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Pension Industry Cannot  
Ignore Big Data

Email Birthday Greet Stirs Interest  
in Pension Savings

Pension Funds Must Set an Example  
on Use of Big Data

Theme:  
Big Data and the Pension System of the Future



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## MAKING RETIREMENT EASIER AND MORE FUN

Easy is as easy does. I, for one, love it that a large part of our tax form is pre-completed by the tax authorities. I think it is useful that my cell phone can always tell me the fastest way from Point A to Point B and I find it impressive that personalized medication enabled by big data can improve our quality of life.

The pension industry is convinced that big data will also have an impact on the world of pensions. Talks with representatives from Netspar's partners reveal that it expects to achieve a great deal in terms of personalization. As databases are linked together, more and more information will become available about participants. That affords opportunities for better tailoring pension products – and communications – to members. Demographic characteristics according to ZIP code and open data such as home values can be linked to individual members.

We can also take it a step further, however, and bring in information technologists to study how we can build an infrastructure for sharing financial data at the individual level between parties, while still protecting their privacy. Economic research can show us which features might not be so necessary in such an infrastructure, while sociological research can help us understand why people would put their faith in big data. The issue of fiduciary duty needs to be studied to safeguard the interests of the participant.

Beyond personalization, developments in the field of big data and data science could have implications for risk management and investing. Greater insight into mortality risk could undermine solidarity. On the other hand, that same knowledge could in fact bring some insurance products within reach for people with chronic illnesses, who are now sometimes denied coverage. Investors could use that huge store of data to compare and contrast all manner of rate fluctuations and other economic events. It is of course essential that they also determine whether or not any of the relationships established have an economic explanation.

Netspar has traditionally focused on pensions and retirement financing. The emphasis of our future research will be more on integrated financial planning over the life course, thus including other forms of savings, such as home equity and development of human capital, in addition to traditional government-sponsored pension plans. For participants in the pension system, the advent of big data will likely mean that they can obtain increasingly integrated information on their financial situation. Psychological studies could determine the best way to present such information, so that it helps people truly become wiser. Every Dutch person knows the slogan introduced by the Dutch Internal Revenue Service in 1993: "We can't make it fun, but we can make it easy." Perhaps we can all try, with the help of big data, to make it easier and more fun.

Marike Knoef, directielid Netspar



# PENSION INDUSTRY CANNOT IGNORE BIG DATA

The main topic of Spring's Netspar Anniversary Meeting was new technological developments such as Big Data, Data Science, Machine Learning, and the Blockchain. While it is clear these will affect the pension industry, it is unclear how.

"The balance between human and artificial intelligence is shifting," proposes Jaap van den Herik, Professor of Law and Computer Science at Leiden University and chairperson of the Leiden Centre of Data Science (LCDS). "Software is getting ever smarter and taking over more and more tasks from humans. The amount of data is growing exponentially, and the number of applications for Artificial Intelligence (AI) is also taking off furiously." It is not only at successful new companies such as Uber that software is encroaching upon human brainpower, but also in accountancy, credit financing, and tax law. "These are terrains that have many crossovers with the pension industry," warns Van den Herik.

That is one of the reasons, according to Netspar Director Casper van Ewijk, technology is such an exciting theme. "It also impacts the trend toward a pension system based on more personal pension savings, a development made possible in part by the existence of IT, Big Data, and robo advice," says Van Ewijk. "It is the ideal Netspar theme. We explore the opportunities and threats of new technologies and delve into the impact on society and the implications for oversight and structuring of the industry."

## Fintech

Technology and the financial sector have always been closely intertwined. "Banking and other financial institutions realize that technological developments have a big impact on their activities. They are experimenting in all sorts of ways," says Ronald Janssen, Managing Director of Private Client Solutions at Ortech Finance.

Automated personal advice, also known as robo advice, is another facility many fintech companies and financial institutions are investing in. "The personal data on

Jaap van den Herik



which financial decisions are based can come from an increasing number of sources. As early as 2018, banks will need to be able to deliver certain types of information in a format that can be fed into those sorts of programs," he says.

According to Janssen, knowledge from the pension industry could be used to improve these programs. "We have a great deal of know-how in the Netherlands on ALM (application lifecycle management). That knowledge is useful for individualized advisory processes. You draw a relationship between someone's goals and their financial resources. That way you can link a client's profile to individual objectives," he explains.

