FailureInstitute®

The impact of digital competences on entrepreneurship in Mexico

facebook México

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A message from the Executive Director of the Failure Institute

Before we get into a discussion of the essential skills needed for the present, I would like to take a look back at the essential skills that were need in the past. Two centuries ago, reading and writing were exceptional and inaccessible skills for a significant part of the population. However, humanity discovered that literacy was the first step towards personal autonomy, poverty reduction, and the exercise of citizenship.

Today, we are experiencing a similar process. Technology is transforming the world, generating opportunities that are only available to those with a certain level of digital literacy. For example, it has never been easier to test proof of concept for a business, create an online store with global reach, or promote a product or service to millions of people. That being said, these possibilities are only available to those who have the proper digital competences.

Therefore, when Facebook Mexico contacted us with the interest of exploring the impact of digital skills on the success or failure of business, we accepted the challenge with enthusiasm. We are convinced that this collaboration will lay solid foundations for the creation of programs that improve digital skills so that, with the correct use of technology, economic growth continues to be generated in the businesses of Mexican entrepreneurs.

In fact, as this research shows, one of the most efficient ways to promote the creation of stable new businesses is by equipping entrepreneurs with digital competences.

In other words, in order to achieve an inclusive social and economic development, people must have the relevant digital competences.

The absence of these competences closes off access to many opportunities and leads to an ultimately undesirable outcome: exclusion from the educational and professional opportunities that technology facilitates.

For this reason, for the Failure Institute, this collaboration with Facebook Mexico is very important, since it allows us to provide evidence that nurtures that conversation and triggers a greater economic growth in Mexico. This is just one step forward towards creating a more inclusive and prosperous future.

Leticia Gasca
Executive Director of the Failure Institute

Executive Summary

Digital competence involves a mix of knowledge, skills, and attitudes related to various ends (communication, creative expression, information management, personal development), domains (everyday life, work, privacy and safety, legal aspects), and levels (cognitive and competitive).

For this study, we relied on the European Digital Competence Framework developed by the Joint Research Centre (JRC), which identified 21 competences grouped into five key areas: information and data literacy, communication and collaboration, digital content creation, safety, and problem solving.

The experiences of more than 200 entrepreneurs who had a business that failed in Mexico were included in this research. Their experiences were collected using a mixed methodology that included both qualitative and quantitative tools.

The profile of the entrepreneur included in this study is that of a frequent technology user with a high level of interest in staying up-to-date, even though his or her business does not specifically focus on technology. Eight of every 10 entrepreneurs surveyed were self-taught when it came to information and communication technologies (ICT).

It is important to highlight the role of business incubators as catalysts in terms of stoking interest in digital opportunities. Entrepreneurs who participate in an incubation or acceleration program(s) scored higher on an evaluation of their digital competences.

An evaluation of respondents' experiences selling a product or service online showed that only 9.52% said they were successful, while 46.67% tried to sell online but had poor results, 16.67% wanted to sell online but failed, and 27.14% said they did not know how to sell online.

These numbers are consistent with the responses regarding the use of advertising. 44.76% of respondents said that they advertised their product or service online with few concrete results, while 16.19% said they had tried and failed, and only 13.81% affirmed that online advertising had a positive impact on their business. A quarter of respondents said they did not know how to use online advertising.

Some of the recommendations that emerged from this research include the importance of studying and enhancing the role of business incubators as transmitters of digital competences, promoting the use of self-assessment tools among entrepreneurs, as well as facilitating access to education and training to allow children and adults to acquire necessary skills for their personal and professional development.

DIGITAL COMPETENCES

Introduction and background

What are digital competences?

Being digitally competent is more than just knowing how to use the latest devices or software. Digital competence is an intersectional competence that involves knowing how to use digital technologies in a critical, collaborative, and creative way.

Digital competences are increasingly important for business development. The technological readiness ranking published by the Economist Intelligence Unit illustrates the power of ICT and the Internet to drive economic development, innovation, and entrepreneurship as long as digital education is guaranteed.

Competence implies having the ability to learn, identify problematic situations, and use what one knows to solve problems and continue learning. Competences are developed throughout life and allow individuals to resolve a diverse range of problems. Digital competence is related to many aspects of life (work, leisure, communication) and requires more than technical abilities and knowledge, since it also requires having the confidence to use technology while maintaining a critical attitude towards it.

Digital competence involves a mix of knowledge, skills, and attitudes related to various ends (communication, creative expression, information management, personal development), domains (everyday life, work, privacy and security, legal aspects), and levels (cognitive and competitive).

In practical terms, the meaning of digital competence is less clear, since it depends on a person's background (entrepreneur, teacher, student, researcher) and context (school, business, etc.)

Time is an additional complicating factor. Ten years ago, digital competence meant something completely different than it does today: as new technologies are developed, new digital competences are required in order to use them. Technological innovations and their appropriation by users are difficult to predict. Although certain future developments can be anticipated, it is often difficult to understand exactly how these developments will affect people's day-to-day personal and professional lives.

We based this study on the European Digital Competence Framework developed by the JRC, which identifies 21 competences grouped into five key areas to define what it means to be digitally competent.

The five areas, which will be further developed throughout this report, are:

1. Information and data literacy

1.1 Browsing, searching, and filtering data, information, and digital content.
To articulate information needs, to search for data, information, and content in digital environments, to access them, and to navigate between them; to create and update personal search strategies

1.2 Evaluating data, information, and digital content.
To analyze, compare, and critically evaluate the credibility and reliability of sources of data, information, and digital content; to analyze, interpret, and critically evaluate the data, information, and digital content

1.3 Managing data, information, and digital content.
To organize, store and retrieve data, information, and content in digital environments

2. Communication and collaboration

2.1 Interacting through digital technologies
To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context

2.2 Sharing through digital technologies
To share data, information, and digital content with others through appropriate digital technologies; to act as an intermediary, to know about referencing and attribution practices

2.3 Engaging in citizenship through digital technologies
To participate in society through the use of public and private digital services; to seek opportunities for self-empowerment and participatory citizenship through appropriate digital technologies

2.4 Collaborating through digital technologies
To use digital tools and technologies for collaborative processes and for co-construction and co-creation of resources and knowledge

2.5 Netiquette
To be aware of behavioral norms and know-how while using digital technologies and interacting in digital environments; to adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments

2.6 Managing digital identity
To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments, and services

3. Digital Content Creation

3.1 Developing digital content
To create and edit digital content in different formats, to express oneself through digital means

3.2 Integrating and re-elaborating digital content
To modify, refine, improve, and integrate information and content into an existing body of knowledge to create new, original, and relevant content and knowledge

3.3 Copyright and licenses
To understand how copyright and licenses apply to data, information, and digital content

3.4 Programming
To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task

4. Safety

4.1 Protecting devices
To protect devices and digital content, and to understand risks and threats in digital environments; to know about safety and security measures and to have due regard to reliability and privacy

4.2 Protecting personal data and privacy
To protect personal data and privacy in digital environments; to understand how to use and share personally identifiable information while being able to protect oneself and others from damages; to understand that digital services use a "Privacy policy" to inform how personal data is used

4.3 Protecting health and well-being
To be able to avoid health risks and threats to physical and psychological well-being while using digital technologies; to be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying); to be aware of digital technologies for social well-being and social inclusion

4.4 Protecting the environment
To be aware of the environmental impact of digital technologies and their use

5. Problem solving

5.1 Solving technical problems
To identify technical problems when operating devices and using digital environments and to solve them (from trouble-shooting to solving more complex problems)

5.2 Identifying needs and technological responses
To assess needs and to identify, evaluate, select, and use digital tools and possible technological responses to solve them; to adjust and customize digital environments to personal needs (e.g. accessibility)

5.3 Creatively using digital technologies
To use digital tools and technologies to create knowledge and to innovate processes and products; to engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments

5.4 Identifying digital competence gaps
To understand where one's own digital competence needs to be improved or updated; to be able to support others with their digital competence development; to seek opportunities for self-development and to keep up-to-date with the digital evolution

Source: Vuorikari, R., Punie, Y., Carretero Gomez S., Van den Brande, G. (2016). DigComp 2.0: The Digital Competence Framework for Citizens. Update Phase 1: The Conceptual Reference Model. Luxembourg Publication Office of the European Union. EUR 27948 EN. doi:10.2791/11517

The digital divide in Mexico

According to the 2017 National Survey on Availability and Use of Information Technologies in Households (ENDUTIH), carried out by the Mexican National Institute of Statistics and Geography, there are 71.3 million Internet users in Mexico, representing 63.9% of the population age six or older. Of these, 50.8% are women and 49.2% are men.

The population group with the largest proportion of Internet users is men between 18 and 34 years old—nearly 85% of this population group uses the Internet—while the group with the fewest users is women 55 years and older.

While Internet penetration has increased in Mexico, the proportion of the population that uses the Internet remains low compared to other nations. In countries like Germany, Japan, South Korea, Sweden, and the United Kingdom, 9 out of 10 people use the Internet, while in Mexico, that number drops to 6 out of 10 people (however, this figure is higher than in countries such as Brazil, Colombia, and South Africa.)

In terms of the devices used to connect to the Internet, in 2017 the ENDUTIH showed that 89.7% of users connected to the Internet through smartphones, 33.1% connected using desktop computers, 32.8% through laptop computers, and 18.5% of users connected to

For me, it's not just about opening a store, it's about achieving something scalable. Technology helps you to see business possibilities in a different way—it helps you grow faster and makes it easier to get the word out.

- Study participant

the Internet through a tablet. It should be noted that in this study, these categories were not mutually exclusive.

Whether through a fixed or a mobile connection, 50.9% of Mexican households have Internet access. Geographical analysis shows that Internet use is generally an urban phenomenon, with 86% of users located in urban areas.

In 2017, the number of computer users aged six years or older reached 50.6 million, equal to 45.3% of the population within this age group. Meanwhile, 72.2% of the population aged six years or older had access to a cellphone. Eight out of every 10 cellphone users had smartphones capable of connecting to the Internet.

Of these smartphone users, 92.1% had installed instant messaging applications, 79.8% had installed tools to access social media, 69.7% had installed audio and video content applications, and 16.0% had installed a mobile banking application.

The main activities of Internet users in 2017 were obtaining information (96.9%), entertainment (91.4%), communication (90.0%), access to audiovisual content (78.1%), and access to social media (76.6%).

In Mexico, the gap is not just digital, but also knowledge based. Research regarding the digital competences of the Mexican population is scarce.

Methodology

This research project incorporates the experiences of more than 200 entrepreneurs who had a business that failed in Mexico. Their experiences were collected using a mixed methodology that incorporated both qualitative and quantitative tools.

