

Digital Delivery of Financial Education: Design and Practice



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Foreword

The importance of the digital delivery of financial education is growing in parallel with the digitalisation of our societies and economies. Individuals increasingly make use of digital technology in their lives and expect higher levels of personalisation and easier access to content. Digitalisation is potentially enabling public authorities to reach wider audiences and increase the impact of their financial literacy programmes and policies.

The measures implemented to contain the COVID-19 pandemic have made the role played by digital tools even more relevant - and often necessary - to help ensure that all target audiences, in particular those most affected by the economic consequences of the crisis, have access to financial literacy resources. It is now more important than ever to make sure that the innovative use of digital technologies in the field of financial education effectively contributes to increasing financial resilience and well-being, and that governments design and implement effective digital financial education initiatives.

The OECD and its International Network on Financial Education (OECD/INFE) have long recognised the importance of digital initiatives and tools to support financial literacy. The potential of digitalisation for helping to meet the financial literacy needs of the general population and vulnerable target audiences was one of the messages contained in the OECD/INFE Policy Guidance Note on Digitalisation and Financial Literacy delivered to the G20 in 2018. The OECD Recommendation on Financial Literacy also acknowledges the contribution of digital tools in support of learning. Through the OECD/INFE, and in particular its Working Group on Digital Financial Literacy, public authorities have continued to discuss the design and implementation of financial education initiatives that make use of digital solutions as a standalone methodology or in combination with traditional face-to-face delivery.

This report contributes to a better understanding of how public authorities worldwide are designing, delivering and evaluating digital financial education initiatives, and prepares forthcoming work on the development of high-level international guidance on the digital delivery of financial education.

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1 Introduction

Digital tools can support the effective delivery of financial education and help policy makers address the needs of target audiences through tailored approaches. They can better support money management skills while reinforcing financial literacy core competencies and can also be used to address some of the most common behavioural biases that consumers experience when dealing with financial decisions. Containment measures implemented in response to the COVID-19 pandemic in many member economies of the OECD International Network on Financial Education (INFE) have reinforced the need to provide effective financial education through digital means, and to support citizens in their online financial life (OECD, 2020b).

The crisis has accelerated existing trends, making the digital transformation of education and training even more relevant than before. With more and more citizens using online tools to work and learn, OECD/INFE members should advertise and encourage the use of existing online financial education resources to support citizens in the current crisis, to help them build longer-term financial resilience, and to further support financial inclusion. They should also ensure efficient and effective use of trusted personal finance apps to help people find relevant information and keep up-to-date with financial advice, products and services.

This requires ensuring that the quality of online financial education tools is fit to support consumers in these challenging times. There is a particular need to ensure the ability of vulnerable and disadvantaged learners to participate fully in financial education activities.

This report provides an overview of the digital financial education initiatives developed by members of the OECD/INFE and aims to provide a better understanding of how the smart use of technology can support financial education outcomes.

The report presents advantages and challenges linked to the digital delivery of financial education, from the perspective of the public sector authorities and governments implementing them and of individuals. It then describes the variety of initiatives being implemented by OECD/INFE members and explains the sources informing their design.

The data collection and analysis conducted in the preparation of this report will be instrumental in the development of high-level international guidance on the digital delivery of financial education, to be finalised over the course of 2021.

Sources

This report is informed by:

- data collection among OECD/INFE members undertaken through a survey on digital delivery of financial education distributed in the first quarter of 2020, as well as desk research;
- responses of OECD/INFE members to a survey on the implications of the COVID-19 crisis on financial literacy policy and practice, circulated in the third quarter of 2020; and,
- roundtable discussions during the 13th and 14th meetings of the Technical Committee of the OECD/INFE in May and October 2020 respectively.

Annex A lists the over 70 case studies received from more than 40 OECD/INFE member economies through the data collection exercise.

Scope of the data collection among OECD/INFE members

OECD/INFE members responding to the survey on digital delivery of financial education were asked to take into account the OECD definition of financial education¹ when considering which digital initiatives to submit. Accordingly, respondents focused on initiatives and programmes that, through an innovative use of digital technologies, aim to improve access to financial information, advice and training, to develop the skills and confidence of target audiences to help them to make informed choices with respect to their financial decisions.

Members were invited to focus in particular on digital tools that support and encourage positive financial behaviours, such as website with financial education resources or personal financial management tools and calculators, social media, online training, digital quizzes and games, mobile apps, and any innovative use of technology applied to the provision of financial education.

¹ Defined by the OECD in 2005 as “the process by which financial consumers/investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or objective advice develop the skills and confidence to become more aware of (financial) risks and opportunities to make informed choices, to know where to go for help, and take other effective actions to improve their financial wellbeing” (OECD, 2012c)

2 Digital tools: advantages and challenges

The digitalisation of our economies and societies has transformed how people work, communicate, play and conduct their daily lives (OECD, 2017). Providing opportunities for learning in a digital format can therefore engage individuals and entrepreneurs in modes of learning that mirror their personal activities.

Accordingly, an increasing number of OECD/INFE members have developed tools to promote financial literacy harnessing the opportunities provided by digital technology. These tools have been designed and are being implemented either as uniquely digital initiatives, or as a complement to existing traditional financial education programmes.

Several advantages come with the digital delivery of financial education, from the perspective of both individuals and public authorities (OECD, 2018a).

From the perspective of individuals, digital delivery of financial education can:

- Improve access to financial education: financial information, instruction and advice can be more accessible for both individuals and trainers who might be excluded from high-quality learning opportunities because of the requirements of place, time and pace of learning.
- Facilitate and enhance learning opportunities:
 - Through content that can be more suitable to a variety of target audiences, given the opportunity to present information in a flexible, interactive and graphic way more easily, including through the use of multiple languages and facilities for users with impaired vision or hearing.
 - Through content personalisation, thanks to the possibility of setting up profiles or accounts on digital platforms and obtaining personalised information, instruction and advice.
- Support the reinforcement of core competencies and enhance money management skills:
 - Technology allows individuals to test financial concepts and products in real time, learn by trial and error, and experience failure in a controlled environment allowing experimentation that would otherwise be too costly or dangerous in real life. This can increase personal confidence with financial concepts and improve decision-making.
 - Provided through digital tools such as budgeting/spending meters and financial goal trackers, digital technology can reinforce money management skills and control over finances.
- Incentivise positive financial behaviours through personal goal setting, feedback mechanisms and reminders; and address, and possibly overcome, consumers' personal biases (confirmatory bias, post-purchase rationalisation, short-termism, etc.) through self-applied nudges or just-in-time information.

Through digital delivery of financial education, policy makers can:

- Reach target audiences that cannot be reached through traditional delivery, because of geographical location or personal schedule.

- Scale up existing traditional interventions that have proven successful, and make them available to a wider audience.
- Reduce costs linked to traditional delivery, exploiting the economies of scale made possible by digital technologies.
- Monitor the use of financial education resources by the target audience in real time, through built-in data collection mechanisms.
- More easily review the content of financial education initiatives, based on monitoring of the intervention and on developments taking place in retail financial markets.
- Increase opportunities for data collection and analysis: bearing in mind the need to respect existing data protection frameworks, policy makers and programme designers can follow individuals over time in their use of the educational tool, and link its use to their financial decisions. This can facilitate monitoring and evaluation of digital initiatives.

The shift to digital learning also comes with specific challenges. From the perspective of individuals, these include the lack of digital skills (see Box 2.1) and the lack of the necessary digital infrastructure (broadband internet or smartphones). This can negatively affect the digital financial inclusion of target audiences such as elderly people (G20, 2019) and those from disadvantaged socio-economic backgrounds. In addition, learning online, depending on the format, can require superior autonomy and self-motivation, factors that must be taken into account in the design of digital education resources.

For public authorities aiming to shift the provision of financial education from face-to-face or traditional to digital, the challenges to address include:

- adapting the content to a digital or online format (materials might need to be redesigned, classes might need to be shorter);
- finding new ways to engage with and motivate the target audience;
- training the trainers, equipping them with a new skillset and competencies;
- addressing and overcoming the lack of digital skills among the target group; and
- taking into account personal data protection issues in a digital environment.

Box 2.1. Digital literacy and financial well-being

Evidence collected by the OECD/INFE indicates that digital or technological literacy is associated with higher financial literacy, knowledge, behaviour and well-being.

The OECD Programme for the International Assessment of Adult Competencies (PIAAC) defines problem solving in technology-rich environments as “using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks” (OECD, 2012b).

The OECD/INFE 2020 International Survey of Adult Financial Literacy (OECD, 2020d) approximates digitally literate or technologically savvy people with respondents who report having used a computer, an email or internet service, or a mobile/smart device in the previous week (for any use, not necessarily for a financial transaction).

The patterns exhibited suggest, without inferring a causal relationship, that digitally literate or technologically savvy respondents have consistently and significantly higher financial literacy, knowledge, behaviour and well-being scores. Attitude scores either appear lower or are not significantly different. This suggests that digital use may be consistent with higher financial knowledge and more prudent financial behaviour patterns, however with shorter-term attitudes. The use of digital technologies could be associated with higher income and educational levels, characteristics that usually determine higher financial literacy and well-being.