Janssen figures the pension industry will not be able to ignore these developments. "Average citizens need to handle more things themselves. The risk is being shifted toward the individual and pension accrual is going to be capped. It is becoming more critical than ever for people to better understand their financial situation," he sums up.

## Discussions

Netspar has pursued the Data Science topic recently so as to uncover what pension funds and administrators and insurers expect from the latest technological developments. As part of these efforts, Bas Werker (Professor, Tilburg University) and Marike Knoef (Leiden University) have been holding discussions with Netspar's partners.

Ronald Janssen



"Our partners see personalized communications and products as the most promising applications of Data Science. After all, they already possess masses of information," Werker says. "It will allow them to better cater to the heterogeneity of their membership base. One idea might be to offer standard options tailored to a particular target group. That immediately raises ethical questions, though, about privacy and fiduciary duty."

Another possibility often cited is the ability to optimize data processes and better calculate opportunities. "Here again, the question is what kind of impact this might have on solidarity and whether that is desirable," Werker points out.

Investors are also keenly interested in Big Data. Werker thinks it is important, however, not to rush to conclusions. "We must continue to distinguish between causal relationships and correlations. It is important for us that the analyses conform to our economic perception," he says.

Meanwhile, Van Ewijk's conclusion is that Netspar's decision to identify Data Science as a new field of research will have profound implications for the research institute. "We will have to work together with other disciplines. That takes time, because you need to learn one another's language. Another effect is that we will be conducting more research into the accrual stage, the dynamics of saving income for later. People have to make decisions at ever-earlier points in their life courses about their retirement provisions," he says.







Jos de Haan

## NOT EVERYONE CAN TAKE THE REINS

The drive for customization and choice is growing stronger in all areas of society, not just the pension industry. Not everyone sees that as a blessing, however. Jos de Haan, a sociologist working at the Netherlands Institute for Social Research (SCP), warns that society should not overlook groups in danger of being left behind.

The SCP, which studies social developments from the viewpoint of the average citizen, has been weighing the role of technology in society for years. "IT, Big Data, internet of things, connectivity – they all fall into that category," says De Haan. In addition to his job at the SCP, he is a professor of ICT, Culture, and Knowledge Society at Erasmus University Rotterdam.

One of the reports the SCP published late last year was "De toekomst tegemoet – leren, werken, zorgen, samenleven en consumeren in het Nederland van later" (Into the Future: Education, Employment, Healthcare, Communal Society, and Consumer Society in the Netherlands of Tomorrow.) Technology was a major factor in all of the domains the SCP examined, in terms

of facilitating or causing change. The tremendous impact of technology provokes conflicting reactions. "You always have some people who focus on the negative aspects. They are worried about privacy, social isolation, and a growth in social inequality. On the other side, you have the idealists with their high expectations. They view technology as the solution to many problems. We consulted the academic literature to ponder both sides of technology," De Haan explains. In its report on the future, the institute documented the influence of technology in five domains.

### Education

"In the Education domain, we are seeing a rise in flexibility and customization. This is largely attributable to technologies that allow people to learn any time, anywhere. We point to the emergence of MOOCs, online courses open to everyone. This will have a profound impact on higher education in the long run. Students no longer need to go to lectures. They can compile their own curriculum and are not even bound to a particular university. If you can choose for yourself, you'll take university courses from the best professors in your field. That means Dutch professors will need to compete with their counterparts in other countries. Still, there will always be a need for personal interaction between students and instructors," says De Haan.

These changes also require a different attitude on the part of students. "If your education program is no longer predetermined, then you have to make more

decisions yourself. That's great for some students, but there are also those who need more structure. This is evident, for example, among many students from Asia who study abroad. They work extremely hard, but they have not been taught how to make decisions on their own," he points out.

### Employment

The SCP found similar patterns at work in the Employment domain. "It is no longer standard practice for people to work the same job for the same employer for forty years," says De Haan. "Members of the working population change jobs more frequently and might also temporarily freelance. They have to take charge on their own if they need training because the nature of the job is changing." This is another area in which people who possess the skills for self-determination have an advantage. "But there are also people who have difficulty with that," De Haan adds. "It is important to bear that in mind."