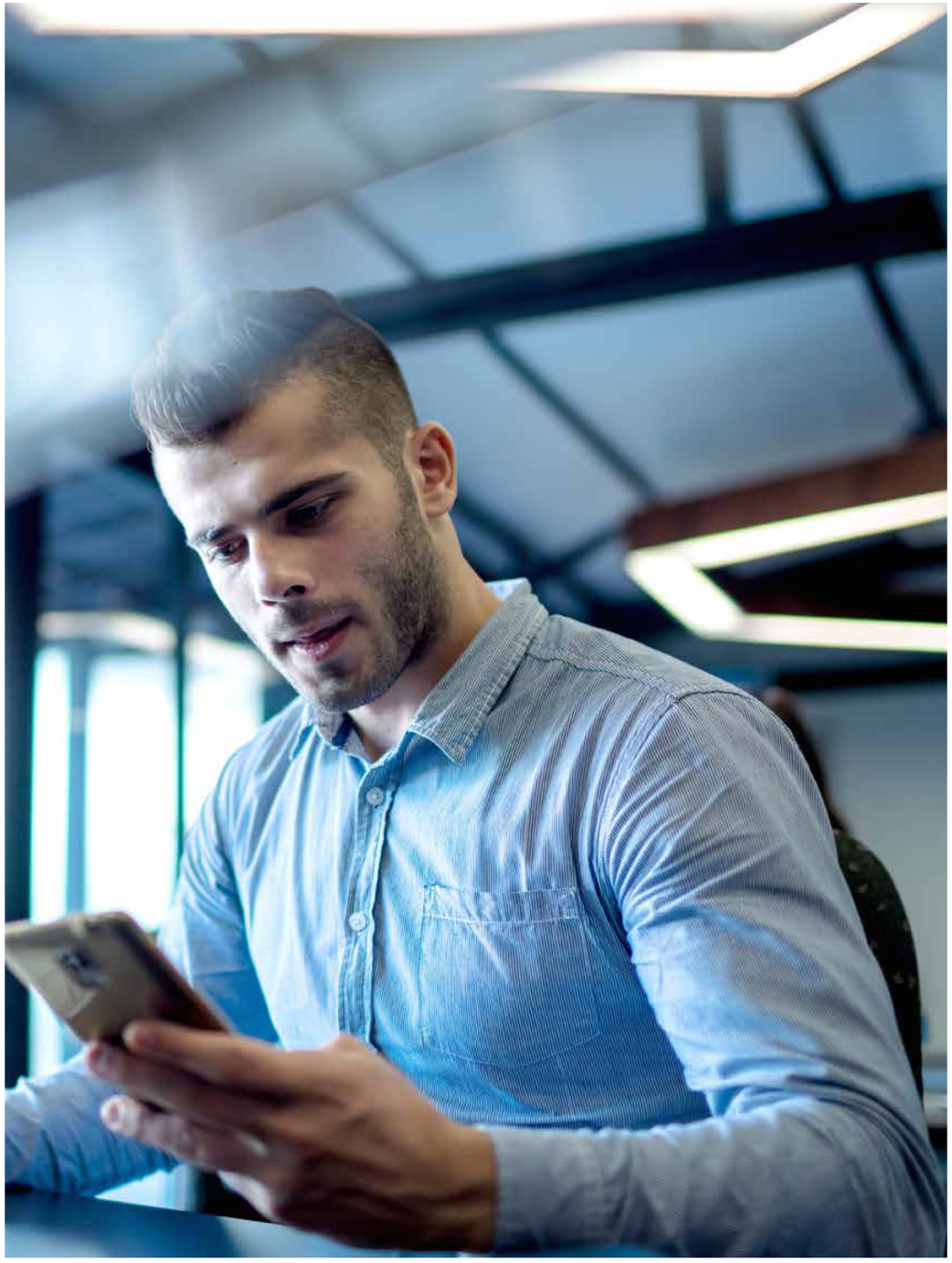
The information compiled was based on the following series of questions:

- What is the profile of entrepreneurs who start a business?
- What was the level of professionalization of their business?
- What were the characteristics and conditions of the businesses that failed?
- What level of digital competence predominated in this group?
- What recommendations can be made for the actors involved in initiatives to strengthen student entrepreneurship?

The data collection process was divided into various phases. The first phase consisted of a literature review to delineate and frame our research questions, scope, and methods. The second phase involved a focus group with 10 participants. To complete the qualitative stage, we collected additional data based on 15 semi-structured interviews, which were recorded and transcribed. The results were then systematized and analyzed using artificial intelligence tools, and the results of these analyses were interpreted.

For the quantitative research component, we collected data via 209 surveys in which entrepreneurs whose businesses had failed evaluated their digital competences across the five established areas. Once the survey was closed, the appropriate statistical tests were implemented to ensure the validity of the survey. Subsequent statistical analyses were implemented in order to assess the data according to the research objectives.

