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Added Value of Blockchain for Financial Professionals in the Netherlands

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ABSTRACT
Technological developments are radically changing the business of accountants. The World Economic Forum found that accountants run the highest risk of becoming redundant due to automation. Verkruijsse stated in his farewell speech that the accountant must keep up with the times, or else the end of the story will be lost. One question is to what extent the professional must and can go along with these developments. A number of conclusions can be drawn from this exploratory study: (1) we have come across a positive attitude of the financial professional with regard to the state of affairs of digitalization and Blockchain, (2) attention for soft skills was, is and remains a point of attention for both organizations and education and (3) the working environment is slowing down the evolution towards digitalization and Blockchain.
Keywords: *Blockchain, added value, financial professional, evolution, digitalization.*

1. INTRODUCTION

Technological developments are radically changing the business of accountants [1]. The World Economic Forum [2] found that accountants run the highest risk of becoming redundant due to automation. Verkruijsse [3] stated in his farewell speech that the accountant must keep up with the times, or else the end of the story will be lost. One question is to what extent the professional must and can go along with these developments [4].
In 2016, the Dutch Association of Chartered Accountants (NBA) already noted that, in the Arena Group's view [5], Blockchain [6] will be generally accepted by 2030 [7] and that it was even stated that 'we used to do it inefficiently with all those accounts' [8]. The Dutch Association of Charted Accountants (NBA) gives a vision of the future of the profession of financial professional [9], which should be seen as a dynamic document. Central to the vision is a model with four components, focused on job level, perspective, knowledge area and focus on value retention or creation. The model can be used to assess whether you can properly train professionals for business. Incidentally, personal skills are not included in this model, while eighty percent is non-verbal communication and it is mainly about tone of voice, attitude, the right moment and the right story. Apart from the fact that various training courses are moving in this area, distinctive capability will be particularly important and complementary to other training courses. In other words: let there be choices. It is important that the professional has a feeling for technology and is supported by specialists.

1.1. Understanding Patterns and Trends Means That Professionals Add Value

The role of being able to assess the reliability of the data and the analyses is important with regard to the data coming from systems. Understanding patterns and trends means that the professionals add value. It is therefore also very important to understand Blockchain, for example. Earlier research by Bergen and Wijnen [10] resulted in the recommendation to the NBA to allow the compiling accountant to actively participate in the developments of Blockchain. This is an example of an opportunity to establish a link between personnel policy and performance [11]. The observation now is that there is little or no practice of developments with Blockchain in the sector with the conservative character of the archetype financial professional.
The financial professional of the future fulfils various roles in the process(es) of acquisition, operation and disposition [12], in which certain specific and general competencies are more or less relevant. A competence is the ability to perform adequate tasks that form an important part of a function, role or responsibility. There are four profession-specific competencies applicable to finance: financial management and financial operation, financial intermediation and financial services, financial innovation and redevelopment, financial investment and financial advice. Two general competencies apply to the financial professional of the future: (1) Social and communicative competency and (2) Self-directed competency.

1.2. Understanding Patterns and Trends Means That Professionals Add Value

The following roles will be fulfilled by the financial professional of the future: as a service provider, contract manager, representative of interests, mediator, spider in the web and as advisor to the organization. The follow-up study of the NBA [13] regarding the fact that the sector is characterized by great change dynamics did not follow up the conclusions of the 2018 report, with which it can be stated that the developments of Blockchain are recognized, but not (yet) acknowledged. This is a worrying observation. In 2018, the new NBA knowledge group charted the technology landscape for the accountancy profession using McKinsey's '3 horizons of innovation' model. This shows that several large firms are already working hard on technologies from horizon two (analytics and process mining) and that a number of digital developments are already commonplace, while the MBK accountant does not (yet) notice much of this.

2. BLOCKCHAIN DEVELOPMENTS

To understand the developments of Blockchain versus reality, we can look at the Hype Cycle for Blockchain Business 2018 [14]. We look at the Gartner Hype Cycle chart from 2015 (Figure 1): it suggested that crypto currencies were a hype and were in a low point. In 2015 crypto currencies experienced a peak in the market of 7 to 8 billion euros. In 2019, however, this will be 210 to 240 billion euros, thirty times as much as in 2015.
In order to put the previous cases in perspective, it is important to look at the market capitalization and the total growth of the money since 2015. The question that can be asked is whether the current physical money has been a hype for decades or centuries and whether crypto currencies are the legitimate substitute.