Notwithstanding this, the links between digital and financial literacy and well-being should be taken into account by policy makers, as they can be useful in further understanding target audiences and in providing relevant data to design both the delivery and the content of digital financial literacy initiatives.

3 Delivering digital financial education initiatives

The digital financial education initiatives designed and implemented by OECD/INFE members support the wider objectives of their national strategies or of their national financial consumer protection and financial inclusion policies. In some cases, the digital financial education initiatives are a scaled-up and digital version of existing traditional delivery programmes that have proven successful in members' jurisdictions. Most recently, digital initiatives have been developed in response to the COVID-19 crisis as new *ad hoc* programmes, as an adaptation of existing face-to-face programmes, and to organise national events while respecting social distancing (see Box 3.2).

The initiatives developed by OECD/INFE members can be categorised according to their main objective based on the OECD definition of financial education (OECD, 2012c), and whether they seek to improve access to financial information and advice, to improve access to training, or to develop specific skills and confidence. While a majority of the digital initiatives implemented by OECD/INFE members seek to achieve all of these objectives, and ultimately contribute to behavioural changes, this classification can be useful in analysing them and understand their characteristics.

Improving access to financial information and advice

Websites

Websites² are easily accessible, informative tools and are chosen by financial education policy makers as a way to provide financial information and advice, as well as – increasingly- to offer calculators and tools to individuals and families. These tools range from budget planning resources to calculators for credit card debt, mortgage repayments and pension entitlements.

Many of these initiatives are matched by a presence on social media (Facebook and Twitter in particular), and are associated with user-friendly branding that aims to be easily identifiable by the population. Many of these websites have become national references, thanks to an established presence and successful mass communication campaigns.

Websites usually target the entire population, with information organised by policy area (such as saving and investing, use of credit, taking out insurance, avoiding scams and frauds). They also typically follow a life-stages approach that seeks to provide appropriate information at the right time, based on the personal circumstances of individuals and target groups (buying a first property, getting married or divorced, having a child, preparing to fund higher education or retirement).

² Annex A provides a complete list of initiatives.

Websites can also provide information, resources and tools to inform or support digital and traditional initiatives for specific segments of the population, such as students and children (see Box 3.1) or entrepreneurs.

Box 3.1. Financial education for students and children: digital tools for teachers and parents

Low levels of financial literacy in the adult population underline the importance of building such competencies early in life (OECD, 2020e). Schools, as well as parents, can play an important role in developing the skills and attitudes that will help students to achieve greater financial well-being, and encourage positive habits and behaviours, such as making spending plans, saving and planning.

A majority of national strategies on financial education include young people and students among their priority target audiences and it is common among OECD/INFE members to develop materials and resources for this group. In some cases, public authorities have developed specific digital initiatives to support the teaching of financial education in schools, directed at either teachers or students, and resources for parents. These can be hosted on the main websites of the financial education national strategy, or can be offered on *ad hoc* websites, as in the examples of Ireland, Spain, Sweden and Poland.

In Ireland, the Competition and Consumer Protection Commission (CCPC) is responsible for *Money Matters* - moneymatters.ccpic.ie - a financial education programme with resources for teachers and students in the junior cycle of secondary school (ages 12-16). The website contains free, online tools for teachers and students addressing money, budgeting, financial products and services, and insurance and consumer rights. These tools include guidance for teachers, course specification, feedback forms, quizzes, games and other interactive features, which were tested with focus groups of teachers before the launch. To meet the needs of parents taking on extra responsibilities in teaching children at home during the COVID-19 pandemic, the CCPC created a novel resource and launched a *Parents' Hub* on the *Money matters* website. The hub includes video content and links to activities on key topics for parents/guardians to use. This was promoted through a public campaign and CCPC social media channels.

In Spain, *Geepeese*, the website managed by the Bank of Spain and the Securities Commission (CNV), provides both teachers and pupils with a variety of tools, including guides for students and teachers, games and activity workshops. This website and its resources provide complementary support to the school programme and aim to provide guidance, not only to pupils but also to their parents.

In Sweden, the website *Koll på cashen* ("Check the cash"), developed in 2008 by the market authority *Finansinspektionen*, the Swedish Consumer Agency and the Enforcement Authority, aims to increase the teaching of financial education in high schools and is targeted at teachers. It offers short movies and teachers' manuals on topics such as budgeting, credit, savings, and consumers' rights.

In Poland, the site *Finansoaktywni*, designed by the Ministry of Finance, provides a set of educational materials that teachers can download and targets the last grades of primary schools (12-14 year olds).

Policy makers recognise the important role of parents in developing their children's financial literacy. For example in Hong Kong, China, the Investor and Financial Education Council (IFEC) developed *Thirty-Six Financial Management Stratagems: Let's teach kids about money*, a tool available through a website, social media platforms and digital advertisements at train stations. The resource features lively videos combining actors and illustrations to demonstrate key points on teaching children about money matters.

Financial education websites can be a trusted source of important information on recent policy developments and alert the public to changes in financial sector regulation affecting retail products and services. They can also to inform the public in times of crisis, such as the COVID-19 pandemic.

Surveys conducted among OECD/INFE members in July 2020 indicate that 63% of them had revised the content of the existing financial education website(s) to include information developed specifically in response to the unfolding of the Covid-19 crisis, and that 41% of them had contributed to content posted on government portals on the COVID-19 response.

Some of these websites facilitate access to regulated information in databases managed by financial authorities. In Brazil, the central bank (BCB) offers access to personal reports with information from the bank's databases on credit operations, accounts, exchange operations, cheques and debts with the federal government. Easy-to-find information about these reports and access to the system *Registrato* are gathered in an informative website named *Minha Vida Financeira* ("My Financial Life").

In Mexico, the central bank offers on its website a comparator of rates for various credit products, which gives users information on products' cost, interest rates, payments, eligibility requirements and –on a separate screen - the name of the credit provider.

In Portugal, the website named *Portal do Cliente Bancário* ("Banking Customer Website") managed by the central bank (*Banco de Portugal*) provides easy access to information such as the personal credit liabilities report and the accounts report (by accessing the Databases of Credit Liabilities and of Banking Accounts managed by Banco de Portugal). It also allows users to compare fees on services linked to payment accounts (through the Fees Comparator Tool). A fees calculator related to investments is offered by the Portuguese Securities Commission.

In Turkey, the microsite *Economics for All*, managed by the central bank, features an investment calculator that can be used to calculate the value of a current investment at a given date in the future with specific interest and inflation rates. The calculator also shows how much one needs to save today to reach the desired value in the future.

Websites can also facilitate access to information through innovative tools that combine human interaction with digital solutions, as is the case of the co-browsing programme offered by Germany's financial markets authority, BaFin. The co-browsing allows BaFin's advisors to navigate websites and communicate with citizens in real time, facilitating access to information and providing advice to customers in need, while guiding them through web pages or databases. Through this solution, BaFin's advisors provide support to citizens in dealing with financial issues related to banks, insurance undertakings or financial services providers (current breakdown: 56% banks, 27% insurers, 9% securities and 8% other). They also answer general questions on financial products, how to file complaints and mediation procedures, the authorisation of companies or credit institutions, and BaFin and its duties. BaFin's helpline advisors provide the caller with an individually-generated code that can be used to start the co-browsing session: information can only be shared within the virtual browser and the adviser has no access to the caller's computer during this process.

Box 3.2. National financial education events in times of COVID-19

The social distancing measures put in place in many economies during the COVID-19 crisis have had an impact on established annual events on financial literacy. In some cases, public authorities in charge of these events made full use of the possibilities offered by digital solutions to maintain these events.

In Italy, October 2020 saw the third edition of the Financial Education Month, a national initiative promoted by the National Committee for Financial Education. All the conferences and events of the 2020 edition, which were usually held as face-to-face, were transformed into digital events: this resulted in the organisation of more than 500 webinars and online conferences.

In Portugal, the financial supervisors and the stakeholders of the Portuguese National Plan for Financial Education organised during the last week of October 2020 the annual Financial Literacy Week under the theme “*In Financial Education Everyone Counts! Just a click away*”. Due to the COVID-19 pandemic, activities were carried out remotely and using digital platforms, via the internet and social networks. The official opening of the week, which is especially dedicated to schools, was for the first time broadcasted live on the website of the Portuguese National Plan for Financial Education (*Todos Contam*) and on the websites of the four financial supervisors, in order to be followed by students and teachers from all over the country. The opening session hosted the award ceremony of the winners of the 9th edition of the *Todos Contam* Competition, with the participation of winning schools and teachers via videoconference. Schools throughout the country joined the Financial Literacy Week celebrations by hosting financial literacy activities for their students and school community; these included financial education sessions offered remotely by the financial supervisors and the stakeholders of the Portuguese National Plan for Financial Education. During the same week, the financial supervisors and partners of the Plan, such as the Portuguese Institute for Employment and Vocational Training (IEFP), the Public Agency for Competitiveness and Innovation (IAPMEI) the Portuguese Tourism Agency and the Portuguese Union of Professional Football Players, held webinars aimed at trainers, entrepreneurs and managers of MSMEs and football players, respectively. The week’s digital events also provided the opportunity for the financial supervisors to launch a campaign based on short videos to advertise the main financial training tools and content available on the website *Todos Contam*, in particular through the Plan’s Facebook page.