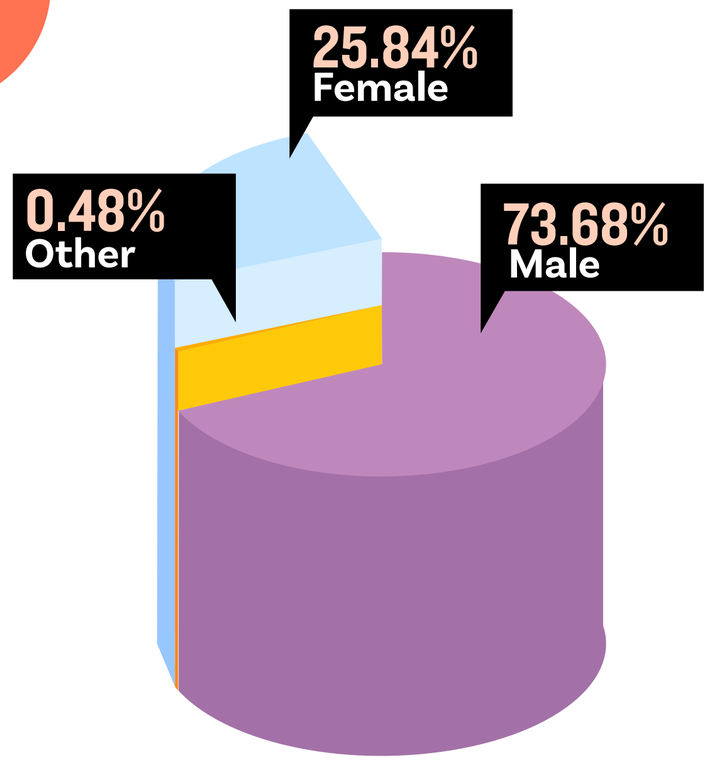
DIGITAL COMPETENCES



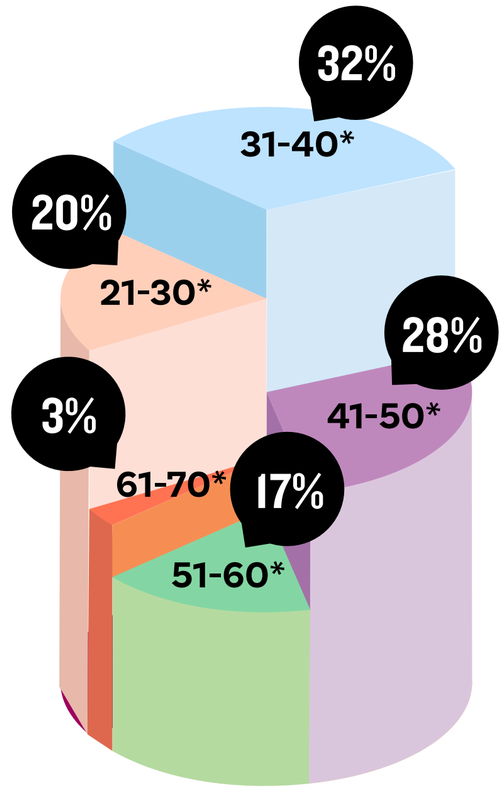
Results

ENTREPRENEUR PROFILE

Graph 1. **GENDER**

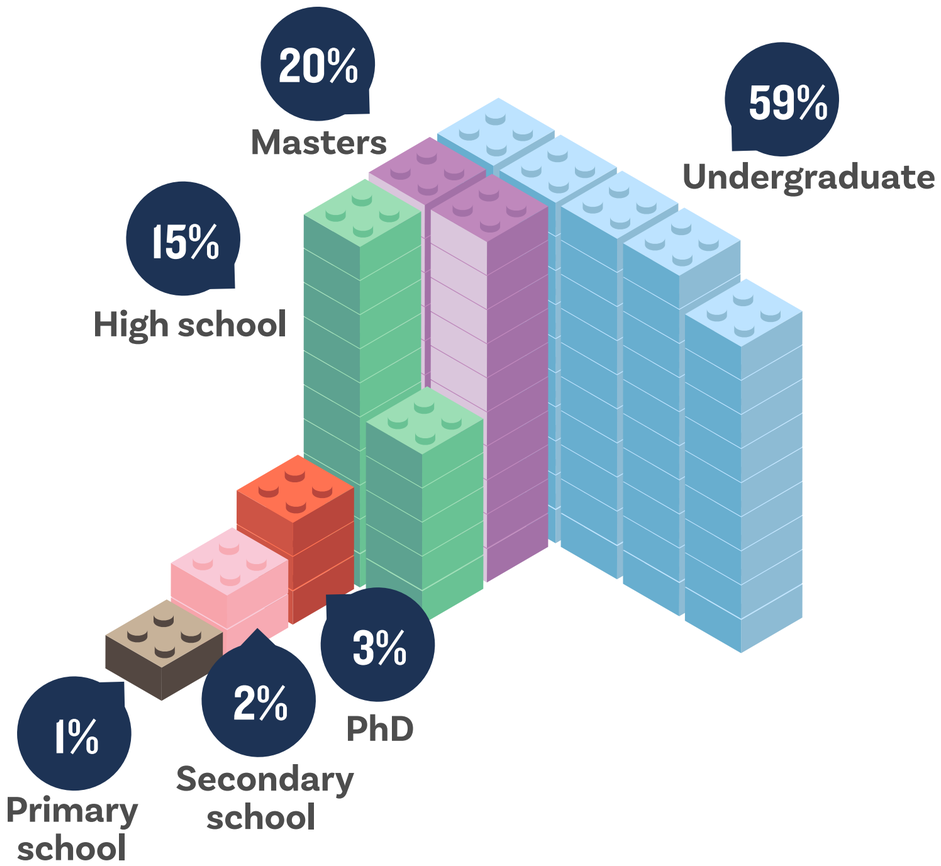


Graph 2. **AGE**

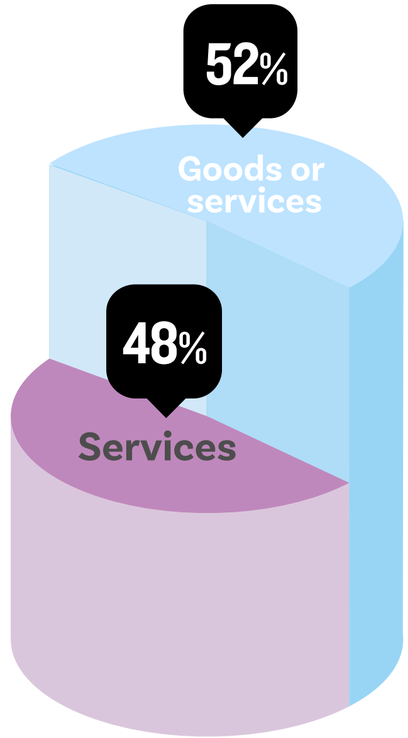


*years

Graph 3. LEVEL OF EDUCATION



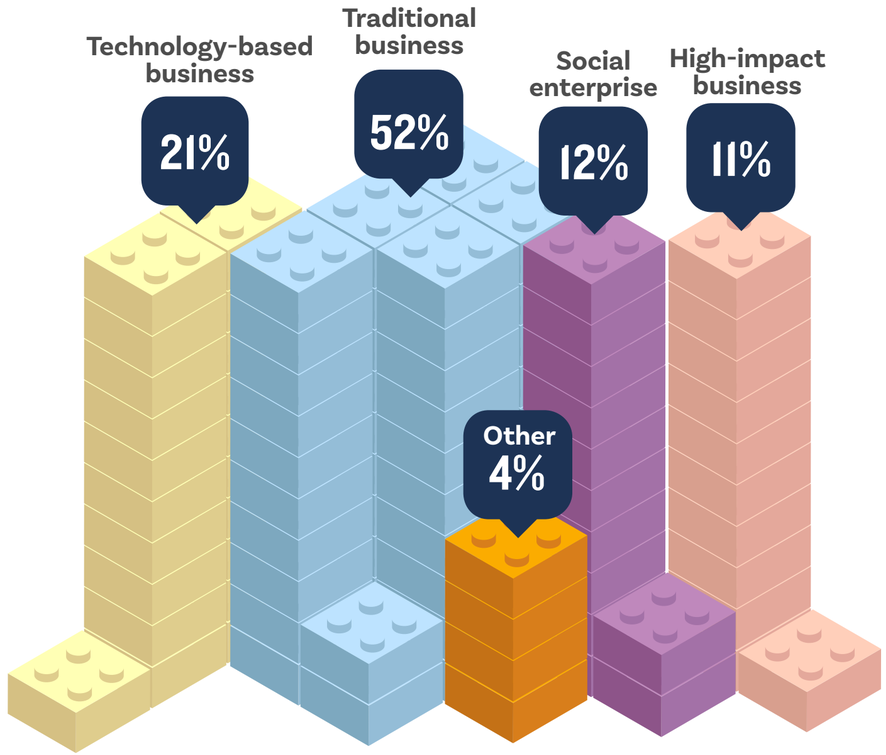
Graph 4. TYPE OF BUSINESS



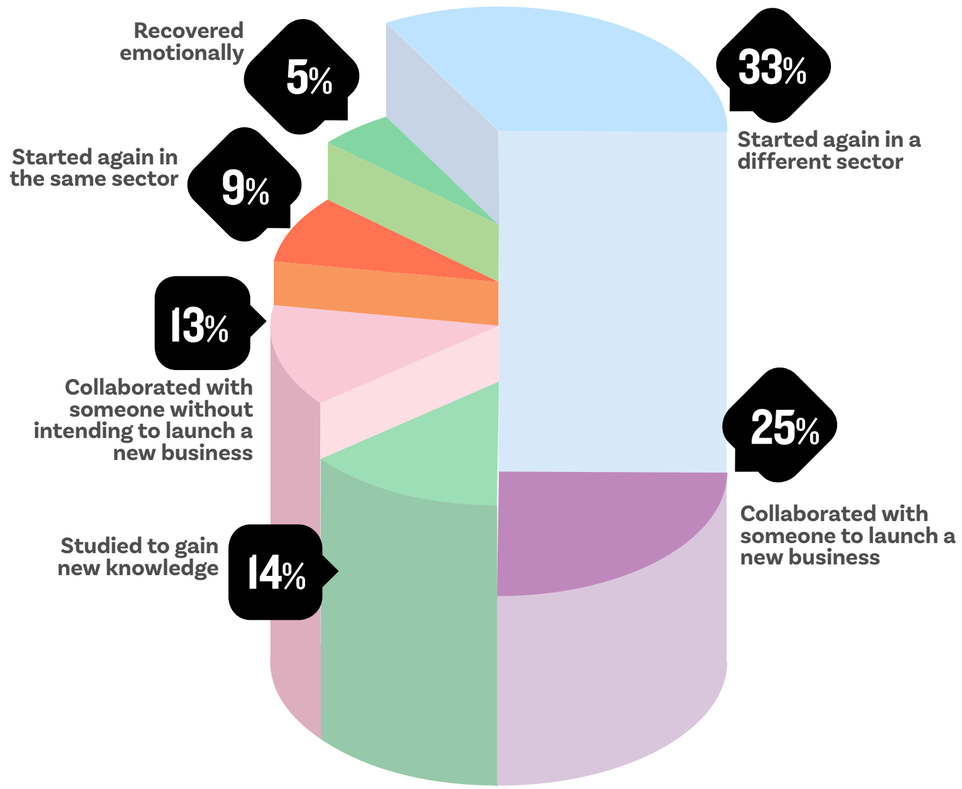
“We used technology for everything. At one point, half our team was in Mexico City and half was in Guadalajara, so all our communication was online using Google Hangouts, calls, Google Drive; we used technology for everything. If the technology hadn’t existed, neither our product nor or internal operations would have been possible.”

– Study participant.

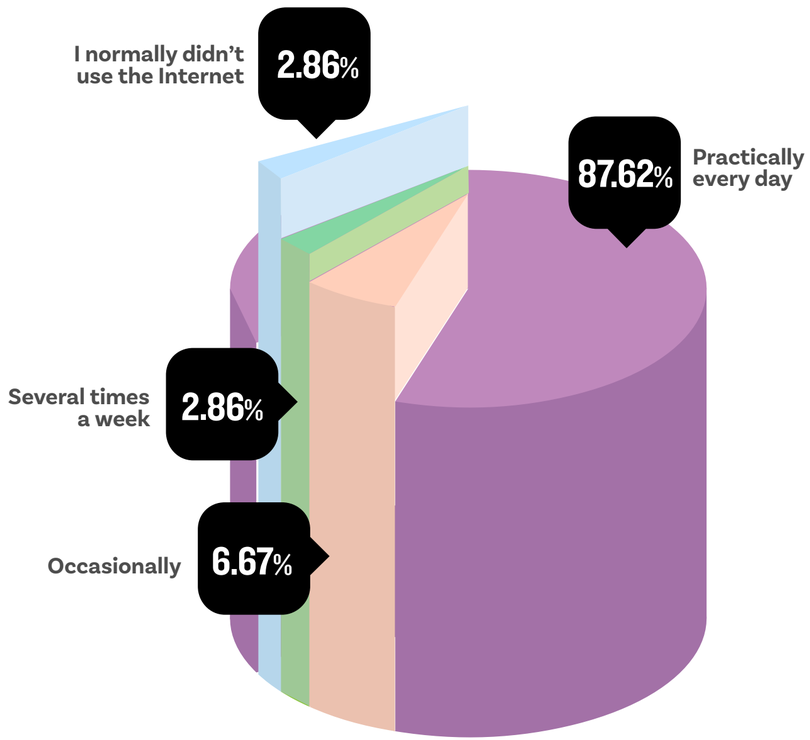
Graph 5. TYPE OF BUSINESS



Graph 6. WHAT DID YOU DO AFTER YOUR BUSINESS FAILED?



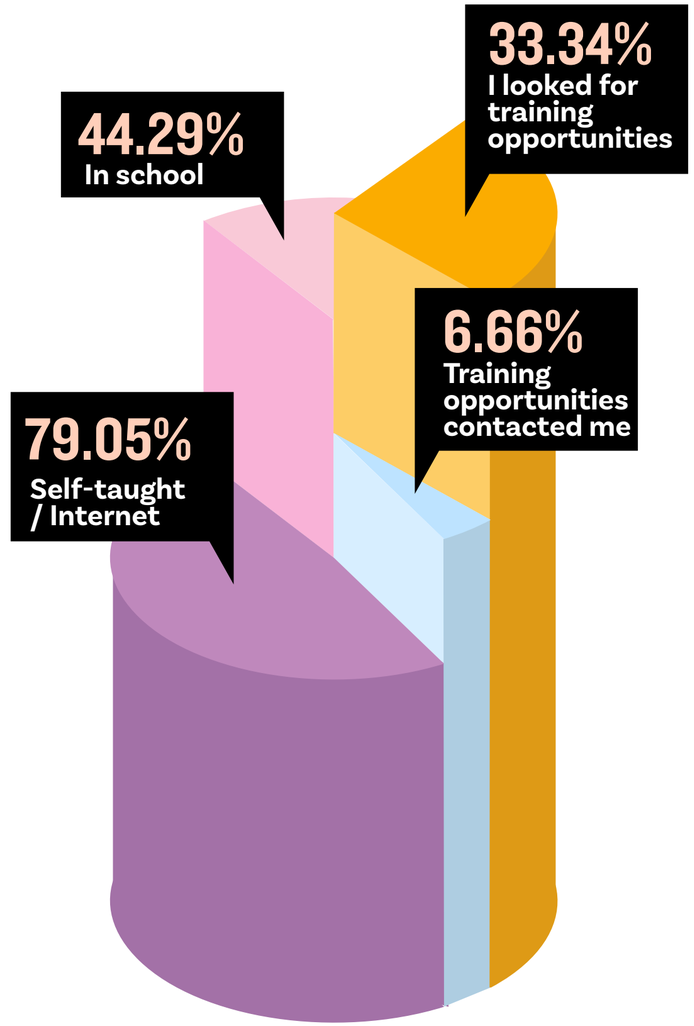
Graph 7. HOW OFTEN DID YOU USE THE INTERNET?



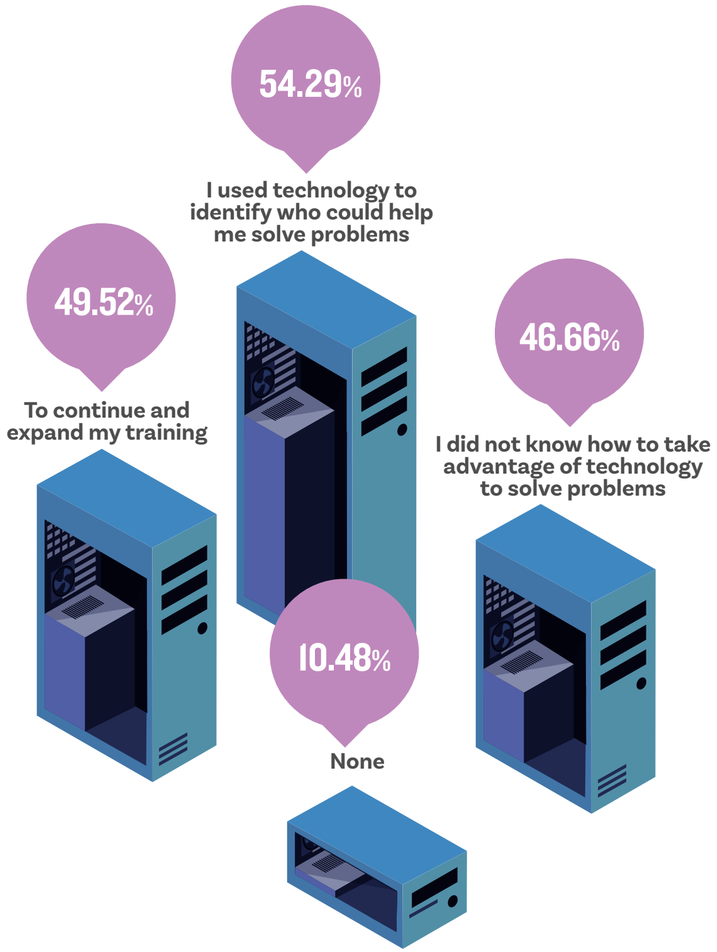
"You have to adapt and learn constantly, otherwise technology and your competitors will swallow you whole. The best thing any entrepreneur, any business owner really, can do is to adapt and keep moving forward."