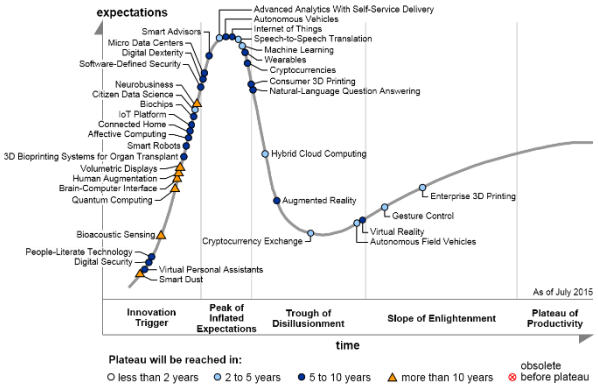

Figure 1 Hype Cycle for Emerging Technologies 2015 (Gartner 2015).

2.1. Understanding Patterns and Trends Means That Professionals Add Value Blockchain Technology is not Yet on the Priority List

Blockchain technology is hardly a priority on the agenda of Chief Information Officers (CIO). Furlonger noted that in the Gartner 2019 CIO survey, only 5% of CIOs rated Blockchain as a game changer for their organizations, far below the themes of artificial intelligence, cloud, data and analytics. In the top, typical and lagging categories of CIO respondents, 11% of CIO respondents have deployed Blockchain or will do so in the coming year 2020. Although Blockchain offers a spectrum of opportunities, private ledgers will struggle to achieve a positive Total Cost of Ownership (TCO) within four years. There is therefore a demand for a good cost/benefit analysis in this area, according to Furlonger. The Blockchain perspective alongside the technology in fact offers new paradigms for how organizations [15] can respond, act or how assets are represented in practice [16]. It is quite possible that the current business and technology may not be able to make optimal use of the possibilities of Blockchain technologies.

2.2. Evolution of Blockchain solutions

Gartner's Blockchain Spectrum provides a model for investigating the evolution of Blockchain solutions and how their phases align with the value that companies can derive from them [14]:

2009-2020: Accessibility technologies for the Blockchain
This early phase of block chain experiments is built on top of existing systems to reduce costs and friction in private activities. They have limited distribution capabilities to a small number of nodes within or between companies.

2016-2023: Blockchain-inspired solutions
The current phase of block chain-inspired solutions is usually designed to address a specific operational problem - usually in terms of inter-organizational processes or inefficiency of administration. These solutions have a symbolization or decentralized decision-making.

2020: Blockchain complete solutions
Blockchain Complete offering, starting in the years 2020, will implement smart contracts and deliver the full value proposition of the blockchain, including decentralization and tokenization.

After 2025: Improved solutions with Blockchain
In this future situation, smart contracts will be truly autonomous and advanced technologies will enable exchanges and transactions that are not yet possible. At that point, we will see Decentralized Autonomous Organizations (DAO) and micro-transactions by machines.

3. THE FINANCIAL OF THE FUTURE

The research of Corporal and Sabandar [17] examines how professionals view developments described in research and literature that influence the profession of the financial professional where big data, globalization, increasing complexity, uncertainty and new revenue models are frequently mentioned. The professional should therefore become much more proactive, agile, flexible and a business partner [18]. The study draws three conclusions on the topics (1) activities and developments, (2) developments and competencies and (3) challenges.

3.1. Activities and Developments

There appears to be a clear gap between current and future work where the financial professional contributes little to strategic decision-making and change processes. Incidentally, the professional spends the least time of his current work on these subjects, while they do think that new ways of organizing, controlling and soft controls will have the greatest impact on their profession. In addition, they spend a lot of time giving advice but are insufficiently equipped in soft skills. However, the rapidly changing society and with it the legislation and regulations do require a continuous ability to adapt and learn.

3.2. Developments and Competences

The financial professional is expected to be able to provide management information in real time based on big data and, above all, to take initiatives with regard to advising on new organizational challenges in both a financial and non-financial sense. It is expected that non-complex tasks will be digitized and disappear, making a much greater demand on the analytical skills of the financial professional. Striking in this research is that linking environmental development and foresight in relation to financial forecasting are seen as less important, even though this should be the core competence now. In addition, he should also be able to deal with continuously changing requirements and conflicting interests: agile organization and breaking the traditional PDCA cycle.

3.3. Challenges

The increasing importance of the financial professional as a business partner has been recognized in research and professional literature for some years now. According to the professionals this would actually take place, The guts to admit other professionals in the closed communities as accountancy firms are, is very limited. A lot of data and digital developments do make it possible to give pro-active, fast and accessible advice, but it also requires real and thorough knowledge of the business and environment. Education has an important role to play in shaping the new type of financial. However, hardly any attention is paid to the teaching of change and strategic processes or (non-)financial decisions. While the financial professional does want to make time for this.