Mobile apps

Beyond websites that act as a repository of information and tools, OECD/INFE members have developed apps that aim to improve access to information.

In Brazil, the central bank designed an app, *Calculadora do Cidadão*, (a web version is also available) to provide consumers with a user-friendly tool to update sums according to inflation indexes, which are used in many contracts in Brazil, and to easily calculate interest on investments and credit operations.

The Croatian National Bank developed a mobile application, *mHNB*, to increase awareness of conditions in the retail banking market. The app provides a systematic and searchable overview of data on the lending conditions of banks in Croatia and enables users to compare different offers of selected loan types from all credit institutions. In addition, *mHNB* provides an overview of fees for standardised services related to payment accounts.

In Poland, the Polish Financial Supervision Authority (KNF), in partnership with the National Bank of Poland, the Ministry of Finance and the Police, launched the campaign *Who will you become on the day the bubble bursts?* to raise awareness of financial market users, especially of the risk associated with

investments in crypto-assets, pyramid schemes and the unsupervised Forex market. Through social and traditional media, the campaign also promoted KNF's *Alert* app and KNF's website as sources of information about regulated entities operating on the financial market.

In Portugal, the Insurance and Pension Funds Supervisory Authority, offers a mobile app, *Os Meus Seguros*, to provide insurance policy holders with a better understanding of their insurance coverage. The app also includes educational material and explanations on insurance matters, with topics including how to make claims or complaints, and what to look for before buying insurance.

The use of digital technologies can also be particularly useful in meeting the needs of the visually impaired or those with reading difficulties (see Box 3.3).

Box 3.3. Digital solutions to meet the needs of visually or hearing impaired citizens

The Reserve Bank of India MANI app

The Reserve Bank of India (RBI) developed MANI (*Mobile Aided Note Identifier*) app to help the visually and hearing impaired to identify the denomination of Indian banknotes. It works by checking front or reverse sides of notes, including half-folded notes at various holding angles and in a broad range of light conditions. It conveys the information to the user through audio notification in Hindi/English and vibration. The app operates fully offline, which can be especially relevant in areas not covered by mobile networks, and the user can navigate the mobile application via voice controls. The application is free and is available on the Android Play Store and iOS App Store.

Retirement resources for citizens with reading difficulties by the Investor and Financial Education Council, Hong Kong, China

In Hong Kong, China, the Investor and Financial Education Council developed *Listen to Money Matters in Retirement*, a programme tailored to the needs of elderly people and retirees who are likely to experience reading difficulties. The programme consists of eight audio articles produced by Metro Radio in cooperation with the IFEC that have also been made available on a dedicated webpage and on social media. The objective of the programme is to provide people who have reading disabilities, especially the elderly, with an alternative way to learn money management by listening to audio files. The focus of the audio files is on retirement planning and retirement money management. The IFEC plans to use the text to audio conversion as an ongoing strategy for the elderly-segment content, in particular thanks to the new possibilities offered by digital platforms.

Teaching financial concepts through literature

The Bank of Italy, together with the Italian Union of the Blind and Visually Impaired (*Unione Italiana dei Ciechi e degli Ipovedenti*, UICI) produced the digital audiobook *La ricchezza delle emozioni* ("The wealth of emotions"). The manual teaches financial concepts through literary examples and its new audio format aims at meeting the needs of population categories that are hard to target through traditional delivery: visually impaired individuals, elderly and other disadvantaged learners. The audiobook was published through the Bank of Italy financial education website and the UICI's audiobook library.

Use of social media platforms

Many OECD/INFE members responding to the survey have a presence on social media platforms, such as Facebook, YouTube and Instagram, to relay information from their websites, and in particular videos.

Social media are used to reach not only a younger and more digitally aware audience, but also the general public, as they are suited to deliver simple messages.

Social media can be used to implement *ad hoc* campaigns. In Morocco, the *Fondation Marocaine pour l'Éducation Financière* (FMEF) led several awareness campaigns through social media, notably Facebook, discussing financial education subjects of interest to young people, through attractive formats and designs. The Central Bank of Portugal launched a digital financial education campaign aimed at young people (*#toptip*) on the Instagram and on Bank Customer Website to raise awareness amongst digital natives on the necessary precautions to be adopted when using digital financial services.

The use of social media can amplify the reach of financial education messages. In the case of Morocco, more than two million people were reached in every social media campaign. In Brazil, BCB broadcast 51 financial education related posts on four social media platforms (Instagram, Twitter, Facebook and LinkedIn), which have been accessed 2.5 million times, representing 16% of the views of all content posted by BCB on the four platforms. Instagram and Twitter accounted for 64% of financial education views, while LinkedIn and Facebook accounted for 19% and 16% of views respectively.

In addition to social media, public authorities have also explored ways to reach citizens via messaging apps. The National Bank of Ukraine, which was already present on Facebook and Instagram, launched in July 2020 its public chat channel in the mobile messaging app Viber '*Good morning from the NBU!*'. Subscribers receive quizzes, short questionnaires, financial education posts in plain language, explaining basics of personal finance management, the different types of financial services and financial institutions, as well as information on consumer rights, payment security, etc.

In some cases, social media can also provide the ideal platform to test artificial intelligence software (see Box 3.4).

Box 3.4. Artificial Intelligence: chatbot applications

A chatbot is an artificial intelligence (AI) software used for online conversations with a user in natural language through messaging applications, websites, and mobile apps or the telephone. Among OECD/INFE members, this kind of software is being used in Mexico, to facilitate users' access to information about the central bank; in Hong Kong, China, to launch a quiz campaign in support of an annual financial education event; and in Luxembourg to support a gamified financial education tool.

In Mexico, the central bank is about to launch a chatbot that uses AI, *Ban-xic*. The purpose of the initiative is to interact with individuals via messages and answer questions related to *Banco de México* by facilitating their access to the information generated by the Bank. The tool has a database and a language processor. It will assist users on subjects such as monetary policy and inflation; banknotes and coins; the financial system; and the financial market infrastructure.

In Hong Kong, China, the IFEC uses a chatbot via Facebook Messenger to launch a quiz campaign to raise awareness on the importance of financial education and the activities of the IFEC, and to engage new users during the *Money Month* campaign. The objective is to stimulate users to take away education messages, so questions were designed so that users would need to visit IFEC's website to search for the answers.

Finally in Luxembourg, the financial markets commission developed *FinGol: The Financial Game of Life*, an educational game supported by a chatbot, which has been developed by students at the Luxembourg Tech School (see "Developing skills and confidence").

Improving access to training

Financial education training delivered in a traditional, face-to-face setting, can be very expensive for public authorities in terms of resources and time, and difficult for consumers to access. The use of digital delivery in the context of financial education training can be particularly beneficial in allowing public authorities to reach a wider target audience at a fraction of the cost of traditional delivery, and in enabling people to update their competencies over their lifetime, by reducing difficulties arising from time and resource constraints.

Improving access to training through digital delivery has been accelerated by the COVID-19 crisis. On the one hand public authorities had to adapt to physical restrictions and make available online the programmes that were previously delivered in a face-to-face setting; on the other the impact of the crisis called for the creation of new programmes specifically designed to respond to COVID-19.

In Austria, the central bank (OeNB) has redesigned its entire offer of financial education to children and students to continue its delivery during COVID-19 by transforming its workshop programme, usually held onsite, into an interactive, online lecture to support schools in the field of e-learning. The online programme involves students working together with the lecturer on topics like cash and forms of payment, inflation and money management. The workshop class lasts between 45-100 minutes and is adapted to the age of students and wishes of the teachers. Interactive survey tools are used to motivate students and engage them in the classes. The central bank also adapted its programme usually delivered in schools and launched the *Euro-Logo-Online Challenge* in which students can take part whether they are at school or home-schooled. The interactive lectures are held online and are given by different specifically trained lecturers. The students can actively engage with their smartphones by answering questions, solving problem-oriented tasks and by contributing their own experiences.

In Brazil, BCB developed a digital financial education training aimed primarily at the personnel of the country's consumer protection agencies dealing with financial services consumers. The programme *Brazil: E da sua conta* consists of online training and a library of reference cases. It has been effective in increasing the capacity of agents to deal independently with consumers' cases, without the need to seek input from management, thus making the consumer protection service as well as the central bank's actions more effective. The Central Bank of Brazil is also implementing a full online training programme for teachers and school managers participating in the Programme *Aprender Valor*, which will provide financial education classes to be delivered in an integrated manner with other subjects such as Mathematics and Portuguese. These professionals will access an online track exclusively dedicated to personal finance management, so they are familiarised with the themes that will be explored in the classroom. Teachers will also receive an evaluation to measure financial knowledge, behaviour, attitudes and well-being and will be assessed against a control group, in order to evaluate the impact of the training.

In Germany, BaFin opted for webinars, delivered with the help of a NGO on the ground, to provide training to enhance the financial literacy of elderly consumers in particular, especially in view of the challenges of financial digitalisation. The project supported elderly consumers learning to use the internet to make financial transactions, for example learning about the opportunities, risks and new regulatory developments in online banking. The webinars were conducted in cooperation with *Digital-Kompass*, a NGO with 75 locations across Germany that helps older people to familiarise themselves with digital technologies and the Internet. In each training event, BaFin experts informed consumers via a presentation followed by the possibility to ask questions directly through a live chat.