– Study participant.

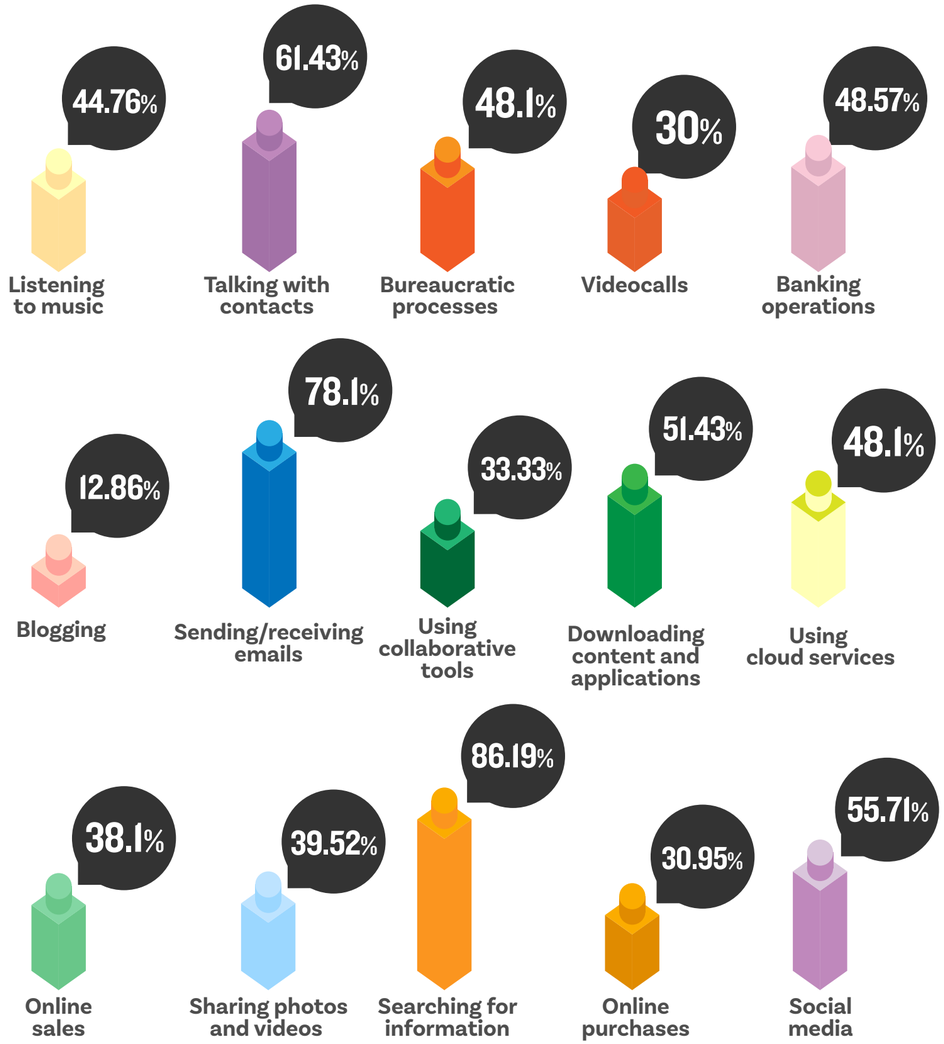
Graph 8. HOW DID YOU LEARN ABOUT ICT?



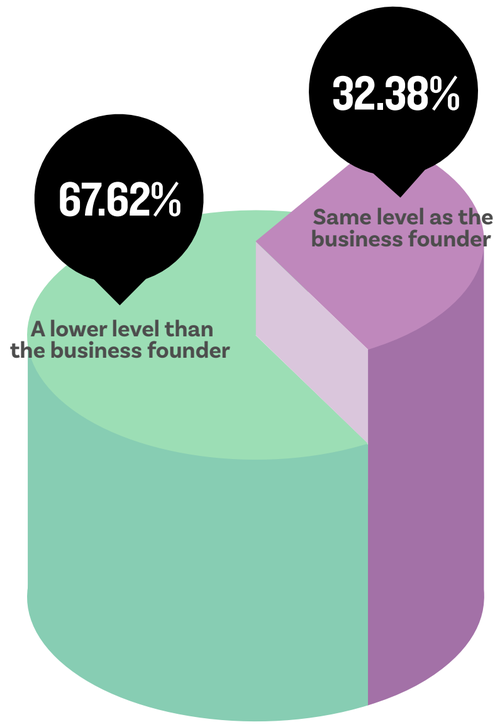
Graph 9. WHAT ROLE DID TECHNOLOGY PLAY IN YOUR PROFESSIONAL TRAINING?



Graph 10. ONLINE ACTIVITIES RELATED TO THE BUSINESS



Graph 11. LEVEL OF THE TEAM'S DIGITAL COMPETENCE



"It also has a lot to do with self-learning, going to workshops, watching videos, tutorials. It doesn't take five years to learn something now, just a few weeks and you're ready to jump into the industry, that's why we should prepare ourselves for other fields. That's what breaks paradigms and has made things change very quickly."

– Study participant.

"Since I was the one in charge of business administration, I got used to storing everything in the cloud. That way, I could check the data at any time. But the workers took notes on paper. The payment system was supposed to synchronize everything so that I could see sales in real time. The problem was that the employees never learned to use it and I had to verify sales every day receipt by receipt."

– Study participant.

The profile of the entrepreneur included in this study is that of a frequent technology user with a high level of interest in staying up-to-date, even though his or her business does not specifically focus on technology.

As seen in Graph 7, 87.62% of respondents used the Internet on a daily basis. The most common online activities were: search for information (86.19%), send and receive emails (78.1%), talk with contacts (61.43%) and use of social networks (55.71%).

Eight out of every 10 respondents learned about ICTs on their own, using resources available online or through their work, while 44.29% learned about them in school, and 33.34% sought training via public or private training centers.

Respondents showed interest in and ability to increase their knowledge of technology: 54.29% said that they knew who to reach out to or where to find help on the Internet when they had a problem; 49.52% showed interest in expanding their training through coursework, massive open online courses (MOOCs), or manuals; and 46.66% said they did not know how to take advantage of technology to solve problems.

“A woman joined the team who was clearly very committed to the job, but she didn’t understand technology; she had one of those cellphones that just receives calls, nothing more. When I gave her the tablet and taught her how to use it, it was like I was speaking to her in Chinese or something. She didn’t understand, she was afraid. The digital divide between people affects you because you have to train people on something that is really simple for you.”

– Study participant.

However, due to the lack of resources that is common during the initial stages of a business, entrepreneurs generally do not assemble highly digitally competent teams unless the nature of the business requires it. Only 32.38% of respondents affirmed that their partners and employees had the same level of digital competence as they did, while 67.62% said their teams had a lower level of competence.

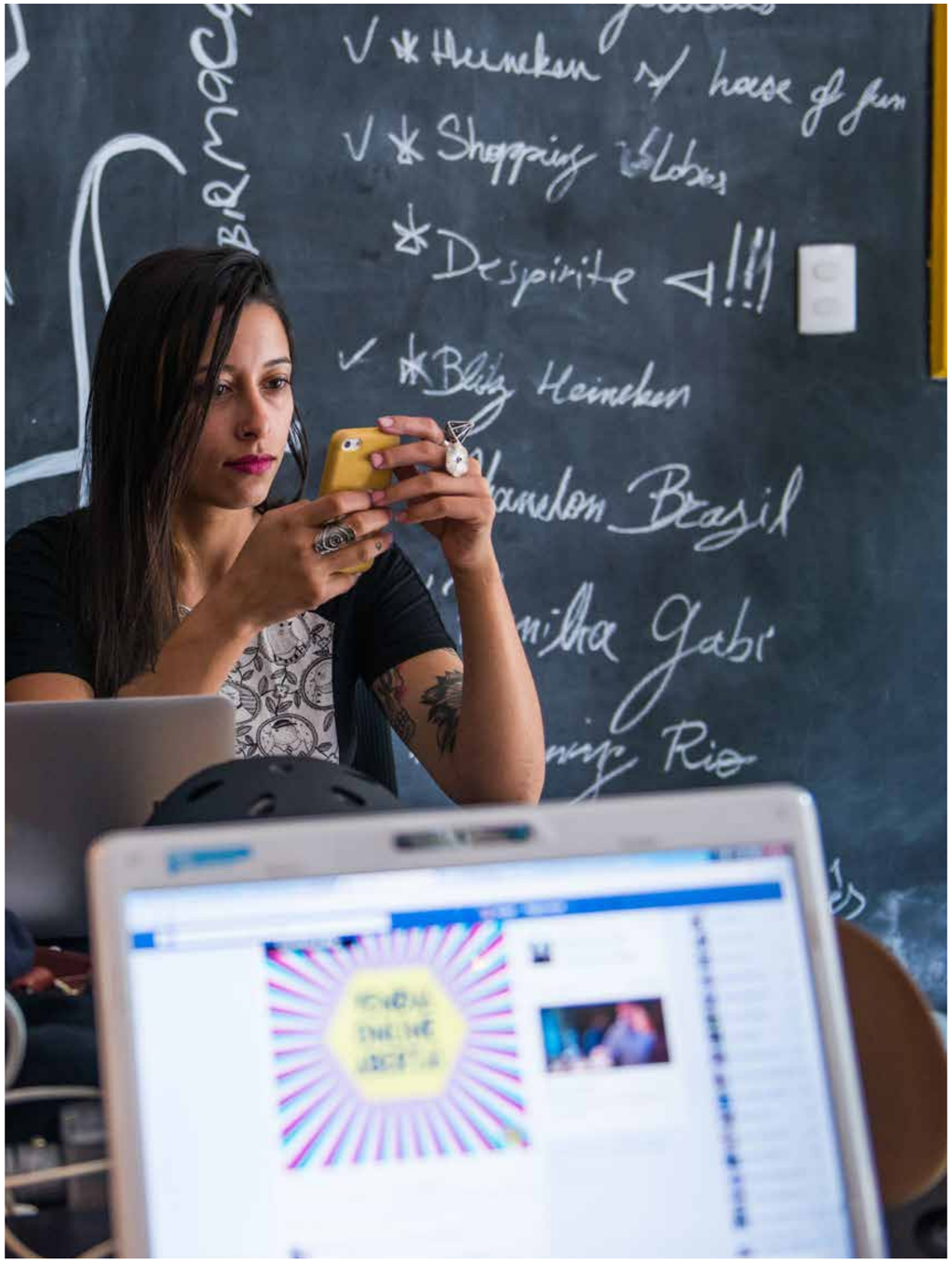
Using the questionnaire, we evaluated the general level of digital competences of the respondents across the five areas established by the European Digital Competence Framework. Each competence was assigned a scoring system that allowed us to evaluate respondents.

A minimal difference in digital competences was found between respondents who identified as male and female. However, an assessment of digital competences by business type showed that high-impact businesses (companies that utilize innovation to create a positive impact on their value chain and/or on the market) scored higher than traditional businesses.

It is important to highlight the role of business incubators as catalysts in terms of stoking interest in digital opportunities. Entrepreneurs who participated in an incubation or acceleration program(s) scored higher in terms of their digital competences (See Graph 11).

No correlation was found between the cause of business failure and the entrepreneur’s digital competences.