But what is the current situation of the financial professional in 2020 with regard to the digital developments affecting his profession and how can he shape these developments? In the next two chapters, a survey among these professionals will be used to obtain the current state of affairs and to give direction to the change of an era [19].

4. SURVEY IN THE NETHERLANDS

4.1. Response

The study took place in March to April 2020 among all members of the Working Field Committee (WVC) of the Accountancy (AC), Finance, Tax and Advice (FTA, formerly Tax Law and Economy), Finance & Control (FC) of the Academy of Finance, Economy and Management (FEM) of Saxion University of Applied Sciences. The FCs consist of respectively 12, 11 and 8 (n=31) regional and nationally represented offices according to the overview in Table 1.
A total of 31 members of the three courses were registered with a response rate of 41.9% (n=13 ^{31}), whereby it should be noted that the response per course differed: AC 50.0% (n=6 ^{12}), FTA 18.1% (n=2 ^{11}) and FC 62.5% (n=5 ^{8}). All received responses were 100% usable.

Table 1 Participating offices.

Education	**Offices**
Accountancy (AC)	Jong & Laan, BDO, KroeseWevers, Mazars, De Kok, EY, A&L, Koers!, Eshuis, KPMG, Baker Tilly and 2assure.
Finance, Taks and Advice (FTA)	Mazars, Jong & Laan, Saxion, KPMG, PWC, EY, Verhoeven Ruesink Daniel, Jongbloed and Belastingdienst.
Finance & Control (FC)	Sutfene, Ten Hag, Aebi Schmidt, municpal Lochem, Achmea, municipal Hengelo, Theaterhotel Almelo and municipal Enschede.

When we look at the size of the respondents' organizations, the number of establishments and the number of full-time equivalents (FTE's) represented, the following picture emerges in Table 2. There are differences in the number of establishments of the training courses represented. In conclusion, it can be said that there is good comparability, both in general and in specific terms. Large offices provide a relatively large picture of the number of FTE's at Finance, Tax and Advice (Table 2).

Table 2 Number of branches and FTEs respondents. With FTA, the same company responded twice and was therefore included once in this overview in order not to give a distorted picture.

Education	**Number of establishments respondents**	**FTE's**
Accountancy (AC)	61	9.432
Finance, Taks and Advice (FTA)	4	5.000
Finance & Control (FC)	9	2.607
Total	**74**	**17.039**

At the time of response, respondents had different functions according to Table 3. This shows that professionals are represented on an operational, tactical and strategic level, thus providing a complete average picture of the financial organizations.

Table 3 Respondent positions represented.

Education	**Respondent positions represented**
Accountancy (AC)	Accountant, senior manager Audit & Assurance, junior IT auditor, register accountant, partner and directorate accountancy.
Finance, Taks and Advice (FTA)	Partner TAX-BTA en senior manager Tax.
Finance & Control (FC)	Manager Financial Administration & Financial Control Investments, Project Manager Planning and Control & Planning and Control Physical, Controller (2x) and Corporate Manager.

Respondents were asked to comment on the Gartner Hype Cycles model, which is a graphical representation of the maturity and adoption of technologies and applications, how these are potentially relevant for solving real business problems and exploiting new opportunities. The Gartner Hype Cycle methodology gives a picture of how a technology or application will evolve over time. In addition, the model provides a good source of insight to manage its deployment within the context of specific business objectives. The model taps into the five key phases of a technology's lifecycle.

Innovation trigger:
A potential breakthrough in technology begins. Early proof-of-concept stories and media interest lead to considerable publicity. Often there are no usable products and commercial viability is not proven.

Peak of Inflated Expectations:
Early publicity produces a number of success stories - often accompanied by dozens of failures. Some companies take action, many do not.

Trough of Disillusionment:
Interest declines as experiments and implementations fail to produce results. Producers of the technology shake out or fail. Investments will only continue if the surviving providers improve their products to the satisfaction of the early adopters.

Slope of Enlightment:
More examples of how the technology can benefit the enterprise begin to crystallize and are more widely understood. Second and third generation products appear from technology providers. More companies are financing pilots; conservative companies remain cautious.

Plateau of Productivity:
Mainstream adoption begins to take off. The criteria for assessing the viability of suppliers are more clearly defined. The broad applicability and relevance of the technology in the market is clearly bearing fruit.