In Italy, the Bank of Italy adapted to digital delivery its teacher-training programme, to respond to the COVID-19 crisis, and designed webinars to reach teachers online for the year 2020-21. In parallel, the bank made freely accessible in a digital format the pedagogic materials and booklets for teachers and students. As part of the shift to digital delivery, the website *Economics for all* hosts interactive digital lessons for high school students designed with the input of experts of pedagogy (focusing on financial

planning; payment instruments; the financial system). The financial education training given to high school students, which was delivered at the bank's premises, is also delivered online: students are divided into small online classes, where interaction among students and teachers is encouraged. Each course is taught over one week, during which students design an original project in the field of finance and economics and present it to the teacher and classmates through a digital platform; this ensures the application of both financial and digital skills.

In Mexico, *Banco de México's* e-learning initiative consists of a virtual space that hosts financial education courses on the functions performed by Banco de México. This not only provides didactic support for existing programmes offered face-to-face, but also an interactive (gamified) course designed for young people. It is divided into 5 modules to explore the origin, evolution and uses of money, as well as the functions of the *Banco de México*. In order to complete the module, participants must find a code to finish each lesson and move on to the next. The modules also have infographics to download.

The Mexican development bank, *Banco del Bienestar*, designed a Massive Open Online Course (MOOC) called *Introduction to Financial Education*, which was attended by around thirty thousand people in 2019. The course modules, which take place over 4 weeks, are aligned with the objectives of the national financial inclusion plan. In week 1, participants are given a general introduction to financial education; week 2 focuses on consumer decision-making and budgeting; week 3 is about saving, credits and loans; and week 4 discusses the use of cards, online banking, insurance and consumer protection. The course includes various videos and animations used to alternate the ways in which information is delivered, in addition to texts, exercises and questionnaires.

In New Zealand, the COVID-19 crisis accelerated the development of digital programmes across the *Sorted* products offered by the Commission for Financial Capability (CFFC). The CFFC developed a new webinar that was taken up by many of the existing workplace programme clients, and trained facilitators in online delivery. The CFFC chose digital delivery for *Sorted Sessions*, a programme designed to broaden the accessibility of its successful *Sorted at Work* programme and reach a wider audience. Building on lessons learnt from existing traditional delivery, the programme's knowledge and behaviour outcomes align to the National Strategy for Financial Capability and the OECD/INFE Core Competencies Framework. The *Sorted Sessions* programme covers six topics, each including five 10-20 minute sessions that users can complete in their own time. Topics include Money Mind, Spending, Retirement and KiwiSaver, Debt, Protect, and Save and Invest. Progress is tracked visually on the course progress page and by overall course completion percentage on the user dashboard. The content includes short videos, thought-primer interactives, self-reflections and self-determined action tasks that are added to the user dashboard.

In Peru, the Superintendency for Banks, Insurance and Pension Funds (SBS) changed the format of its teacher-training programme in response to the COVID-19 crisis and now combines asynchronous sessions and assignments through virtual classrooms with synchronous sessions through webinars with teachers. In addition, the workplace training programme (*Finanzas para ti*) was adapted from a two-hour face-to-face training to a one hour remote session via webinars using different platforms including Facebook live, Google meet and Zoom.

In Portugal, the financial education website *Todos Contam* includes an e-learning platform that hosts a set of lessons and materials on family budgeting, savings and investment, credit, insurance, and on the financial and economic system. This platform makes it possible to extend financial education training actions to wider audiences and to ensure nation-wide coverage. The platform provides video training sessions with synchronised presentation in text format on the main topics covered. The sessions are complemented by relevant literature, specific materials and other teaching resources. The e-learning platform also provides a tool for evaluating financial knowledge in a Moodle environment (free and open-source learning management system). After answering the questions associated to each class provided by the platform, users get their score as well as an explanation for the questions in which they did not choose the correct option. This learning platform was used in July 2020, to launch a pilot project on financial

education in the workplace to train employees of the Portuguese Institute for Employment and Vocational Training, some of which are trainers for the unemployed. Thanks to a partnership with the Institute, Portuguese financial supervisors launched in October 2020 two training courses for trainers of vocational training centres, which will reinforce the reach of the national financial education plan on the unemployed. In September 2020, the financial supervisors in partnership with Public Agency for Competitiveness and Innovation and the Portuguese Tourism Agency began the third training of the trainers of entrepreneurs and managers of micro, small and medium-sized enterprises: all training sessions were adapted to the digital context and carried out entirely at a distance. Finally, in another example of inter-institutional cooperation to expand access to training, the Bank of Portugal was invited by the Ministry of Education to deliver the webinar *Navigate Safely - Digital Payments* to the country's teachers. In the webinar, Bank of Portugal presented the precautions to take when using digital channels to access financial products and services, in particular to make payments. Almost 1500 participants accessed the webinar through the different channels on which it was broadcast.

Developing skills and confidence

A majority of financial education initiatives, whether traditional or digital, seek to achieve a change in behaviour among the target audience through the development of specific skills and competencies. Some digital financial education initiatives make this their primary objective - this is the case of initiatives that aim to enhance money management skills through budgeting tools or those that use gamification techniques.

Enhancing money management skills and control over finances: budgeting tools and personal financial management apps

Budgeting is widely accepted as being a valuable tool for money management and a key component of financial literacy, as identified by the G20/OECD INFE Core Competencies Framework on Financial Literacy for Adults (OECD, 2016a). Promoting the development of budgeting skills and behaviours, the importance of building up emergency savings, as well as medium- and long-term planning, can in particular support citizens in the current crisis (OECD, 2020d).

However, evidence indicates that budgeting is not a priority for many consumers, despite the advantages it can bring in terms of financial control and planning (OECD, 2016b; OECD, 2020d).

Given the importance of having a budget for financial literacy and financial resilience, it is not surprising that many OECD/INFE members have designed budgeting tools to facilitate planning of income, saving, and expenditure, as well as keeping a close eye on the management of existing credit. These digital tools are offered to consumers either on financial education websites (as in Japan, Spain, Portugal, and Hungary) or through the development of specific budgeting apps (both as desktop and mobile versions).

Compared to the tools developed by commercial institutions, some of which might automatically record transactions, these tools have the advantage of being perceived as neutral and unbiased, and allow for financial education provision.

In Austria, the central bank has designed a budgeting tool targeting young people (*m€ins*) that can be accessed on the web, or through an app or a desktop version. It can be used to record financial transactions conducted by debit or credit card, or cash. The tool also calculates a balance forecast to alert the user on how much money is available for the rest of the period, and it features explanatory videos, statistics, diagrams and a tutorial mode to familiarise the user with the app.

In Brazil, the Securities and Exchange Commission (CVM) launched a pilot project during the World Investor Week 2020, in cooperation with the Brazilian Capital Markets Association (ANBIMA), Planejar, the local Certified Financial Planner designation organisation, and N², a FinTech. The four partners

developed a mobile app to offer financial education and connect up to 1300 investors selected among recipients of social assistance programmes to 200 Certified Financial Planners. The app is accessible with a personal voucher number that gives access to appropriate financial educational resources, advice, and financial market information.

In Luxembourg, the financial education website *Letzfin* of the financial markets commission (*Commission de Surveillance du Secteur Financier - CSSF*) offers practical tools to simulate credit calculations, establish a personal budget and test the financial literacy of users. In addition, CSSF developed a budget management application for adults, conscious that keeping a monthly budget is among the most important tools to prevent financial difficulties that may lead to overindebtedness. The application allows users to establish and manage their budget, identify unnecessary expenses and plan their future financial situation. The CSSF also offers *Letzfin Pocket Money*, designed to make children aware of the importance of managing their personal finances (pocket money or other income) by actively involving parents. Parents play the role of banks to guide children in managing their personal budgets, and the app fosters dialogue on money issues, thus breaking what is at times considered a taboo. The smartphones of children and their parents are linked through a QR code, but parents cannot access the details of the data entered by their children. Through this application, young people actively learn to manage their personal budget and better appreciate the value of money.

In Morocco, the *Fondation Marocaine pour l'Éducation Financière*, has developed a budget tool available as an app, *Mizaniyati*. The app not only allows individuals to monitor their budget in detail (income, expenses, savings and credit) but it also aims to strengthen their effective financial inclusion by familiarising them with the different concepts and financial habits essential for a good budgetary and financial balance. The areas covered by the financial education material in the app are income, expenses, savings and loans. The app also features a section that delivers messages to the user, to support the development of financial literacy competencies related to budgeting and product choice. Interestingly, the app allows a double-track navigation: standard for users with higher literacy, and simplified for those with low literacy.

In Peru, beginning in 2015, the SBS designed a set of digital resources to provide people with tools for personal financial management, in the form of saving and budgeting apps. The SBS created an app (Android and IOs) and a related web application called *Presupuesto Familiar* (SBS Family Budget) to help users to establish a personal budget by managing income and expenses. In addition, the user has the option to compare their expenses by category with the amount spent the previous week, month or year. In parallel, SBS also offers an app called *Ahorrando Ando* (SBS Savings) to support and encourage users to build saving habits by establishing specific saving goals and periodic reminders to allocate money for savings on the date set by the users. Users can upload a picture representing the saving goal, and set the amount and frequency of desired savings. In addition, the app requires the user to set a date in a built-in calendar to receive a reminder (nudge) to save the pre-defined monthly amount.