Participated in business incubators	Average score
Yes	36.62
No	27.64



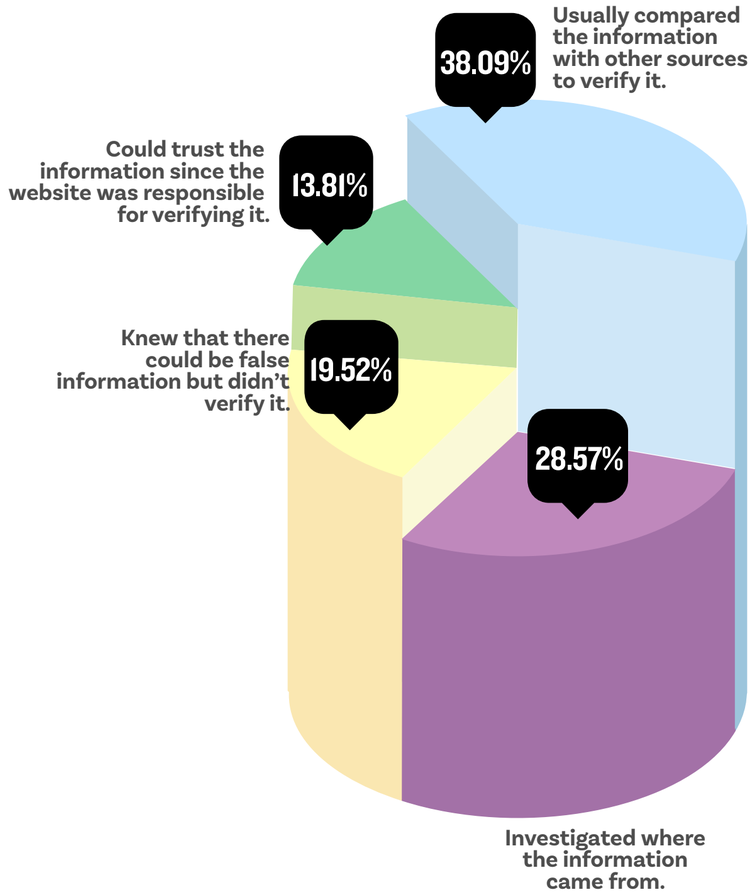
Information and data literacy

The majority of respondents thought that the information available online wasn't always trustworthy, responding that when they found information for their business online, they compared it with other sources and/or investigated the source of the information. However, 19.52% of respondents responded that they did not usually verify the trustworthiness of information found online, despite an awareness that it may not be accurate, and 13.81% responded that they trusted information published online, as they believe that it is the websites' responsibility to verify the information.

"I gave coaching workshops and formed the team. For me, it was easy to set up the website, even with my basic programming knowledge. I asked my team who would help me search for and select information. But they didn't know what HTML was, and this was incredible to me because I didn't understand how it was possible that they didn't know how to use certain platforms. I wanted to create a multidisciplinary team, but in the end, it all fell apart because they said I asked too much of them on the programming side."

– Study participant.

Graph 12. WHEN YOU FOUND INFORMATION FOR YOUR BUSINESS ONLINE, YOU:

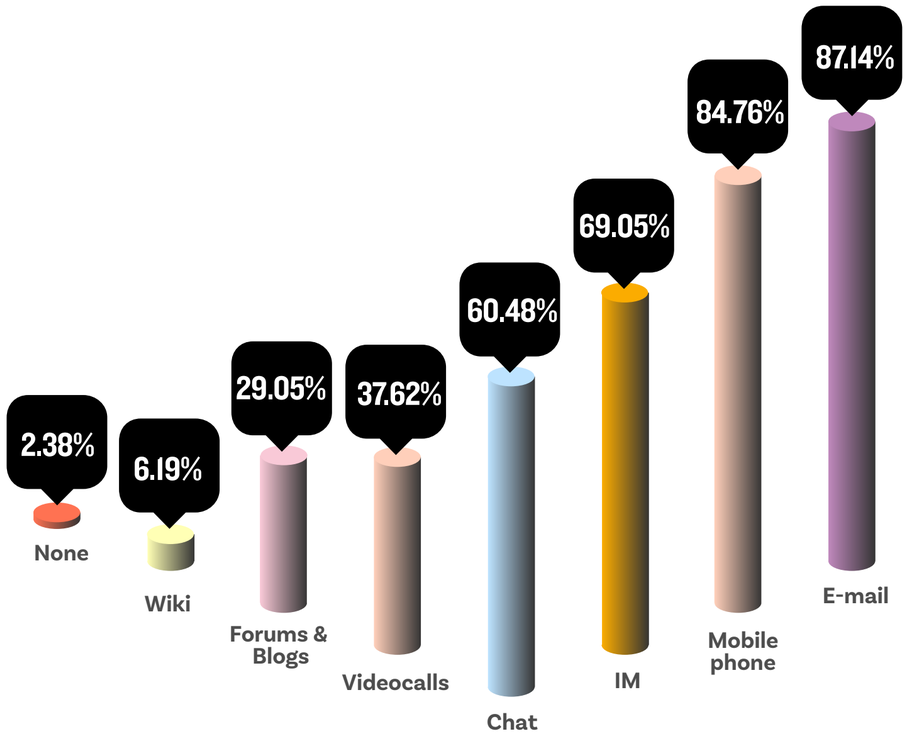


"Whether you're the biggest company in the world or the corner shop, if you aren't on social media, you don't exist."

– Study participant.

Communication and collaboration

Graph 13. WHICH OF THESE TECHNOLOGIES WERE YOU CAPABLE OF USING TO COMMUNICATE IN YOUR BUSINESS?

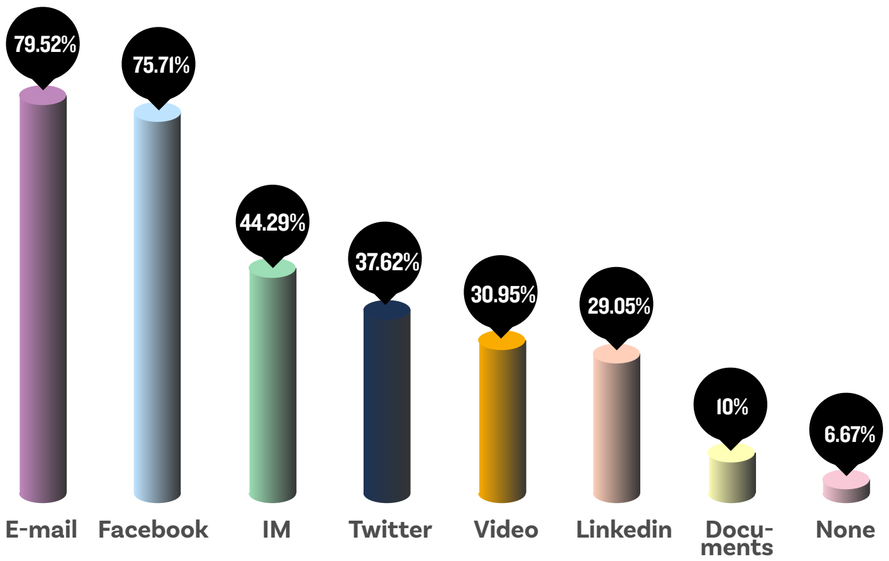


The most-frequently used technologies were e-mail, telephone, instant messaging, and chat applications. The least-frequently used tools were Wikipedia, forums and blogs, and video calls.

“Internally, we communicated using WhatsApp, it was our form of communication. We rarely used email. Much of the communication was informal, sometimes we called each other. Every Tuesday, we had a team call at 7 pm, that was our internal communication. We were never good at external communications, we never had a person dedicated to external communication, we had our social media profiles, but it was only updated if someone had the time. In retrospect, I can see that we didn’t even have a communications strategy, we didn’t know what type of persona we wanted to use whether they should be more informal or experienced, what would connect with the target audience.”

– Study participant.

Graph 14. WHICH TECHNOLOGIES WERE YOU CAPABLE OF USING TO DISSEMINATE INFORMATION AND CONTENT?



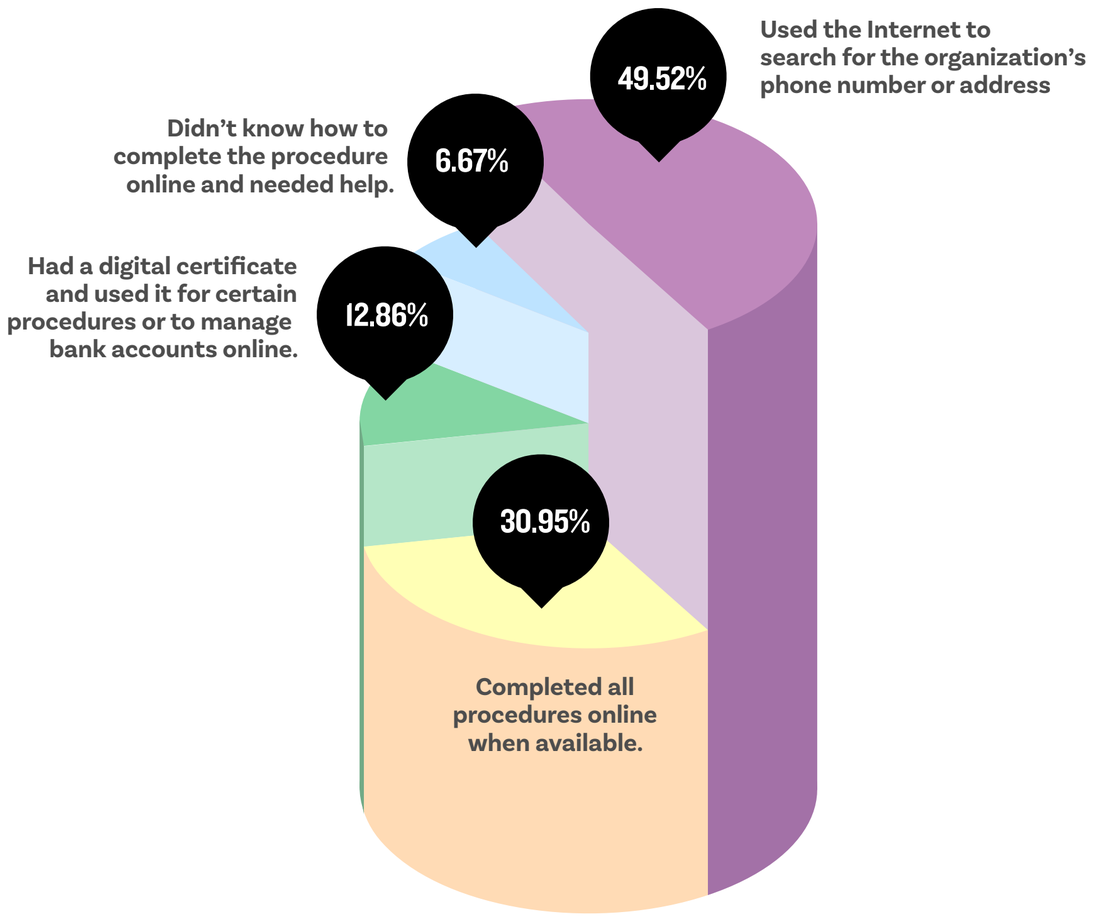
In terms of the technologies used to disseminate information about the business, the most frequently used were e-mail (79.52%) and Facebook (75.71%). Coming in well below, the next most popular technologies were instant messaging (44.29%), Twitter (37.62%), videos (30.95%), and LinkedIn (29.05%). Only 6.67% of respondents said they didn't use any technological tools to promote their business.