4.2. State of Play in Society and with Blockchain

Respondents were asked to indicate where they think society will be in 2020 with regard to digitalization (O) and specifically Blockchain (X). Figure 2 shows the picture of all the respondents' reactions. This picture shows that 21% ($n=3^{14}$) of the respondents see a potential breakthrough in the technology, 36% ($n=5^{14}$) see that some companies take action and many do not, 14% ($n=2^{14}$) see more companies financing pilots and that conservative companies remain cautious and 29% ($n=4^{14}$) see the broad

applicability and relevance of the technology in the market. Looking at the developments and potential breakthrough of Blockchain 77% (n=10[13]) of the respondents, we see that it lags far behind the developments in society in the field of digitalization.

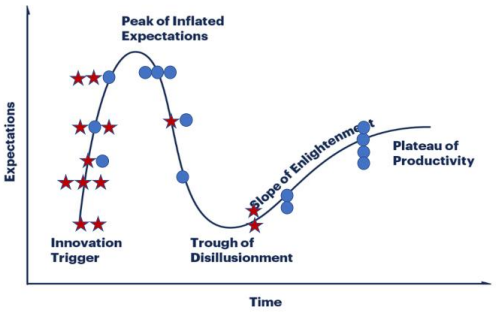

Figure 2 Hype Cycle maturity and the adoption of technologies and applications in society and with Blockchain.

4.2. State of Affairs in the Organization and with Blockchain

Respondents were asked to indicate where they think their organization will be in 2020 with regard to digitalization (O) and specifically Blockchain (X). Figure 3 shows all responses from all respondents. This picture shows that of the respondents the majority of 46% (n=6[13]) more companies are financing pilots and that conservative companies remain cautious. Looking at the developments and adoption of Blockchain, it is mainly in the area of a potential breakthrough of 54% (n=7[13]) and limited investments for product improvements.

4.3. Status of the Organization and as an Official

Respondents were asked to indicate where they stand as officials in 2020 with regard to digitalization (O) and specifically Blockchain (X). Figure 4 shows all responses from all respondents. This picture shows that of the respondents the majority of 43% (n=6[14]) more companies are financing pilots and conservative companies remain cautious, and 21% (n=3[14]) the broad applicability and relevance of the technology is clearly bearing fruit in the market. Together, therefore, 64% of the respondents were found to be very positive about where they stand in relation to digital developments. Blockchain appears to be in line with this, also certainly with regard to the state of affairs in society and organization, and as a civil servant.

4.4. Interim Conclusion on Society, Organization and Officer

The officer turns out to be predominantly positive about his or her state of affairs regarding digitalization and Blockchain in particular, while the development of the organization is lagging behind from their perspective and social developments in this area are developing smoothly. Organizations will therefore have to develop rapidly in the field of digitalization and Blockchain in particular in order not to lag behind social developments.

5. DEADLINES AFFECTING THE FINANCIAL PROFESSIONAL AND OPPORTUNITIES

It was investigated which digitalization will have a major impact on the new and existing accountant professional and in what period of time. A time horizon of the next five years was used. For each item, the number of reactions is shown when one would expect something in a certain year, which is shown in Figure 5. For 2020, ethics, RPA, data analytics and cybersecurity are expected to play a role. For 2021 this is mainly Internet or Things. Looking at Blockchain, we see that on all fronts the expectations in 2021, 2022 and 2023 will affect the financial professional faster than all other digital developments.

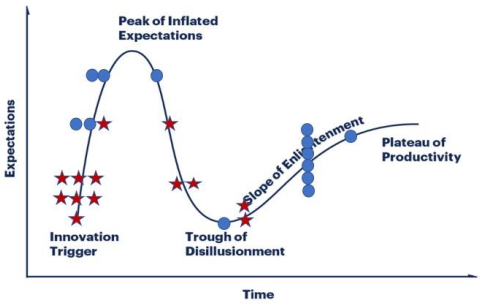

Figure 3 Hype Cycle maturity and adoption of technologies and applications in the organization and with Blockchain.

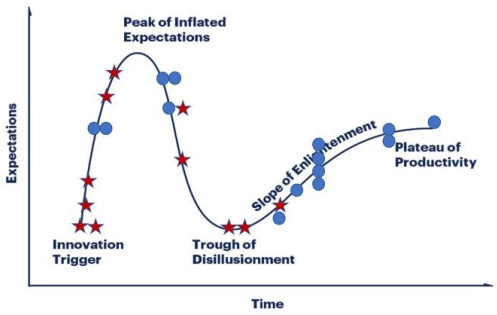

Figure 4 Hype Cycle maturity and adoption of technologies and applications for as an officer and with Blockchain.