In this regard, the SCP draws a distinction between the 'cans' and 'cannots'. "In the 1990s, everyone talked about the haves and have-nots, but this is a more fitting description of the divide for now," De Haan explains. "This is not to say that the division between these two groups is the same as that between the highly and poorly educated. Although well educated people are more likely to belong to the cans, some feel most comfortable with structure and certainty and have no need to take the reins into their own hands."

### Healthcare

In the Healthcare domain, as well, people are being presented with more options. Just as in the two other domains, this represents a step forward for the cans, but a struggle for the cannots. "It used to be, you went to the nearest hospital. Nowadays, you can compare them and go to a specialist who is known to be the best for a particular treatment. Many people see that as progress, but it also introduces the stress of choice overload," says De Haan.

The SCP expects that elder care will become a growing burden on society, given that the percentage of senior citizens in the Dutch population will continue to rise through 2035. "We have an increasingly smaller number

*It used to be, you went to the nearest hospital. Nowadays, you can compare them and go to a specialist who is known to be the best for a particular treatment.*



The SCP analysis is perfectly consistent with the findings of a WRR report published in late April 2017, titled "Weten is nog geen doen, een realistisch perspectief op zelfredzaamheid" (Knowing Is Not Doing: A Realistic Perspective on Self-Reliance). The WRR points to the fact that many people lack the so-called capacity for doing required to handle all their affairs as the government wants.

The pension industry fits into the picture that De Haan and the WRR paint. Pension members are being given more options and pension providers hope to improve their services through technology such as Big Data and artificial intelligence. "People who are self-reliant and digitally conversant and possess a great deal of social capital are in the best position to benefit from these developments. It is a similar case with independent contractors who take out their disability insurance through a collective fund.

That's a good solution, but it is not necessarily ideal for all freelancers," thinks the professor.

Pension providers can offer more customization when they know more about their members. If an administrator knows a member has a large savings account and owns their home, it might be able to offer that person the option of paying lower contributions in the future. "The questions are how are those administrators going to collect that information and do participants want to provide them that kind of personal information?" De Haan points out. "Another concern is privacy. Who can see that personal information once it's in the provider's systems?"

De Haan expects, moreover, that a segment of the membership base is not interested in having even more options. "Some people like to be able to choose, but for others, it's stressful. Scared people will always choose certainty over flexibility," he says.

The professor thinks pension funds have a duty to think about how they will ensure that all of their members share in the advances. "Getting through to those with fewer skills who lag behind is hard. If you advocate solidarity with all members, you will have to come up with something. Otherwise, it's a selective form of solidarity," he concludes.

of employed people caring for an increasingly larger number of old people. Some see technology as part of the solution. Robots and IT could introduce greater efficiency, but I remain skeptical. Human attention is also very important. You cannot simply replace it with technological devices," De Haan asserts.

### Communal Society

Communal Society is the fourth domain the SCP analyzed in its report on the future. "Free time and work are becoming more and more intertwined. Here, too, we noticed that there were people on one side who embrace the new technological resources such as social media and use them to establish and maintain contacts with others. Those people also benefit in their career from those tools. The more people you know, the greater your chance of having someone recommend an interesting job to you. On the other side are people who are actually becoming more isolated," De Haan observes.

### Consumer Society

Consumer Society was the fifth domain studied. "We see basically the same picture as in the other domains: the huge impact of the internet and a lot more choice. Take, for example, how you can pick your own energy company. Many people enjoy that, but some cannot keep up with all the developments."

Fintech can make pension information more personal and relevant.

APG is conducting a wide range of experiments to find out how best to go about this. "We can try out any and all ideas."

## EMAIL BIRTHDAY GREET STIRS INTEREST IN PENSION SAVINGS

"A big difference with a few years ago is that nowadays it's much simpler to test new ideas," says Theo van Kessel, Business Improvement & Change Director at APG. "We used to organize a meeting, and whoever shouted the loudest got their way. Then we would work for months to implement the idea." Because most communication nowadays is digital, it has become simpler and easier to test ideas. "If we put a couple of different texts up on the site," he continues, "we immediately see which ones raise the fewest questions. Participants don't even notice they're taking part in a test."