"I'm going to give you two examples of businesses that failed, the first selling shoes and the second jewelry. At that time, there was no such thing as Facebook fanpages, only groups. So what I did was add all my Facebook friends to a group. Facebook groups notified you about everything—comments, edits, deletions, etc. I added my friends and told them I had just started a shoe brand, and at that time, I had 2,000 people in the group. Facebook helped me gain recognition, but that type of advertising was super invasive.

In the case of the jewelry business, I tried to do something similar, but Facebook had already evolved quite a lot. I tried to develop a 'coming soon' advertising strategy among my friends using photos that showed what I was working on, that showed the innovation. This helped me, because when I launched, business was booming. Afterwards, I shifted almost entirely to Instagram, which was just starting, and it helped a lot. I didn't have an email address at this time. With my suppliers and distributors, I hand delivered my inventory and had them sign a receipt with the date of payment, the cutoff date, all by hand. It was a very slow process, I don't remember how I charged them, I think it was all in cash. I didn't even have a credit card terminal, it was all very analogue despite the fact that the business was innovative."

– Study participant.

Graph 15. IF YOU HAD TO COMPLETE A PROCEDURE AT A PUBLIC OR PRIVATE AGENCY, YOU:

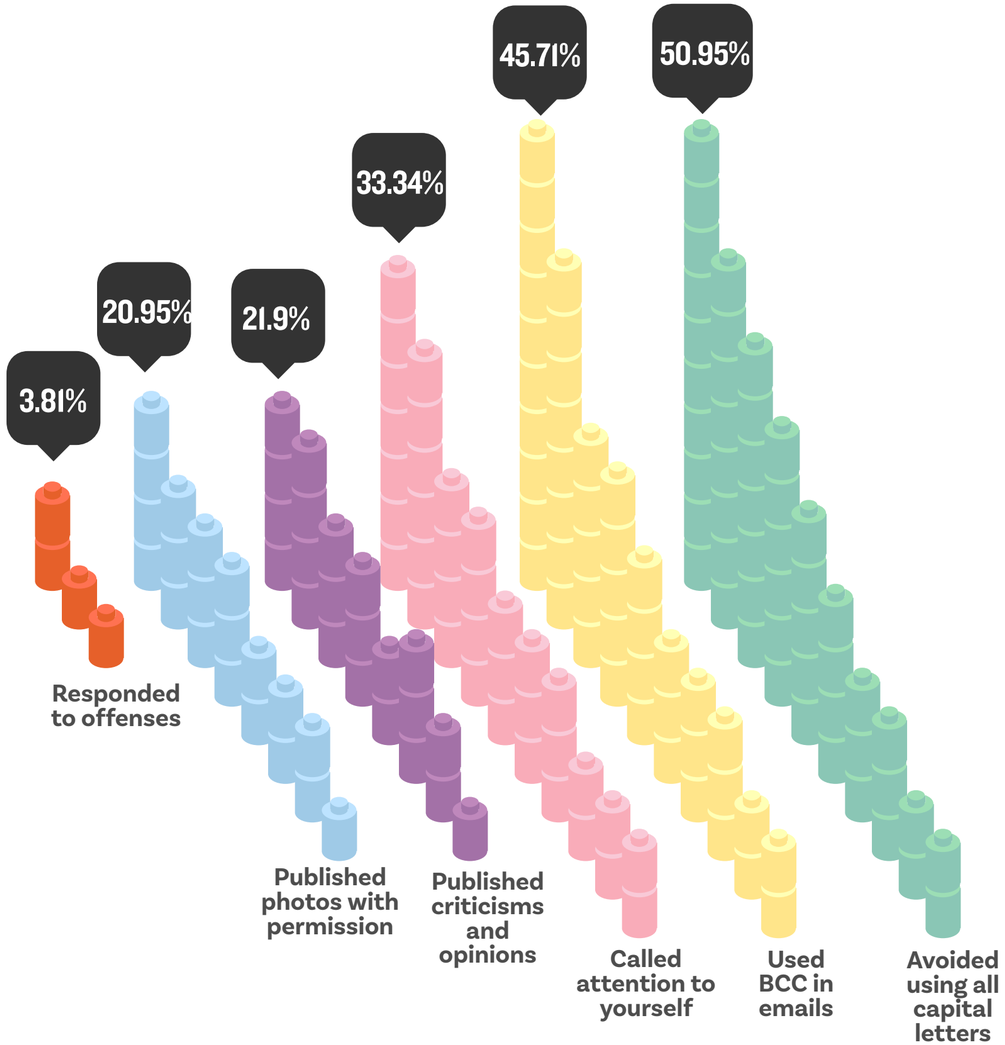


"Technology changed a lot with the emergence of video content. Before that, a lot was invested in social media, and it was difficult for people who didn't know how to code or who didn't know a lot about technology to create their own website or blog. From this perspective, being able to launch and promote a business was quite complicated and required more time. Now, the inclusion of videos, Instagram, and even live streaming events has changed the process of positioning a brand and sales.

Above all, creating websites and developing e-commerce platforms is much easier and cheaper now. You can invest way less. Also, in terms of project management, the tools used to be quite expensive and difficult to use on a mobile device, while now you can receive updates about how your projects are going from anywhere, you can access your CRM, everything. At any point in the day, you can manage your team's activities from your cellphone. This helps a lot in terms of business planning."

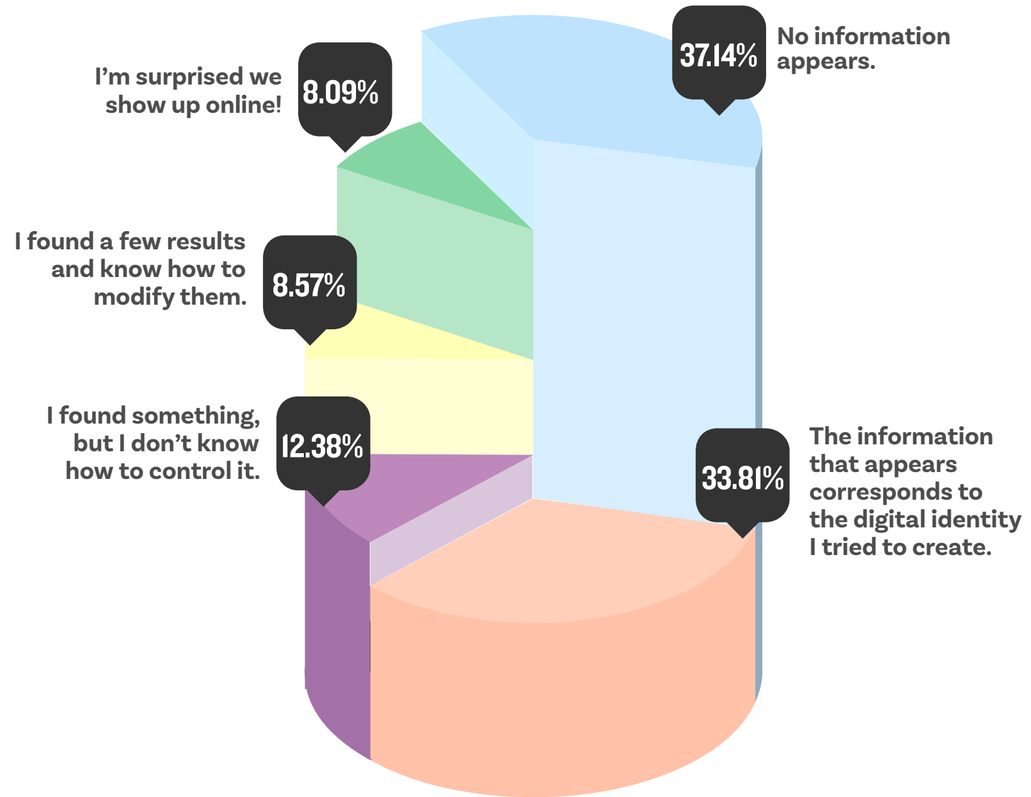
– Study participant.

Graph 16. WHAT BEHAVIORS DID YOU HAVE WHEN YOU STARTED USING THE INTERNET FOR YOUR BUSINESS?



DIGITAL CONTENT CREATION

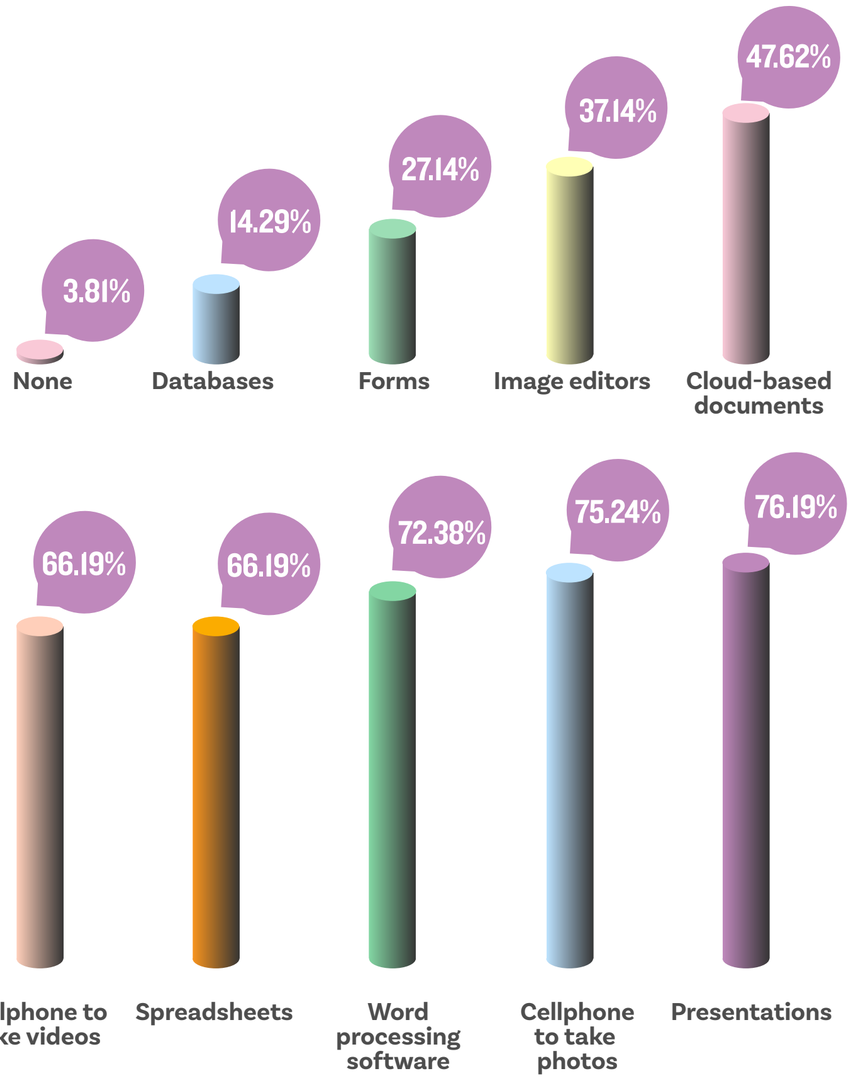
Graph 17. WHAT RESULTS COME UP WHEN YOU SEARCH FOR YOUR BUSINESS ONLINE?