In Spain, the financial education website *Finanzas para todos* offers practical tools to manage personal finances, which allow the user to prepare a personalised budget, calculate loan payments and understand a manageable level of indebtedness. These tools and applications can be downloaded from the portal.

Box 3.5. Canada: the evolution of FCAC's budgeting tools to take into account behavioural insights

In 2012, the Financial Consumer Agency of Canada developed *Your Financial Toolkit*, a comprehensive online learning programme offering information and tools to help adults manage their personal finances and gain the confidence needed to make better financial decisions. The programme was intended for use by self-learners, trainers and educators. Its use in traditional delivery was also promoted by an agreement with three not-for-profit community-based organisations that used it as the foundation of

their financial literacy workshops. FCAC has subsequently updated the tool to incorporate behavioural insights and newer evidence on the budgeting behaviours of Canadians.

Thanks to the possibilities offered by digitalisation, FCAC's new *Budget Planner* tool, targeting the age range 18-34, allows for a greater personalisation of the tool and enables users to tailor their budget to their needs. The Budget Planner offers instant personalised feedback, customisable budget templates, guidelines and reward badges to help Canadians prioritise their spending and have better control over their finances. In particular, the Planner features interactive tools that allow users to enter their budget data from their desktop, save their budget online and review summary and suggestions. The tool also includes financial education guidelines, as well as budgeting tips and alerts. It also permits, through user-friendly charts, comparisons between one's budget and those of the average Canadian.

Applying gamification to financial education

Using games in the field of education can enhance student learning across different subjects, not just improving content knowledge, but also fostering motivation and thinking. The interactive and reactive nature of educational gaming enables students to learn about complex topics by allowing them to (repeatedly) make mistakes and learn from them, allowing an experimentation that would otherwise be too costly or dangerous. The application of games to education can in particular foster student engagement and motivation. In a school setting, this can be particularly true for low-achieving students (OECD, 2016c). The general principles of gamification can also be used in financial education programmes. Personal finance apps can use gamification through challenges and quizzes to provide incentives to use the financial education resource (IOSCO OECD, 2018; OECD, 2019).

Currently, gamification is applied by OECD/INFE members to not only target children and students, but also the general population, with interesting applications such as the measurement of financial well-being through quizzes.

In Italy, CONSOB developed *App..rendimento The CONSOB Investigame*, building on behavioural economics literature and designed in cooperation with the University of Trento. The game is used in combination with face-to-face delivery in class and aims to increase awareness of behavioural biases affecting investment choices, as well as knowledge of financial markets. The game begins with a traditional interactive face-to-face lesson explaining the features of the game, which is then played individually by students. A presentation of aggregated results follows individual games. Students in Italy were offered an additional gamified digital financial education initiative during the 2020 Financial Education Month (October). The Bank of Italy launched an educational trivia quiz on the features and risks of electronic payment instruments. Middle and high school classes throughout Italy participated in the game, which took place on the international online learning platform *Kahoot!*, which allows children to challenge each other while living in distant cities

In Jordan, the Central Bank is developing an online game on its Facebook page in the form of a questionnaire to measure levels of financial well-being of citizens and identify main weakness to address in future financial education campaigns.

In Luxembourg, the financial markets commission developed *FinGol: The Financial Game of Life*, a dynamic educational game in the form of a chatbot developed by students at the Luxembourg Tech School. Designed for young audiences, the tool simulates, in an entertaining fashion, an adult's financial life as well as real-life situations. During the game, users must find a job, manage their budget, make a series of financial choices and deal with the consequences of those choices. The tool also provides information, notably on the need to have a budget, as well as on credit and its possible risks. Responsible personal financial management allows the user to access higher levels and thus unlock additional features of the tool.

In Mexico, *Banco de México* developed a challenge game about money and the responsibilities of *Banco de México* through a mobile app, *Mi Banxico*. It was launched in 2014, updated in 2016, and was designed to target children and teacher.

In Peru, the SBS created a game called *Grandes Ahorradores* (Big savers) with the main goal of teaching children and young people about money management and savings. The game allows the player to set different savings goals and provides reminders and tips to reach those goals. It also allows players to use the money within the five levels offered by the game, providing additional avenues to become familiarised with spending and saving.

In Romania, the central bank's website hosts the online game *Moneta*, in which students can play with macroeconomic correlations with the aim of maintaining equilibrium in the economy, and at the same time become familiar with the policies of the central bank.

In the Slovak Republic, the website of the financial consumer protection department of the central bank hosts an online quiz in which players are confronted with real-life scenarios applied to the choice and use of financial products and managing a personal budget. The quiz provides instant and educational material to the user, while the bank analyses results to identify risk policy areas.

In Sweden, the financial market authority *Finansinspektionen*, together with the Museum of Economy, designed a mobile app to help children (8-10) to understand income, tax and cost. It is inspired by a physical game, *The Coin Cabinet*, and involves managing and taking responsibility for a monthly salary. Players can try to have different jobs with different salaries and decide how much to spend on food, accommodation and other things. Children can see how much money they are left with, and decide what to do with their savings. The app is aimed at children and their parents and can be used in school by teachers of subjects with elements of financial education, such as social science or home and consumer knowledge.

In Ukraine, the National Bank (NBU) launched an educational online game *Beat the Fraudster* in the framework of information campaign #FraudsterGoodbye, together with four partner organisations (USAID Financial Sector Transformation Project, Ukrainian Interbank Payment Systems Member Association 'EMA', companies Interkassa and Olx). Through over 80 tasks, users learn basic rules of protection and cybersecurity in the field of cashless payments: how to protect their personal data and their assets, how to develop strong passwords, to use bank mobile apps, and to identify phishing, vishing and skimming as well as 'romantic' and 'friendly' scams. The game is offered via Internet browser and a mobile app.

4 Designing, monitoring and evaluating digital financial education initiatives

The design of digital financial education initiatives by the OECD/INFE is informed by a variety of sources: traditional sources of evidence, such as financial literacy or programme evaluation data and dialogue with existing stakeholder networks, are complemented by the expertise of external experts in digital tools or digital learning. OECD/INFE members also rely, in many cases, on testing with focus groups to gain additional insights and fine-tune both delivery and content. This section provides an overview of approaches used to inform and design digital financial education initiatives. It then describes how public authorities are monitoring the implementation of digital initiatives and how they evaluate them.

Design of digital financial education initiatives

Building on guidance, data and research

International guidance

Some OECD/INFE members point to guidance and instruments developed by the OECD (OECD, 2018a; OECD, 2018b), such as the OECD/INFE Policy Guidance Note on Digital Financial Literacy; by the European Commission; or by national authorities in other countries, such as the United States Consumer Financial Protection Bureau's Financial Well-being Scale (CFPB, 2017). Some members also indicate having formally mapped existing internationally developed digital financial education initiatives.

Financial literacy measurement data

Several members indicate informing their digital, as well as traditional, initiatives building on existing data from financial literacy measurement surveys or national household surveys and consumer complaints. This evidence, collected according to OECD guidelines and instruments (OECD, 2018c) contributes in particular to the identification of the main policy areas, specific core competencies and financial behaviours to be addressed, and to the prioritisation of the target groups to be reached through the initiatives.

Evidence from monitoring and evaluation of traditional programmes

Data and evidence collected through existing traditional delivery methods is used when the digital delivery initiative is based on existing traditional programmes. In Mexico, the e-learning initiative by *Banco de México* was developed based on research informing a textbook for children in primary school (*Money in Mexico*) and its teachers' guide. In New Zealand, the CFFC developed digital content based on its evidence-based behaviour change programme, combining behavioural economic theory, the GROW coaching methodology and social constructivist theory.

Use of behavioural insights

The digital delivery of financial education facilitates the design of behaviourally informed interventions aiming to limit the negative impact of biases on financial decision-making (IOSCO OECD, 2018; OECD, 2019). The use of technological functions makes it possible to include insights from behavioural research to nudge consumers into specific action (e.g. through automated reminders to save or repay credit card debt) and enhances opportunities for financial behaviour changes (e.g. through virtual price/product/offer comparison and just-in-time reminders at the point of sale or immediately after).

Some OECD/INFE members have used behavioural insights for the design or review of their digital financial education initiatives. In Australia, ASIC applied behavioural insights to every content page and tool of the *Moneysmart* programme: the review was informed by a behavioural analysis and mapped what action consumers were encouraged to take after having visited *Moneysmart* or used its tools. In Canada, the FCAC conducted a literature review of incentivising behaviours and experimental design before launching its initiatives. The Central Bank of Moldova analysed existing behavioural insights frameworks to understand individuals' decision-making process in applying for a loan, or their consumption and savings patterns, and to design positive reinforcement messages.

Behavioural insights have also been used to define the location and presentation of the most important pieces of information on websites and digital tools, as indicated by the Central Bank of Portugal. The CFFC in New Zealand applies online the strategies shown to be most effective in their *On the Ward* programme, including social proof, heuristics, quick wins, bite-sized video content, narratives, interactive primers and guided self-reflection.