Texts, color combinations, and navigation on the ABP and BpfBouw sites are just a few examples of the aspects APG is studying. The pension administrator experiments with personalized information and is investigating the possibilities of using a blockchain digital ledger, for instance. All these experiments are based on the customer's interests. "Our object is to make sure participants are satisfied with the service we offer," says Alwin Oerlemans, Chief Strategy Officer at APG. "We need to help them make sensible choices," Van Kessel adds. The ultimate goal is to restore confidence in the pension sector.

APG hopes to achieve a great deal by providing information tailored to a participant's personal situation. The information provision can be personalized in various ways. "By using the information available to it, a pension administrator can respond better to questions from a participant," says Van Kessel. "Here's an example from another sector. Let's say there's a person at Schiphol Airport searching on his cell phone for an insurance company. Then the insurance company can post a page about travel insurance as its start page, because that is probably the kind of information the



Theo van Kessel



traveler wants. By the same token, on the basis of the visitor's search behavior, a pension provider can redirect a site visitor to someone in the call center who has expertise about the particular topic." Sometimes the pension provider needs only a tiny piece of information to gauge why a person is calling. "If you know that the caller is under 18, then she is probably not calling about her own pension, but about that of her parents. She may even be calling to report that one of her parents died," he says.

It is even easier to tailor the information in someone's personal section on the site, because you know who the participant is. "We don't want to give people unnecessary information," Van Kessel explains. "If we know that someone doesn't have a partner, we won't offer information about the survivor's pension. You don't give married couples the option to register a partner. We can thus ensure that participants are shown only relevant topics."

Taking it a step further means providing people more personalized information about their specific pension situation. The most recent example is the personal pension pot, a graphic that shows ABP participants how much they have contributed, how much their employer has contributed, and how much capital has been accrued. "Just like the gross pension on the uniform pension statement, the accrued capital doesn't tell people very much," says Van Kessel. "However, since

we have so much data, we can enrich this information. For example, we can show how much other people in the same profession have accrued with a comparable income. If people have this kind of information, the figures come alive."

### Personal Approach

Oerlemans and Van Kessel caution that despite the broad availability of exciting technological options, we must never lose sight of the personal touch. "Let's say there was an error, and a person was paid too much pension. That overpayment has to be recovered. Then, calling that person to discuss how best to make arrangements is the procedure of choice," says Van Kessel.

APG believes that digital tools can raise pension awareness. "We all know that the uniform pension statement disappears into a shoebox, so we are looking for other ways to engage participants," says Van Kessel. "We carried out an experiment with a birthday card for APG's company pension fund. On a participant's birthday, we sent them a brief video showing events from their birth year. This was followed by pictures of things related to the retirement date." Response to this email was high. It prompted nine out of ten participants to log in to their pension fund's site. "This shows that a personal and relevant message can arouse more interest than the annual pension statement," Oerlemans adds.

### Privacy

The use of personal data by financial institutions such as pension funds may conflict with privacy expectations. Some participants are concerned about this. "That's a good thing, and it's perfectly logical," says Oerlemans. "Understandably, people want to know what organizations know about them and what they do with that information. You need to be transparent about this."

Traditionally, pension providers work exclusively with data that have been validated in a number of ways. This is the case for the information from the municipal personal records database or the Dutch tax administration. "If you start using data from other sources, you have to be careful. Even information that people put on their social networks is not necessarily correct – take the details on LinkedIn. You can never be sure they are completely accurate."

If you start using data from other sources, you have to be careful. Even information that people put on their social networks is not necessarily correct.

Van Kessel and Oerlemans expect that, with the help of fintech, personal financial planning will be more readily accessible. "Fintech companies everywhere are developing these types of programs. Sometimes they are tools that are mainly used to sell investment products, but there are also programs that really offer people better insight into their financial situation. This is important because, increasingly, people need to be in charge of their own data," says Oerlemans.

The pension funds will not have to reinvent the wheel. In the US, for example, a great deal of money is being invested in this sort of thing. "Pension providers can

pick and choose, taking the building blocks that meet the demands of the pension fund and are suited to their systems," Oerlemans points out.

An important element is the API, application programming interface. "These are programs that allow you to transfer data to other programs," says Van Kessel. "For example, bank transactions that can be fed into a financial planning program. Once this is automated, it will become very attractive to use such programs. Not so very long ago, you had to input all that data by hand."