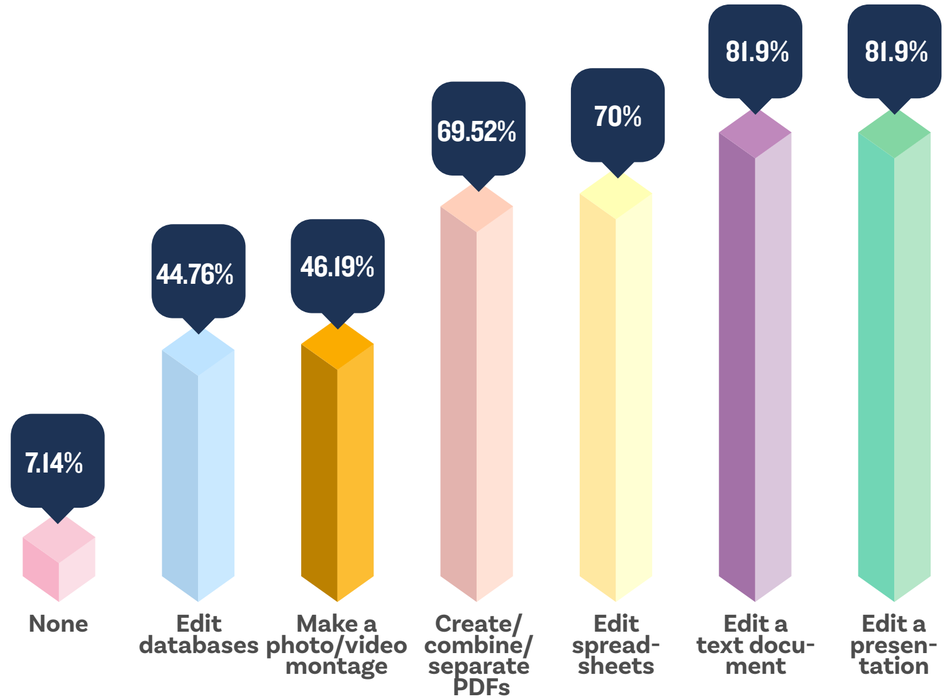
"We ran the business the old-fashioned way, using a notebook to write things down. Towards the end, we had the idea of using a digital platform, but at the beginning, we were all very cautious with our cellphone data—we were students. We just didn't think like that."

– Study participant.

Graph 18. TOOLS MOST FREQUENTLY USED TO GENERATE BUSINESS CONTENT



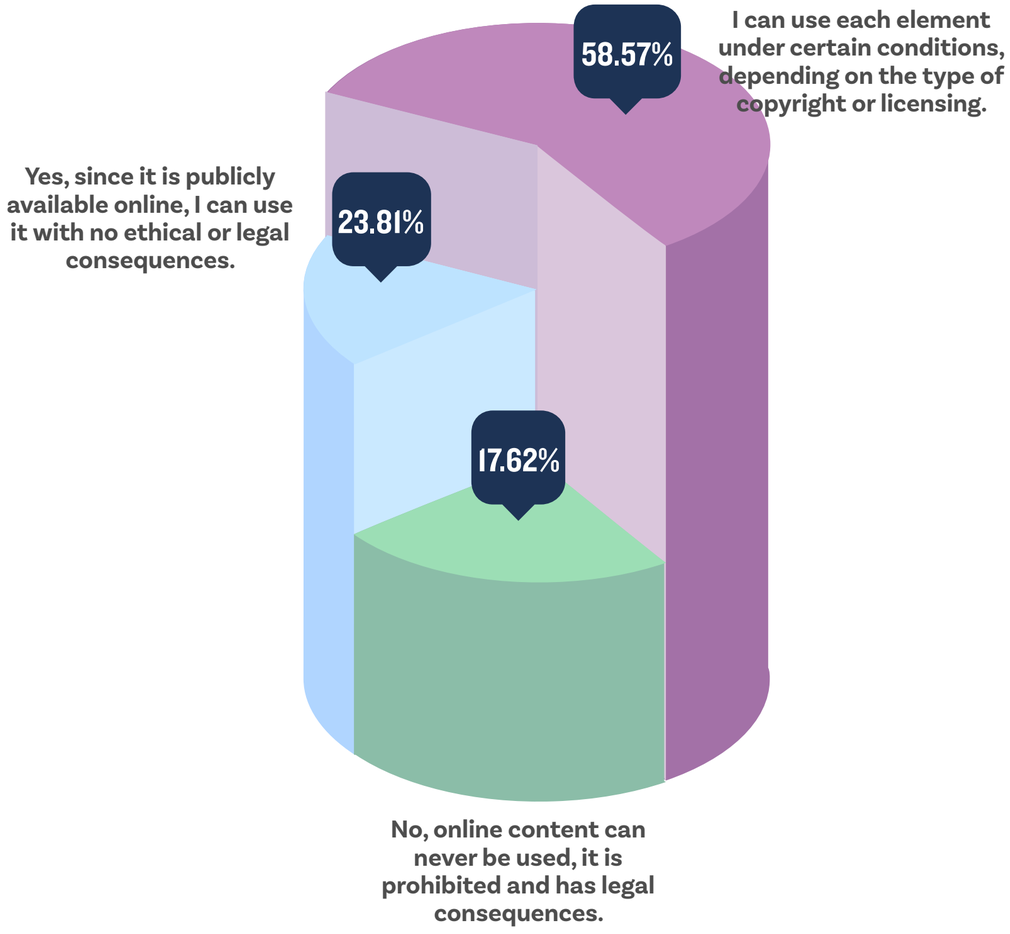
Graph 19. WHAT ACTIONS COULD YOU IMPLEMENT WITH EXISTING CONTENT?



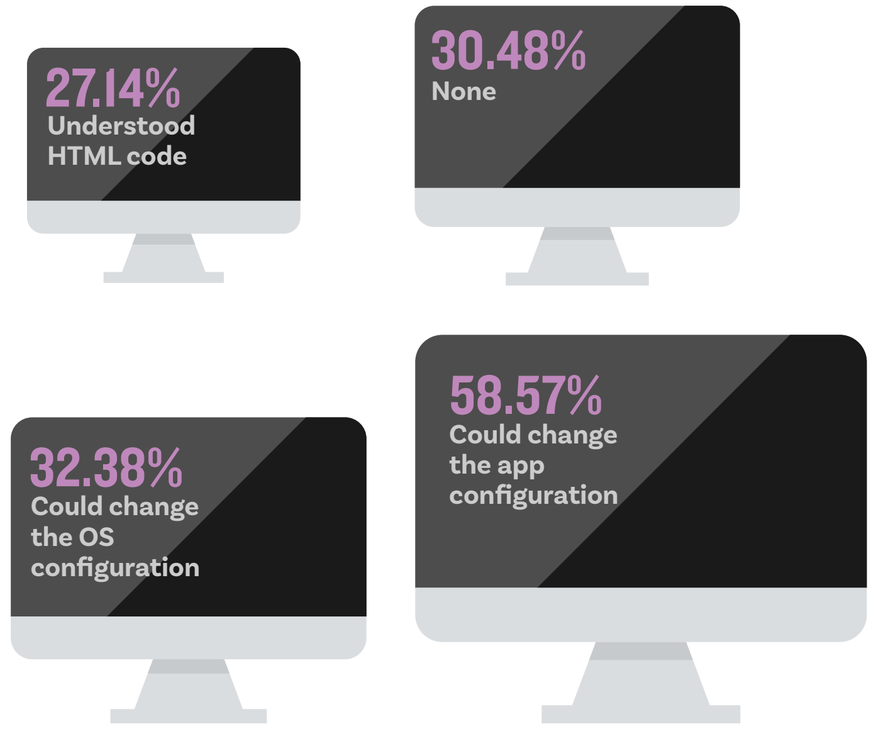
We identified a relevant area of opportunity area in terms of the use of technology to complete procedures at public or private agencies, which is a result of the lack of competences, as well as the lack of digital infrastructure at the same agencies that are responsible for the procedures. Half of the survey respondents reported that they used the Internet to search for the phone number or address of the agency, while only 3 out of every 10 respondents said they completed all procedures possible online. Only 6.67% of respondents said they did not know how to complete procedures online.

In terms of digital etiquette, half of survey respondents said that they tried not to write in all capital letters because it was synonymous with shouting, while 45.71% said that when they sent an email to numerous people, they used the BCC field (blind copy) to protect the personal information of recipients.

Graph 20. DID YOU USE WHATEVER IMAGE, TEXT, OR VIDEO WAS AVAILABLE ONLINE?



Graph 21. ACTIONS THAT THE ENTREPRENEUR CAN TAKE ON A COMPUTER



Another area of opportunity identified was the development of the entrepreneur's digital identity. As part of the research process, respondents were asked to search for the name of their business: 37.14% of respondents indicated that they found no information about their business online.

In terms of those who did find information about their business online:

- 33.81% stated that the information corresponded to the digital identity they sought to create.
- 8.57% found published results they did not expect but were able to modify.
- 12.38% found results they did not expect and did not know how to control the information.
- 8.09% were surprised to find their business online.

The tools most frequently used to generate content to promote a business are: PowerPoint or Impress to create presentations, a cellphone camera to take photos or create videos, word processors, and spreadsheets.

When asked about actions the respondents could implement using pre-existing content, respondents demonstrated a high level of competence. Only 7.14% said they did not know how to implement the proposed actions.

Most respondents were aware that the use of images, text, or videos found online depends on how these elements are licensed (58.57%); however, 23.81% said that online content can always be used with no legal or ethical consequences, while 17.62% responded that all use of online content is prohibited and will incur legal action.

"If I saw an image I liked, I took it, I didn't care. I even used songs for some videos and I just found out that you can only use 15 seconds of a song without having to pay royalties. I didn't know that. Maybe I did do something illegal."

– Study participant.

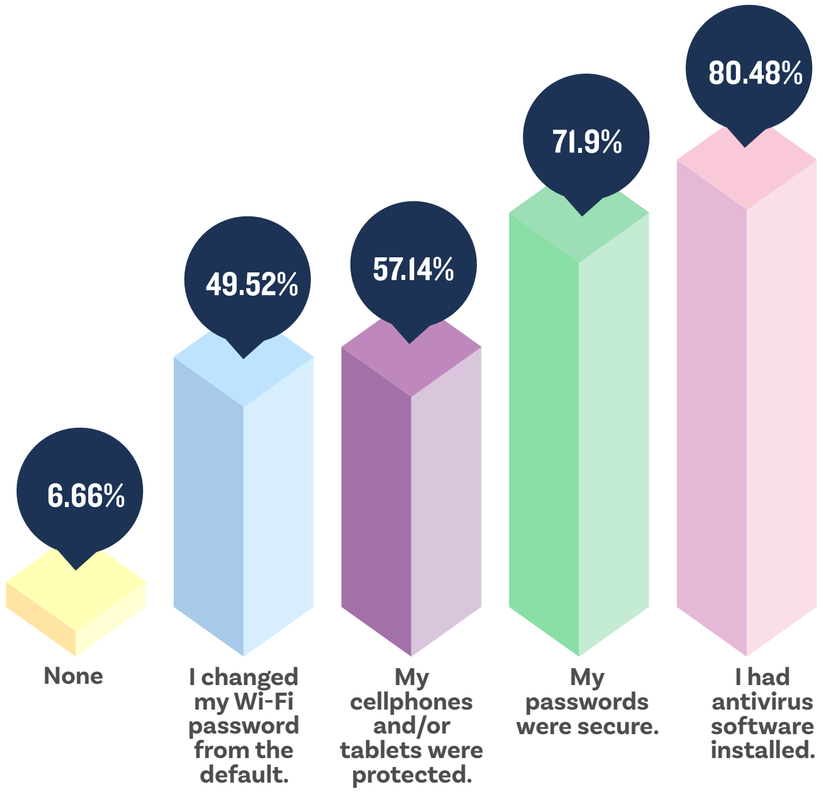
"I had all of that knowledge about copyright when I started my business, but I would have liked to have known that in school, in university, high school, or middle school. It helps you avoid problems, knowing that you have to register your company, brand, prototypes, knowledge."