Applying the necessary Information Technology expertise

Given the need to ensure an effective use of technological solutions, OECD/INFE members stress the importance of consulting with their Information Technology (IT) departments or external IT experts.

Several OECD/INFE members sought additional technical expertise, such as web and app development and graphic design, outside of their institution and hired digital technology and digital communication agencies. This was the case in Austria, Canada, India, Luxembourg, Portugal and Romania. In some cases, external support was hired only for specific outputs such as video recording (Central Bank of Brazil, Croatian National Bank).

Consulting with external stakeholders and experts

Several OECD/INFE members have consulted with different departments within their organisation (notably with units in charge of communication), with members of existing financial education committees at the national level, and with stakeholders from the financial education community within their jurisdiction.

On top of this cross-agency and interdisciplinary approach - and depending on the issues covered in the digital delivery initiative and on the population segments targeted - some members also consulted with external researchers and created *ad hoc* consultative committees.

In Australia, ASIC consulted with key stakeholders from ASIC's *Financial Wellbeing Network* to begin the review of their *Moneysmart* website. Members of the network, as well as the public, were invited to provide feedback on the 'beta' version of the site before it was released. In Canada, FCAC sought the input of a researcher with expertise in budgeting behaviours and of key not-for-profit stakeholders with expertise in budgeting. The need to ensure a constant consultation throughout the design and implementation of the initiative led to the establishment of a consultative committee made up of experts in the fields of financial literacy and education, credit counselling and academia, in partnership with the *Autorité des marchés financiers* (AMF) of Quebec and of the Investor Education Fund (IEF).

In one example, the digital delivery had to adapt to the learning needs and specificities of visually impaired citizens. The Reserve Bank of India (RBI) set up a Technical Advisory Group (TAG) consisting of experts in the field and representatives of the visually impaired community. RBI and the TAG together analysed the experiences of other central banks that had introduced similar solutions. They met with experts in the area of assistive technologies and with developers who could assist with the choice of the best technological solutions.

In Ireland, the CCPC sought the services of an e-learning consultancy organisation, and engaged with key stakeholders from the educational community during the redevelopment of *Money Matters*, the website for teachers and students. These included teachers' professional development services, teachers' associations and state bodies responsible for curriculum and assessment.

Mapping private sector initiatives

Mapping and monitoring the digital financial education and personal financial management apps offered by the private sector can be a useful source of information and can potentially help to identify partners that can relay the financial education tools developed by the public sector. This should be conducted bearing in mind the need to maintain a neutrality towards commercial initiatives and taking into account the need to adopt behaviours that minimise the possible emergence of conflicts of interest (OECD/INFE, 2014).

The Central Bank of Brazil is currently conducting a systematic mapping of the digital financial education initiatives promoted by the private sector, from financial institutions to account aggregators. Witnessing the proliferation and success of digital influencers specialising in personal finance (some with millions of subscribers on YouTube), the bank is also actively monitoring their online presence and message.

Dialogue with the private sector can also take place through innovative regulatory and supervisory tools, such as sandboxes. The Central Bank of Brazil's *LIFT* initiative (*Laboratório de Inovações Financeiras e Tecnológicas*) is an innovation lab that has received six projects directly related to financial education in its three editions so far. The selected initiatives are closely monitored and supported by a team of experts, including the central bank's Financial Citizenship Department, allowing for balance between private sector innovation and financial education messages conveyed by the public specialists.

Testing with focus groups

Twenty-three initiatives were tested with focus groups. In some cases, testing was conducted by employees from different departments within the institution developing the tool. In other cases, *ad hoc* focus groups were composed of representatives of the population targeted by the digital initiatives (such as school and university students in Austria and the visually impaired in India), or of potential users selected according to geographical (as in Moldova) or socio-economic criteria (as in Morocco, where these were executives, illiterate and poorly literate people, and housewives).

In Australia, ASIC interacted with over one thousand Australians through surveys and interviews to review their *Moneysmart* website and tools. This was instrumental in understanding how consumers manage financial matters and adapt the content of the financial education offer, and, in combination with research, was particularly useful in the development of the journey maps that showed how Australians made financial decisions and how information and online tools play a role.

FCAC tested its budget planner externally with five organisations with proven expertise in dealing with target groups such as low-income people, youth, persons with debt challenges, etc. Two rounds of usability testing were also done during the development with 23 participants from different provinces, age groups, income and education levels.

The Central Bank of Portugal organised a focus group to assess whether the new interface of its main financial education website was more intuitive for users than the previous one, and whether the language

was more direct and easier to understand. The focus group was composed of 10 users, including journalists, academics, internal users and the public.

Monitoring and evaluation

Digital technologies can facilitate monitoring the implementation of digital financial education initiatives compared to traditional delivery. Indeed, almost all digital financial education initiatives feature the use of tools for automatic monitoring. Access to, and interactions with, websites is monitored thanks to the number of visits to the pages and to its sub-sections through the use of Google Analytics or via periodic reports from the external company managing the website. This can shed a light on how visitors interact with the resource and which sections they spend more time on, allowing public authorities to understand users' preferences and fine-tune content accordingly.

The number of downloads of mobile apps is monitored through the app stores. In some cases, such as in New Zealand and Japan, additional monitoring data is gathered through registration processes and sign-up data or specific surveys for viewers of the web pages. In New Zealand, users of the *Sorted Sessions* programme are invited to indicate their self-selected financial well-being status when signing up to the programme, providing the CFFC with additional relevant information.

The evaluation of digital delivery initiatives, whether qualitative or quantitative, is however not yet systematic despite the advantages that evaluation can bring to programme design, impact assessment and good use of resources (OECD/INFE, 2012a; OECD/INFE, 2010a; OECD/INFE, 2010b).

Qualitative evaluation is conducted mostly through feedback from users. This takes place through surveys, as in Brazil for the central bank's e-learning platform, in France for the two websites managed by the central bank, and in Portugal for the initiatives conducted by the securities commission in the framework of the World Investor Week. In Ireland, the CCPC issued surveys to teachers in order to receive feedback on their *Money Matters* programme, and consulted with teachers' groups and organisations. Some members rely on users' feedback through app stores in the case of mobile apps. In Sweden, a periodic evaluation of the *Koll pa Cashen* website to support the teaching of financial education in schools is conducted every three years: this takes place through focus groups, to understand the impact of the videos and has already informed two reviews of the tool.

Few OECD/INFE members have undertaken quantitative evaluation. Some examples include Brazil, where the central bank used quantitative evaluation during the pilot phase of its e-learning platform; and Germany, where the central bank conducts quantitative evaluation through forms distributed at the lectures in which digital resources are used. In Mexico, *Banco del Bienestar* collects data throughout the delivery of its MOOC - upon registration, via examinations during the course and during the final examination., As of 2020, participants are asked to complete an additional questionnaire three months after the course has ended to identify the degree to which knowledge is retained and skills are being applied in real life.

Japan and Spain report evaluating quantitatively the impact of their digital financial education initiatives through the national financial literacy measurement surveys. Finally, in Canada, a pre- and post-design quantitative evaluation was conducted on the delivery of financial education messages through a mobile app (see Box 4.1).

Box 4.1. A quantitative evaluation of the use of digital technology to initiate budgeting behaviours among non-budgeters through a mobile app in Canada

The Financial Consumer Agency of Canada has conducted a quantitative evaluation to understand the impact of a financial education intervention to encourage budgeting through a mobile app (FCAC, 2017). The overall objective of the pilot project was to examine the impact of FCAC's financial education materials on knowledge, confidence and behaviours related to budgeting.

FCAC used an existing app available to Canadians to pilot its financial education material. The app, *Carrot Rewards*, offered consumers loyalty reward points (e.g. air miles) in exchange for performing simple tasks, such as reading short texts, taking basic quizzes and watching short videos. The app, developed by a private company with a grant from the Canadian Government, was part of the Government of Canada's multisectoral approach to promoting healthy living and preventing chronic diseases.

The decision to focus on budgeting was based on evidence:

- Research demonstrating how budgeting helps people to prioritise expenses and can be particularly effective when someone is under financial stress.
- The 2014 Canadian Financial Capability Survey, showing that only 46% of Canadians have a budget, but among those who do, 93% say they “usually” or “always” stay within it.
- Research demonstrating that consumer messages received through mobile devices, and behavioural economic approaches, work to change behaviour.

The pilot program was launched on 5 July 2016 in two Canadian provinces, British Columbia and Newfoundland and Labrador. Over the course of one month, a series of interventions containing financial education messages and factual questions were sent to consumers via the *Carrot Rewards* app. The first intervention was directed to a wide audience ($n = 10,716$) with the purpose of identifying those who did not have a budget (46%; $n = 4,949$) and those who already had a budget (54%; $n = 5,767$). The first group was then targeted for two subsequent interventions to encourage them to create a budget. Changes in knowledge, confidence and behaviour were measured for this group. To assess the impact of FCAC's education materials related to budgeting, the results of this treatment group were compared to a control group.