According to the two APG men, such programs have a good chance of success in the Netherlands because they can be linked to existing digital systems. "In the Netherlands, identification is well-regulated and well-managed. And the Dutch tax administration works digitally. Thanks to this, a great deal of reliable data is already available on which we can build," says Van Kessel.

For employers too, it is more attractive if employees acquire greater insight into their financial situation. "Then they become more aware of the options they have," says Oerlemans. "And they also worry less about money matters. Employees without worries are more productive."

Alwin Oerlemans



## Blockchain

Along with PGGM, ABN Amro, and the Open University, APG is investigating the possibilities of blockchain and similar programs. "That is a technology that lends itself well to use with a defined contribution pension plan. This involves debiting an amount from an account and crediting it to an investment account. We may well be able to do this inexpensively and securely around five years from now. A big advantage of blockchain is that all past transactions are stored and can be retrieved," says Oerlemans.

Van Kessel does have a reservation in this regard. "Blockchain is still being developed. Right now, we don't have enough computer capacity to record millions of transactions in this way. Even aspects such as cooling all the computers needed are still being investigated."



Brian Heiblom and Alrik Hoven

## BLOCKCHAIN: BEHIND THE SCENES IMPACT ON PENSION PLANS

Some people fear that the blockchain will do away with the need for institutions such as banks. Others are more cautious but see great opportunities. What does blockchain mean for the pension sector?

The blockchain, a distributed database for the decentralized storage and validation of information, is still in its infancy. Nevertheless, insurance companies and

pension funds are keeping an eye on its development, because one of its core precepts is the exchange of value between parties, a core activity of the financial sector.

Achmea is one of the fifteen major insurers and reinsurers that have been part of the Blockchain Insurance Industry Initiative (B3i) since 2016. "We are working on a project together to gain experience on how to use the blockchain to improve shared processes," says Innovation Manager Brian Heiblom, who represents Achmea in B3i. APG is also studying the blockchain, in cooperation with parties such as the Netherlands Organization for Applied Scientific Research (TNO) and the Open University.

The blockchain stores information (contracts, transactions) on multiple interconnected computers. This makes it impossible to alter or hack the information without notice. In this sense, the blockchain can be likened to Wikipedia: any changes made can be traced. No formal agency, such as a bank or notary, is needed to warrant that the information is correct.

The most widely known use of blockchain technology is bitcoin. All of the transactions with this digital currency are recorded in a decentralized ledger. "Bitcoin answers the question of whether the technology is safe," Heiblom asserts. "The total value of all available bitcoin fluctuates in the neighborhood of 20 billion dollars. Anyone can download the software for trade in bitcoin and try to make changes to it. Compare that to the idea of a bank with 20 billion in savings that makes its systems fully accessible to the public. Although bitcoin as a means of payment is sometimes portrayed negatively in the media, in itself the technology is safe and has never been hacked."

The main potential for the blockchain is in markets where strict rules apply and lack of trust is a problem. The third element is the exchange of value between parties. If markets satisfy one or more of these characteristics, the blockchain can play a significant role. "For instance, take the land register in a Latin American country," says Heiblom. "If the information on the size of a person's holdings is recorded on several computers, it gives the owner more certainty. Changing the ownership ratios of tracts of land without legal permission becomes more difficult. Honduras has experimented with this, but even a country like Sweden is exploring the possibilities."

The pension market fits the definition provided by Heiblom and his colleague Alrik Hoven, senior manager with Syntrus Achmea Pensioenbeheer. It is subject to clear-cut rules, and the parties involved conduct value exchanges. Moreover, trust in the pension system is an issue. Nevertheless, Heiblom and Hoven do not expect the blockchain to shake up the pension industry any time soon. "Efficient and effective arrangements are already in place for many aspects, such as making payments and collecting contributions," Heiblom explains. "And problems such as outdated administrative systems can be solved with existing automation solutions. If something can be improved using automation that is already available, it is generally to be preferred. We don't have much experience with the blockchain as yet. It is a technology that you would only apply to specific problems where you expected it could make a difference."

For this reason B3i chose to work with a particular segment of the reinsurance market. "Because we want to gain some experience with this technology, we looked for a contained market," says Heiblom. "The reinsurance market is manageable, with a small number of actors. We concentrate on the processing of reinsured risks. Above a certain amount, an insurance company can pass some claims to its reinsurer. This is presently a manual process with loads of paper work requiring many signatures. Using the blockchain, that same process could be completed in real time. What in fact happens is that the insurance companies' ledgers are balanced against each other automatically. The advantages include greater efficiency, fewer mistakes, and lower currency risks."