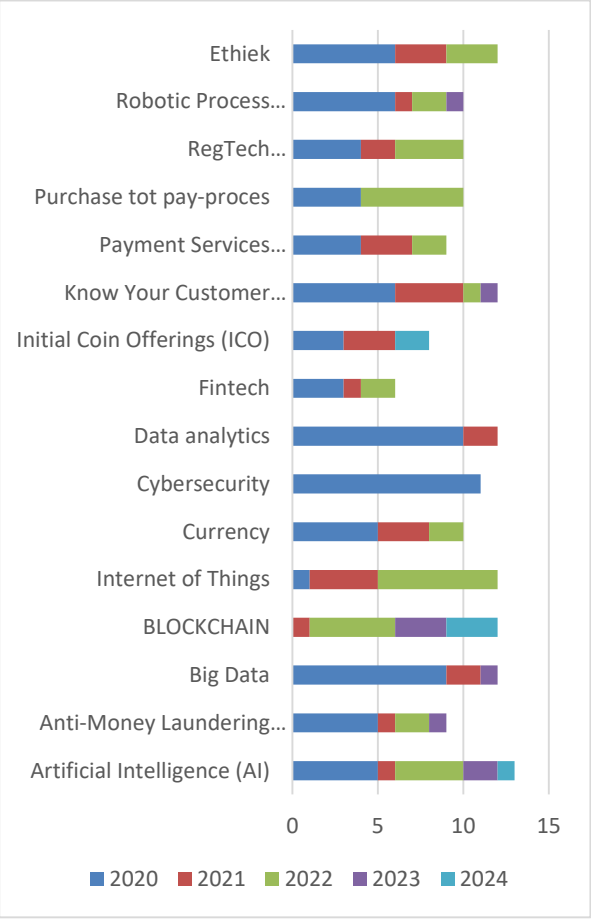

Figure 5 Influence of various digitalization on the new and existing financial professional over the next five years.

By means of an open and closing question to the interviewees, the respondents were given the opportunity to respond to the question as to what opportunities they see for the future for the financial professional. A number of images come to the fore.

- The first is that the role of the accountant continues to be seen mainly around monitoring, audits, commitments and added value for more complex matters than automated data.

- The second image is that the financial professional can add value by looking at financial data in a different way and at a higher level through far-reaching digitalization and data licensing.

- The third image is that increasing automation of (personal) data and shifts in the administrative process are expected to make data reliability increasingly important. According to the respondents, Blockchain can play a very important role in this.

- Fourth and last picture is that one recognizes the market shifts and that the role of the financial professional is rapidly changing and requires a different business model than the classic as we know it today. Insight into one's own market position and technological developments can make an organization a leader and provide added value. Human judgement is still important and requires a different skill set than the one we have today.

Now that the results of the survey show how the financial professional now stands in 2020 in terms of the digital developments that affect his profession and how he can shape these developments, we are looking at giving direction to the change of an era.

6. CONCLUSIONS

A number of conclusions can be drawn from this exploratory study:
(1) We have come across a positive attitude of the financial professional with regard to the state of affairs of digitalization and Blockchain.
(2) Attention for soft skills was, is and remains a point of attention for both organizations and education.
(3)The working environment is slowing down the evolution towards digitalization and Blockchain.

The official appears to be predominantly positive about his or her state of affairs with regard to digitalization and Blockchain in particular, while the development of the organization is lagging behind from their perspective and social developments in this area are developing smoothly. Organizations will therefore have to develop rapidly in the field of digitalization and Blockchain in particular in order not to lag behind social developments.

Since human judgment is and remains important, it is important for organizations in the financial domain to use a different skill set than the one we have today. This requires both the HRM and organizational development policy of the organizations involved and a break with the often classic performance management approach. In order to create the competencies to be developed in the future, a talent-oriented approach is more appropriate. As stated earlier in this article, the trick is to work from learning objectives and not from performance objectives in order to

allow room to make mistakes and learn from them. Incidentally, this conclusion applies equally to education. In its design, too, attention to the skill set of the future is and will remain essential. Certainly where current practice is still dominated by the classic subjects.

7. LIMITATIONS OF RESEARCH

The research took place in a limited area and is a first step towards further international research. The follow-up research will become richer when more specific points about Blockchain and its impact on the new and existing financial professional are examined, as well as confrontation with earlier research such as that of Fuller & Markelevich (2020) [20] and Prewett, Prescott & Phillips (2020) [21].

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