The findings demonstrate that the intervention was successful and that it improved knowledge of budgeting among non-budgeters by 10 percentage points, the confidence in budgeting among non-budgeter by 15 percentage points and that it increased the use of budgeting among non-budgeters by 14 percentage points.

5 Concluding remarks

An increasing number of OECD/INFE members are designing and implementing financial education initiatives that are delivered digitally, and are complementing traditional delivery with digital elements. This shift towards digitalisation has been further enhanced due to the COVID-19 crisis, the restrictions enforced in many economies and the need to move from face-to-face to online programmes.

The choice of digital delivery is not only due to an adaptation to the widespread digitalisation of our economies and societies or to the consequences of the COVID-19 pandemic. It also comes from an understanding that digital delivery, despite its specific challenges, can facilitate the effective provision of financial education, extend its reach, and contribute to positive behavioural change.

Digital delivery of financial education is chosen with complementary objectives in mind:

- **Improve access to information and advice** through websites that often also offer calculators and tools for personal financial management, or mobile apps that can meet the needs of citizens with disabilities.
- **Deliver financial education training:** this can be by design or as an adaptation of face-to-face programmes. Online training can facilitate scaling up and extending the reach of successful traditional initiatives, or can allow policy makers to respond to the COVID-19 crisis and the need to meet the financial literacy needs of the target audience while maintaining social distancing.
- **Develop skills and confidence** such as money management and control over finances, in particular through the design of user-friendly personal financial management and budgeting tools and mobile apps, or through the use of gamification to enhance learning and familiarise people, especially the younger generations, with finance in real life scenarios.

The report also highlights the first applications of artificial intelligence to financial education delivery, through chatbots that interact with financial services users or children, as well as the presence of financial education authorities on social media, to deliver simpler messages, target specific audiences and conduct *ad hoc* campaigns such as on online safety procedures.

OECD/INFE members recognise that the effectiveness of digital delivery methods requires an adaptation of the content and the pedagogical approach to the digital environment, as well as an understanding of how to use technology to foster learning. This is reflected in the variety of sources that inform the design of digital financial education initiatives, which include:

- Traditional sources of evidence, such as financial literacy or programme evaluation data, and dialogue with existing stakeholder networks.
- The expertise of internal IT and communication departments, as well as of external experts in digital technology or digital learning.
- Testing with focus groups to gain additional insights of users' interactions with the digital resource and to fine-tune delivery and the presentation of content.

Only a limited number of institutions make full use of behavioural insights and have mapped the resources of or consulted with the private sector. Some members point to a lack of internal expertise on behavioural

economics and on the difficulties linked to dialogue with the private sector, which -from the perspective of many OECD/INFE members- is composed of supervised and regulated entities.

Despite the increasing use of digital tools, financial literacy policy makers are aware that digital delivery of financial education is not a silver bullet. Indeed, while digital tools can facilitate communication and delivery of financial education, they present specific challenges. Public authorities point in particular to challenges linked to communicating the existence of digital financial education resources to target audiences, accounting for digital literacy levels - notably in the case of the elderly - and limited availability of digital tools among low income people as well as keeping users motivated and engaged in an online environment. The report highlights how policy makers combine digital and traditional delivery with a view to overcoming some of these challenges, in particular to meet the needs of vulnerable audiences or to support the implementation of financial education in schools.

There appears to be scope for improvement in the monitoring and evaluation of these initiatives. The use of digital technologies can increase the quantity and quality of the data that can be collected, bearing in mind the need to respect existing data protection frameworks and with consumer consent, creating new opportunities for analysis. While this is exploited in the automated monitoring of digital tools, the evaluation of digital financial education initiatives is not yet widespread and few initiatives have, at this stage, been evaluated for impact. This might be due to their recent implementation, to the lack of familiarity and expertise in the monitoring and evaluation in a digital setting, and to a general lack of capability and resources for evaluation.

The information collected and the analysis conducted in the elaboration of this report show that the possibilities offered by digital tools are increasingly being applied to financial education delivery across a very diverse range of initiatives and to meet the needs of both the general population and of specific target audiences. There are, however, areas in which governments and public authorities could benefit from additional research and guidance especially as they are adapting to digital delivery several successful face-to-face programmes because of the COVID-19 pandemic.

The OECD/INFE will continue to monitor and investigate advances in this domain, to foster dialogue through its Working Group on Digital Financial Literacy and to identify good practices in support of effective design and implementation. This report will be instrumental in laying the groundwork for the development of OECD/INFE guidance on digital delivery of financial education.

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Annex A. List of initiatives submitted by members of the OECD/INFE

The financial education digital delivery initiatives being designed or already implemented by OECD/INFE members are listed in the table below.

OECD/INFE full member authority	Name of initiative and URL	Timeframe
Australia: Australian Securities and Investments Commission	Moneysmart www.Moneysmart.gov.au	Moneysmart started in 2011. We commenced a review of the site 2018, and in 2020 released an updated Moneysmart site to the public. There is no end date
Austria: Central Bank of Austria	M€ins (budget tool), https://www.eurologisch.at/meins	Start date: 17 January 2020 (press release)
	PIA (Personal Inflation App), www.eurologisch.at/el/interaktive-anwendungen/pia.html	Start date: 18 July 2019 (press release)
Brazil: Central Bank of Brazil	E da sua conta http://www.cidadaniafinanceira.bcb.gov.br/edasaconta	2015 (planning and development) 2017 (pilot) Ongoing (courses and updating)
	Minha Vida Financeira (My Financial Life) https://www.bcb.gov.br/acessoinformacao/minhavidafinanceira	
Canada: Financial Consumer Agency of Canada	Budgeting intervention using Carrot Rewards app https://www.canada.ca/en/financial-consumer-agency/programs/research/pilot-mobile-technology.html	2016-2019
	FCAC online budget planner https://itools-ioutils.fcac-acfc.gc.ca/BP-PB/budget-planner	November 2019 and ongoing
	Your Financial Toolkit https://www.canada.ca/en/financial-consumer-agency/services/financial-toolkit.html	September 2012 and ongoing
Chile: Comisión para el Mercado Financiero	CMF EDUCA (https://www.svs.cl/educa/600/w3-channel.html)	June 2019 – June 2020
Croatia: Croatian National Bank	Mobile app. mHNB; https://apps.apple.com/hr/app/mhnb/id1281447302?l=hr; https://play.google.com/store/apps/details?id=hr.hnb.app.mhnb&hl=en	September 2017 and ongoing

OECD/INFE full member authority	Name of initiative and URL	Timeframe
	Educational videos on security features of Kuna banknotes; https://www.youtube.com/watch?v=yoniiFirTol; https://www.youtube.com/watch?v=IUD1svvjun0&feature=youtu.be; https://www.youtube.com/watch?v=0t57en8Xbl0	July 2019 (first video) and ongoing
	Information list; https://www.hnb.hr/informativna-lista-ponude-kredita-potrosacima	September 2020 and ongoing
Croatia: The Croatian Financial Services Supervisory Agency (Hanfa)	Continuous improvement of financial literacy (unofficial term); www.hanfa.hr	Continuous activity (on a permanent basis).
Czech Republic: Ministry of Finance	Finanční gramotnost aneb Proč se finančně vzdělávat? https://financnigramotnost.mfcr.cz/	2014-present
	National Register of Financial Literacy Programs	To be launched in spring 2020
	Digifolio Finanční gramotnost https://digifolio.rvp.cz/view/view.php?id=2939	2011-present
France: Banque de France	Mes questions d'argent (https://www.mesquestionsdargent.fr/)	Launched in 2017, still active
	Mes Questions d'Entrepreneur (https://www.mesquestionsdentrepreneur.fr/)	Launched in 2019, still active
Germany: Deutsche Bundesbank	No specific name. URL: www.bundesbank.de/bildung	No specific timeframe, start at around 2002.
Germany: German Federal Financial Supervisory Authority (BaFin)	Participation of BaFin experts in Digital regulars` table organised by "Digital Kompass." "Digital Kompass" is a joint project between the German National Association of Senior Citizens' Organisations (Bundesarbeitsgemeinschaft der Seniorenorganisationen – BAGSO) and the non-profit association "Deutschland sicher im Netz e.V.". The project is aimed at helping senior citizens when they use the internet. It is also supported by the Federal Ministry of Justice and Consumer Protection. Web link to the next event on March 19, 2020: https://www.digital-kompass.de/termine/finanzen-im-ruhestand-worauf-sollte-ich-achten	October 2017 and ongoing. An end date of BaFin's participation is currently not foreseen. BaFin experts attend such meet-ups approximately three times a year.
	Co-Browsing as a special navigation tool of the consumer helpline. Web link: https://www.bafin.de/EN/Verbraucher/BeschwerdenAnsprechpartner/BaFin-Verbrauchertelefon/bafin-verbrauchertelefon_artikel_en.html	September 2016 and ongoing. An end date is neither foreseen nor planned
Guatemala: Superintendencia de Bancos of Guatemala	Programa de Educación Financiera Construye tus Finanzas https://www.sib.gob.gt/web/sib/Educacion-Financiera	The institution started to run the program in 2008, in the beginning it was a communication campaign.
Hong Kong, China: Investor and Financial Education Council	Text to audio conversion We launched the "Listen to Money Matters in Retirement" with 8 audio articles produced by Metro Radio. The "text to audio conversion" will be an ongoing strategy for the elderly-segment content. https://www.ifec.org.hk/web/en/other-resources/multimedia/audio/learn-money-matters-in-retirement.page	2019 and ongoing
	Money Month quiz via Facebook Messenger chatbot	March 2019
	Thirty-Six Financial Management Stratagems: Let's teach kids about money	July-August 2017
Hungary: Ministry of Finance	www.okosanapenzzel.hu	2019 and ongoing