Financial organizations regard identity management, or establishing the identity of their clients, as another activity that could be streamlined using the blockchain. "Now, it can be a tedious process of going to a bank branch and showing your passport," says Heiblom. "Pension funds do not have to deal with this particular aspect because they obtain their data directly from the municipal personal records database."

### Oversight

The role of regulators will change if the blockchain becomes better established. "In the blockchain,





The pension market does not appear to lend itself for blockchain technology right now, but this does not mean that pension funds will not have to deal with it.

multiple parties all have access to the same data. It is conceivable that a regulator would also be part of a blockchain and thus gain access to that information," says Heibloom. "Another possibility is compliance by design: arranging the processes so that you are complying with the regulations automatically."

The pension market does not appear to lend itself for blockchain technology right now, but this does not

mean that pension funds will not have to deal with it. "Asset managers, for example, are looking into the possibilities," says Hoven. "Investing involves value exchanges, as well as friction and waste. The rules are clear-cut. Perhaps the blockchain can be used to make processes more efficient. Still, you always need to ask yourself whether you can achieve the same objectives through automation."

## Inspiration: Spotify, Games and LinkedIn

Program makers for the financial sector like to use concepts that have proved their usefulness elsewhere. Three examples:

At the Netspar Anniversary Meeting, blockchain expert Floris van Lieshout (Deloitte) spoke about a blockchain Hackathon (a get-together of software developers) where an alternative plan for personal pension savings was presented. Participants decide how they wish to invest. The investment options are set out along the same lines as the playlists of digital music service Spotify. You can select a genre (classical, green, or adventurous) or you can follow the investment portfolios of other participants.

Games in which players earn points and go to a higher level once they have collected enough points are another source of inspiration. A platform can reward users who give others financial advice. If you give good advice, you get extra points that can be exchanged for prizes, for example.

LinkedIn clearly shows users what information they need to add to make their profile more complete. A program for personal financial planning could also encourage users to enter more data: it could show them what they need to do to improve their profile so that the recommendations are better adapted to their situation.

Today's data science advancements are raising questions about privacy, fiduciary duty, and security. As WRR chairperson Corien Prins points out, a great deal is permissible with regard to using personal data, but pension funds and insurers must be held accountable.

## PENSION FUNDS MUST SET AN EXAMPLE ON USE OF BIG DATA

"Citizens need to be able to trust the government to handle their personal information with care. Think of all the terrains on which the government has a monopoly," says Prins, who earlier this year became chairperson of the Netherlands Scientific Council for Government Policy (WRR), which sits opposite the Dutch houses of parliament. The council published a paper on this topic last summer: "Big Data in een vrije en veilige samenleving" (Big Data in a Free and Safe Society). "The Cabinet asked for that because the use of Big Data presents a number of challenges in terms of privacy, fundamental rights, and fiduciary duties," she adds.

"Big Data also affords many possibilities, including for the government," explains Prins, who is also a professor of Law and Information Science at Tilburg University. Intelligence agencies, for instance, can learn a great deal from Big Data. "One example is how it was used to track marijuana growers in Brabant," she points out. "It's tremendously useful to be able to link Internal Revenue Service data to information from other agencies. It is also only natural that the intelligence agencies would be interested primarily in all the new possibilities. Our job is to alert everyone to the risks."

The overall opinion of the WRR report is that most of the attention in the existing legislation focuses on the collection of data. The council believes that the focus needs to shift to the ways in which the data is processed and analyzed. The procedures used have a tremendous impact on the results, yet it is very difficult for your average citizen to discover the considerations or criteria that might have been used. The Dutch cabinet agrees with this position by the WRR.

One of the WRR's significant recommendations was, in fact, that the government should be less dependent on external parties who cleverly process that data. The government often outsources its data processing to external parties and then purchases systems programmed to a large degree by those same parties. "In that situation, you have to know what you're doing as a client," says Prins. "Their sensibilities are still too limited. The government does not have enough IT know-how to reliably act as a critical consumer."

