updated periodically to accommodate changing market conditions or changes in laws and regulations.

Furthermore, the robo advice provider must have a process to suspend the robo advice if an error is identified in an algorithm. Should such a situation occurs, the robo adviser must also determine the impact and the size of the identified error and inform and compensate customers for this error. Customers who have received advice may never become the victim of errors in the robo advice.

4.1.3 Outsourcing

Various risks can arise in the event of outsourcing.¹⁸ The robo advice provider must weigh these risks and take adequate measures to control these risks. The robo advice provider must have a process in place to monitor the quality of the service of the supplier. In addition, as outsourcer, he is responsible for the quality of the advice provided and the management and control of the underlying system. In order to be able to assume this responsibility, the outsourcer must understand the rationale, risks and decision rules behind the algorithm.

¹⁸ See *Outsourcing in Financial Services* (<https://www.bis.org/publ/joint12.htm>)

5. Role of the AFM

With the InnovationHub that was launched last year, the AFM aims to facilitate innovation in the financial sector. In this joint initiative of the AFM and the Dutch Central Bank (DNB), both supervisors work together to inform market parties about the supervision and related regulations regarding financial innovations. The AFM is observing and participating in, for example, the development phase of new concepts.

In addition, the AFM will exercise supervision in various ways to ensure the quality of robo advice. This concerns the input and output of the robo advice as well as the IT and algorithms.

5.1 Supervision on input and output

When examining the quality of the advice, the AFM checks whether sufficient relevant customer information has been obtained and whether a suitable advice is produced based on this information. In any case, the AFM will continue to exercise supervision in this manner also with regard to robo advice. The AFM will examine whether the right questions are asked in the client onboarding and whether these questions lead to obtaining relevant customer information. The AFM will then check whether the robo advice, based on this client onboarding process, is suitable.

The robo advice must have a solid audit trail. For every advice given, the provider of robo advice must be able to provide insight into the data used, the algorithms used and the information presented to the customer. The robo advice given must be traceable and reproducible: proper documentation is therefore essential. This makes it possible for the customer, any other subsequent adviser and the supervisor to check how the advice came into being. The customer can always view the choice that he has made during the advice process. It is therefore important that changes in the customer's situation are saved in addition to the original information obtained. This should not be overwritten by new information, but be saved additionally. The advantage of creating a file in the event of robo advice is, once automated, that a consistent and comprehensive reproduction of the client onboarding and the advice is saved and stored.

5.2 Supervision on algorithms

The AFM will check whether the quality of the IT systems is ensured. The main issue in this case is that the provider of the robo advice must satisfy the norms that apply for sound and controlled business operations, as stated in Sections 4:11 and 4:15 of the Wft. To this end, the AFM will supervise the degree of process and IT control and the quality of the algorithms.

5.3 InnovationHub

The AFM and DNB would like to engage in a dialogue, via the InnovationHub¹⁹, with parties who have innovative ideas with regard to financial services. You can find more information about this in the document: 'More room for innovation in the financial sector'²⁰. If you have innovative ideas about a financial product or financial services that you would like to discuss with the supervisor, we invite you to contact the AFM and DNB via innovationhub@afm.nl.

¹⁹ <https://www.afm.nl/nl-nl/professionals/onderwerpen/innovation-hub>

²⁰ <https://www.afm.nl/~profmedia/files/onderwerpen/innovation-hub/publicaties/2016/vervolgstappen-dec.ashx>

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