OECD/INFE full member authority	Name of initiative and URL	Timeframe
India: Reserve Bank of India	Initiative 1: Awareness about Currency Notes through MANI APP (Mobile Aided Note Identifier), https://www.rbi.org.in/scripts/MANI.aspx Android app is available publicly on: https://play.google.com/store/apps/details?id=com.rbi.mani iOS app is available publicly on: iOS 9+: https://apps.apple.com/app/id1491441464 iOS 8: https://apps.apple.com/app/id1491443029	January 2020
	Initiative 2: Mass Media Campaign (RBI Kehta Hai) (A public awareness initiative by Reserve Bank of India, RBI): https://www.rbi.org.in/commonperson/English/Scripts/rbikehtahai.aspx	November 2017 and still active
	Initiative 3: Pan India Financial Literacy Week	One week every year since 2016
Ireland: Competition and Consumer Protection Commission	Money Matters – www.moneymatters.cpc.ie . A financial education programme with resources for teachers and students in junior cycle of secondary school (ages 12 - 16).	The website initially launched in 2015 to coincide with a new junior cycle secondary school curriculum in Ireland. It was redeveloped in 2019 to improve usability.
Italy: Bank of Italy	https://economiepertutti.bancaditalia.it	November 2019
Italy: CONSOB	Saver-Lo, the budget calculator	
	App...rendimento. The CONSOB investigame	
Japan: Bank of Japan	Financial Services Information Activities	Since 1997
Japan: Financial Services Agency	Uploading promotional videos to YouTube	Started in 2018
Jordan: Central Bank of Jordan	"Start it Right" (in Arabic بشها)	26 January 2020 to 24 April 2020
	"Your Financial Well-Being" (in Arabic المالية صحتك)	27 April 2020 on Arab Financial Inclusion Day
Libya: Central Bank of Libya	What you save today is good for tomorrow's needs	2016
Luxembourg: Commission de Surveillance du Secteur Financier	Lëtzfïn www.letzfïn.lu https://www.facebook.com/The-Financial-Game-of-Life-102762091109886/	Start date: 19 November 2019
Mexico: Banco de Mexico	E-Learning	The initiative arose in 2018, 2019 was for concept definition and 2020 will be available without restrictions.
	Ban-xic	The idea arose in 2017. 2018-2019 was for development and testing. 2020 first semester a pilot has been launched and second semester for full coverage is expected.
Mexico: Banco de Ahorro Nacional y Servicios Financieros (BANSEFI)	Massive Open Online Course: Introduction to Financial Education http://www.mexicox.gob.mx/courses/coursev1 : BANBIEN+IALE200312X+2020_03/about Start date: March 1. End date: April 30. Estimated time required: 20 hours.	In 2020, the course is available year-round.

OECD/INFE full member authority	Name of initiative and URL	Timeframe
Moldova: National Bank of Moldova	https://www.bnm.md/ro/content/bnm-cnpf-si-expert-grup-si-au-unit-eforturile-educatia-financiara-populatiei	24 March 2019 and ongoing
	"Da Sens Banilor"	January 2020 and ongoing.
Morocco: Fondation Marocaine pour l'éducation financière	A mobile application budget tool named Mizaniyati https://play.google.com/store/apps/details?id=ma.android.fmef&hl=en_US	March 2018
Namibia: Namibia Financial Institutions Supervisory Authority	Financial Literacy Initiative (FLI):: http://www.fli-namibia.org/	2012 and ongoing
New Zealand: Commission for Financial Capability	Sorted Sessions www.sortedsessions.org.nz	March 2020
Peru: Superintendency for Banks Insurance and Pension Funds	E-learning SBS (Virtual course) Link: https://aulagpu.sbs.gob.pe/ SBS family budget (web) Link: http://www.sbs.gob.pe/presupuestofamiliar (APP) Link: https://play.google.com/store/apps/details?id=com.osp.projects.sbspresupuestofamiliar&hl=es_PE SBS savings (APP) Link: https://play.google.com/store/apps/details?id=com.osp.projects.ahorrosbs&hl=en_US Big savers (game) Link: https://play.google.com/store/apps/details?id=com.onlineapps.GrandesAhorradores&hl=es_PE	
Poland: Ministry of Finance	Finansoaktywni https://finansoaktywni.pl/ Every year, the project begins in February/March and ends in June; As a part of the project a competition for schools is announced; however educational materials are available online throughout the year.	2015 and ongoing
	Website www.finanse.uokik.gov.pl – a compendium of knowledge about the situation on the Swiss franc mortgage market, insurances with on insurance capital fund, corporates bonds and alternative investments.	2015 and ongoing
	Social campaign 'WHO WILL YOU BECOME ON THE DAY THE BUBBLE BURSTS?' (Kampania społeczna A Ty kim będziesz, kiedy bańka pęknie?) The Polish Financial Supervision Authority (UKNF) https://www.knf.gov.pl/dla_konsumenta/kampania_spoleczna https://m.youtube.com/watch?feature=youtu.be&v=oJvphCRABTM https://m.youtube.com/watch?v=Jz6Xjic9Jo	June 2018 and ongoing (from July - August 2018 on TV and Radio)
Portugal: Central Bank of Portugal	Bank Customer Website (https://clientebancario.bportugal.pt/en), available in Portuguese and in English	2012 and ongoing
	Fees comparator (https://clientebancario.bportugal.pt/en/aplicacao/comparador-de-comissoes), available in Portuguese and in English	May 2017 and ongoing
	<i>Todos Contam</i> ('Everybody counts') Website (https://www.todoscontam.pt/), only available in Portuguese	July 2012 and ongoing

OECD/INFE full member authority	Name of initiative and URL	Timeframe
Portugal: Comissão do Mercado de Valores Mobiliários	Investors' Area (at CMVM's website) - https://www.cmvm.pt/en/Pages/homepage.aspx ;	Continuous (update of new contents are permanently being ensured). A big update on this initiative is under development and planned to be implemented at the beginning of 2021: Investors' Portugal.
	Financial Literacy for Investors in Securities Market	"A long-term commitment (launched in 2011 and resided in 2016) Financial Literacy for Investors in Securities Market - Drawing up
	"Todos Contam" - https://www.todoscontam.pt/ ;	
Portugal: Insurance and Pension Funds Supervisory Authority	"Os Meus Seguros" ("My Insurance")	December 2018 and ongoing
	"Falar Seguros" ("Talk Insurance")	May 2019 and ongoing
Romania: National Bank of Romania	http://www.bnr.ro/Produse-educa%c8%9bionale-12959.aspx	Twitter - 2011 YouTube - 2011 LinkedIn - 2014 Instagram - 2019 Apps - 2016 Online game - 2013 Educational videos - 2013
Slovak Republic: National Bank of Slovakia	Website of the Financial Consumer Protection Department (https://www.nbs.sk/en/consumer)	January 2015 and ongoing
South Africa: Financial Sector Conduct Authority	FSCA Consumer Education Website	
Spain: Comisión Nacional del Mercado de Valores	www.finanzasparatodos.es; http://www.finanzasparatodos.es/gepeese/es/index.html	2010 and ongoing
Sweden: Finansinspektionen	Koll på cashen (www.kollpacashen.se)	2008
	http://www.myntkabinettet.se/pengalabbet	2017
Thailand: Bank of Thailand	FL via Social media, Facebook and Website (https://www.facebook.com/hotline1213/)	Since 2014. More topics on Digital Financial Literacy added in 2019.
Turkey: Central Bank of the Republic of Turkey	Herkes İçin Ekonomi (Economics for All) Microsite: https://herkesicin.tcmb.gov.tr/ (available only in Turkish) Instagram: @herkesicinekonomi	February 2018 to date (microsite) April 2018 to date (Instagram page)
National Bank of Ukraine	NBU Money Museum website (https://cutt.ly/VgHk7Om) and Facebook https://cutt.ly/YgHfUEs	2019 and ongoing
	Global Money Week in Ukraine (https://cutt.ly/OgHh1DI)	February 2018 and ongoing
	Social campaign #FraudsterGoodbye (https://cutt.ly/bgHhBnC)	July 2020 and ongoing
	Economic Express: Information Days of the NBU in Regions (https://cutt.ly/VgHhXbt)	2018 and ongoing
	Facebook: Financial Literacy Ukraine (https://cutt.ly/AgHfZAG) and Instagram: (https://cutt.ly/JgHgo0x).	

OECD/INFE full member authority	Name of initiative and URL	Timeframe
	Public chat in mobile messenger app Viber – ‘ <i>Good morning from the NBU!</i> ’ (includes quizzes, short questionnaires, posts explaining the basics of personal finance management, different types of financial services and financial institutions)	July 2020 and ongoing

www.oecd.org/financial/education