It takes precision, because the government must be able to defend the decisions it makes concerning individual citizens. "If the Internal Revenue Service, for instance,





Corien Prins

decides to audit a group of taxpayers based on certain criteria, then there needs to be clarity about how that decision was made – what data were used and which criteria were applied. It has to be transparent,” Prins asserts.

Providing such transparency is not always easy. “Imagine that the government were to use self-learning software. The criteria for that shift over time. The government then needs to think ahead of time about how to handle that, as well as how to document and record it, and be in a position to explain it in the future,” she adds.

The government must also improve its oversight and enforcement capacities for data science, the WRR concludes. “They have taken a major step,” Prins points out. “The Cabinet has said that the Council for the Judiciary must build adequate expertise in this terrain. If the judicial system lacks knowledge and authority, it makes it more difficult to implement the rules. Citizens need to be able to count on judges to officiate knowledgeably in disputes about data use.” Since privacy parameters and technology are constantly evolving,

implementing the rules is of vital importance. “That is how you set limits, which is not yet happening enough, but is essential,” says Prins.

### Reservations

Pension funds and insurers have high expectations of the new IT possibilities. They expect to be able to offer more personalized products, among other things, if they know more about their members. Prins has some reservations about this. “If a fund wants to offer a member special treatment, it has to be able to justify the grounds for that. It can be expensive to provide everyone with individualized advice. I expect the funds will identify specific groups. Then they can get away with providing advice to that group,” she muses.

Another concern is who gets to make the decisions about the members. “The law is clear on this,” she says. “Automated systems cannot make any decisions that have legal repercussions for an individual. A computer program cannot simply decide that a member’s contribution should be reduced. A human being must always make the final decision.”

Pension funds could also decide to present a certain set of choices to members who meet certain criteria. “But then the fund would need to explain the considerations it took into account and the underlying data and criteria. If a fund thinks that’s too expensive, it shouldn’t go down that road in the first place,” Prins asserts.

She does not want people to think that everything has been battened down with rules and prohibitions. “In my lectures, I always say that there’s a lot you can do with data, but you have to proceed cautiously. If a pension fund uses data collected for another purpose (e.g. from a housing platform like Funda), the members’ expectations of privacy come into play. Could an individual have reasonably expected under their privacy rights that the data would be used in that manner?”

Situations where that is not the case could seriously obstruct the linking of databases. The Dutch tax authorities, for instance, used camera recordings of vehicle license plates that were taken during a traffic stop. They wanted to use the recordings as part of their auditing of vehicle leases. “The judge ruled that this violated privacy laws, since the data had been obtained for another purpose,” says the WWR chairperson.

### Who Owns the Data?

As soon as databases are linked together, the question of who owns that combined data arises. “Say a pension provider uses data from Funda to learn more about

its members’ home ownership,” Prins suggests. “This raises myriad questions. What information, specifically, is the pension provider looking at? Starting from how far back? What agreements has it made with Funda? How dependent is the pension provider on Funda? Where can I review the information and can I correct it?”

She understands that pension funds are eager to make ever-greater use of IT solutions. “At the same time,” she adds, “a pension fund has to maintain a human dimension for cases when members have complaints. Pension providers need to plan ahead about how they will address this. Their attitude cannot simply be ‘everything we do is right.’ They need to take complaints seriously and enable people to take full advantage of their privacy rights.”

The bar is high for pension funds, she concludes: “They have a monopoly position. Their members cannot simply transfer to another fund. That means you can absolutely demand that pension funds treat your data with care. They need to draft policies on saving and deleting the data, for example. You do not need to keep all the forms of data for decades. It makes no sense to hold on to every cell number or notes from a telephone conversation in 2003 just because you can. That is the sort of information a fund needs to clean up every once in a while. Institutions need to set up a removal system alongside their archiving system.”

In addition, funds need to adopt conscious policies with regard to amassing metadata. As Prins states, “They are in charge of the data. How and when were they collected? Were they checked? What was the source and what agreements were made with that party? If a pension fund becomes involved in a lawsuit about the data twenty years from now, they will need that metadata, among other things, to convince the judge of their reliability. It is smart to think about how a judge in the future might view your data practices in a dispute with a member.”

**Their members cannot simply transfer to another fund. That means you can absolutely demand that pension funds treat your data with care.**

# STUDENT PROFILE

## DRAGOS TOMESCU

International student Dragos Tomescu noticed the Netspar track when he applied for the Master Economics at Tilburg University. "It seemed like a promising track, but I didn't know how interesting it was, until I spoke to students and lecturers at a Netspar information meeting. What prompted me to pursue the track was the enthusiasm of other students about the program as well as the prospect of a challenging and fascinating track. The interesting events and company visits made me aware that it is very useful to be part of this network."

### Sold

"My initial interest had to do with competition and regulation or behavioral economics. One of the students told me about his thesis project where he was applying behavioral economics to gain insights into the reasons why people don't save enough. Another student of the Law department told me about his experience with his thesis on legal challenges with regards to 'big data'. After researching further about the wonderful applications data science could be used for, I was sold... I attended a few events and the more I learned about it, the more fascinated I became with it."

### Individual

"At this moment I'm taking an internship at a.s.r. to develop my skills and learning how to help organizations implement theoretical models by making use of data science. In my internship, I am testing a method of gaining insights about individuals' beliefs about pensions through data analysis, instead of surveying. This would allow pension providers to better understand and address people's individual concerns and needs with regards to pensions, in a feasible, cost-effective manner. Put broadly, data science allows us to gain better insights in people's perception of pensions."

*I like the idea of helping organizations apply scientific or academic behavioral insights into their daily practices through data science.*

### Future

"As the responsibility to save for retirement is increasingly placed on individuals, I believe behavioral economics insights are becoming more important within the pension industry, and especially individualized communication – though I might be biased because of my thesis topic... Pension providers will have to be able to understand their customers' individual requirements, concerns, biases, and so on, when it comes to pensions, and address them at an individual level. At the same time, pension providers are starting to make use of their databases to see what they can learn from the data they have collected over the years. Both are interesting developments and they are interrelated."

"I find that the pensions industry is a very dynamic and intriguing industry and I am glad to be a part of it. I see myself working at the intersection between behavioral theories, economics and data science. I like the idea of helping organizations apply scientific or academic behavioral insights into their daily practices through data science. Think there's a future in it and it's the direction I am heading towards."





# PAPERS AND PROJECTS

This page shows projects and recently published papers from the Netspar series that are related to the theme of this Magazine. Also, you will find hyperlinks to the testimonial video of Femke de Vries (AFM) and the summary of the exploration Bas Werker and Marike Knoef did regarding the possibilities of data science in the pension domain. More papers and all PDF versions can be found at [www.netspar.nl](http://www.netspar.nl).

Theme: Big Data and the Pension System of the Future

## Industry papers

*Slides exploration of Data science/big data in the pension domain*

**Bas Werker and Marike Knoef**

*De value of customization for pensions*

**Roel Mehlkopf, Casper van Ewijk, Chantal Hoet and Sara van den Bleeken**

Netspar Brief 8

*Vershil moet er zijn: betere segmentatie door het combineren van databronnen*

**Chantal Hoet, Elisabeth Brügggen, Thomas Post, Wiebke Eberhardt**

## Projects

*Keuze en maatwerk in pensioen; Economische en juridisch aspecten en Data Science*

**Bas Werker, Bastiaan Starink, Wesley Kaufmann**

*Engaging pension plan participants: How emotions, peer effects, and life events influence the effectiveness of pension communication*

**Elisabeth Brügggen, Thomas Post**

**Femke de Vries, AFM:**

“Netspar can help answer the question how we can use big data to enhance the involvement of pension participants.”

Watch the testimonial video on our [Youtube channel](#)



## Colophon

**Netspar Magazine** is published by Netspar, the Network for Studies on Pensions, Aging and Retirement. Netspar Magazine is distributed digitally. To subscribe or unsubscribe, contact Netspar.

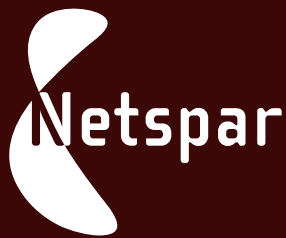
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Network for Studies on Pensions, Aging and Retirement

Netspar, the Network for Studies on Pensions, Aging and Retirement, is a 'think tank' and knowledge network. Netspar is dedicated to promoting a wider understanding of the economic and social implications of pensions, aging and retirement. Expertise from scientific research is used to transfer knowledge through publications, events and education. With that, Netspar actively contributes to the social dialogue between policymakers, scientists and pension and insurance practitioners.

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