– Study participant.

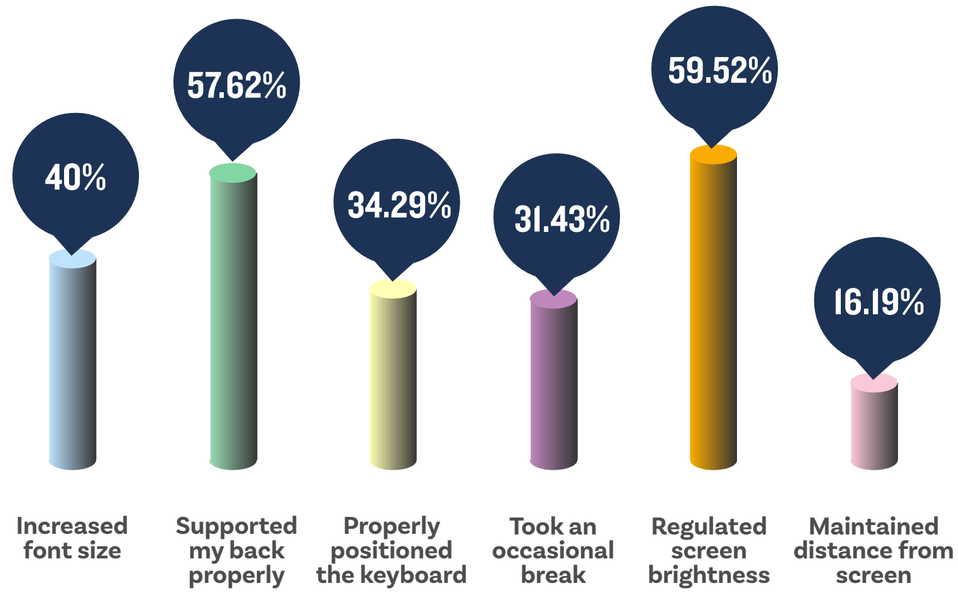
When evaluating the actions respondents were able to carry out on their computers, 58.57% were able to change the configuration of their applications, 32.38% said they were able to change the configuration of their operating system to adapt it to their needs, 27.14% affirmed their ability to use HTML to modify a website or blog, and 30.48% said they were not able to do any of the three aforementioned actions.

Seguridad

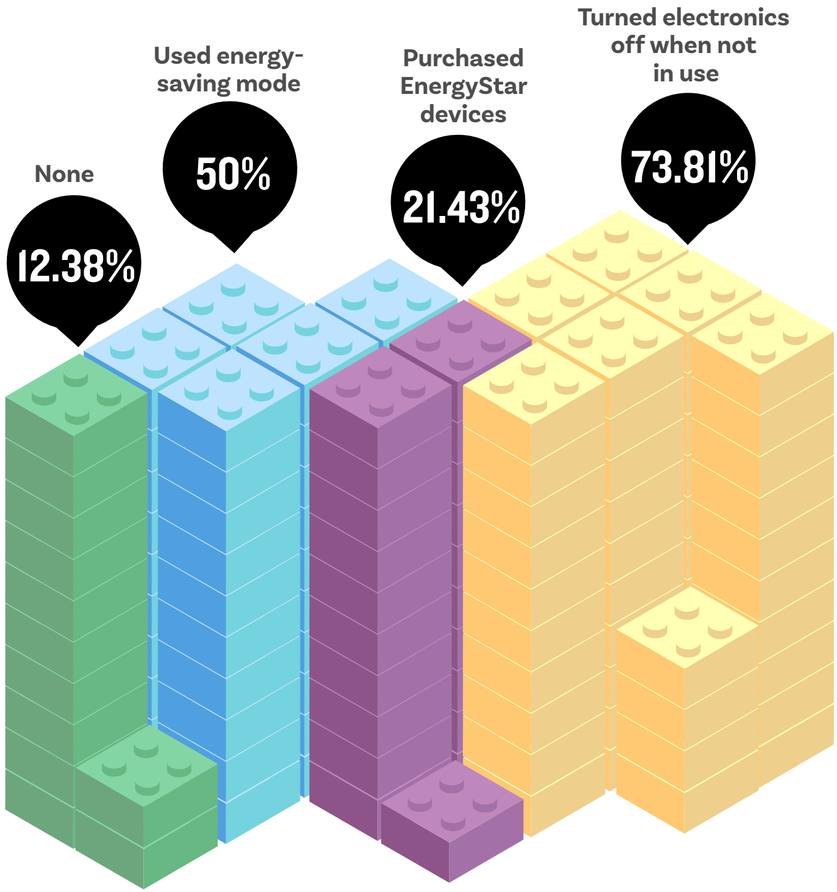
Graph 22. MEASURES TO PROTECT BUSINESS DEVICES



Graph 23. HEALTH MEASURES FOR COMPUTER USE AT WORK



Graph 24. ENERGY-SAVING MEASURES



“I think that safety is a serious topic—every month or month and a half I change all my passwords, review my networks, and delete and block people. I’ve never been hacked or anything, but I know people close to me that have had their information stolen.”

– Study participant.

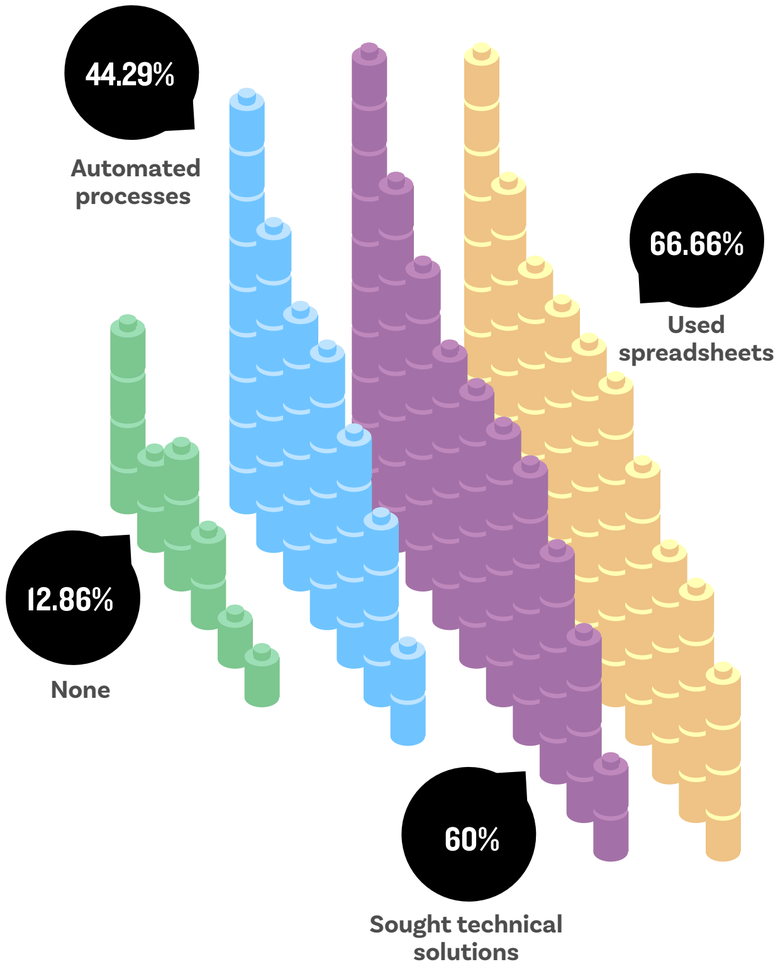
In terms of measures intended to protect business devices, a high level of competences associated with safety were revealed: 80.48% use antivirus software; 71.9% used passwords that included upper- and lowercase letters, numbers, and non-alphanumeric characters; 57% protected their devices with a PIN, password, or pattern; and 49.52% changed their Wi-Fi network password from the default. Only 6.66% of respondents said they did not take any of the previous safety precautions.

The health measures implemented most frequently when using a computer at work were: regulating the screen’s brightness and contrast (59.52%); using chairs for back support, especially the lower back (57.62%); and increasing the font size to make text larger (40%).

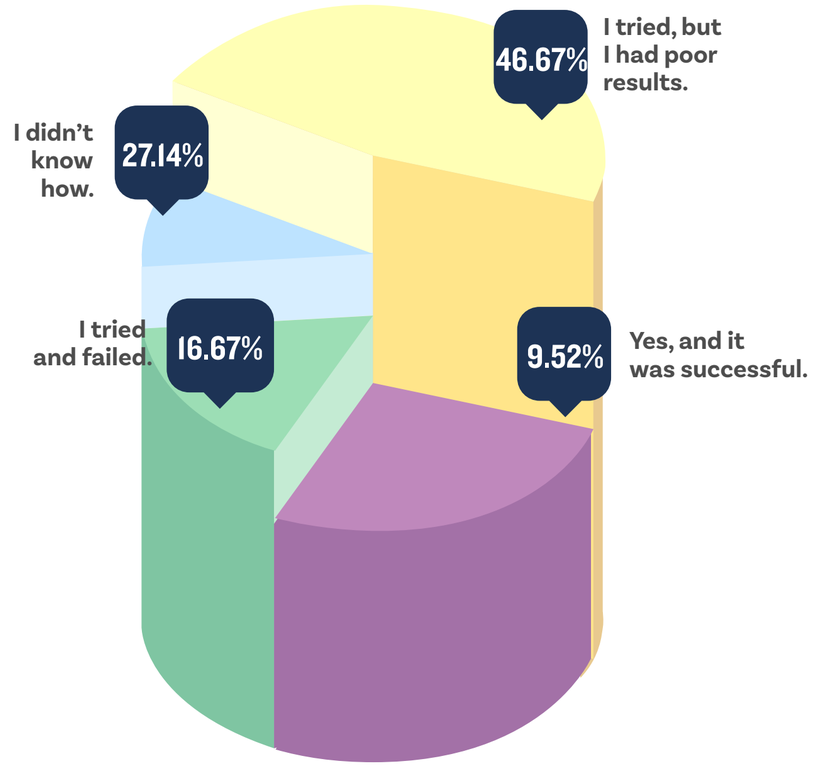
With respect to energy-saving measures, 73.81% of respondents affirmed that they turn devices off when they are not in use, 50% configured energy-saving settings on their devices, 21.43% purchased energy-saving equipment, and only 12.38% said they didn’t take any measures to save energy.

Problem solving

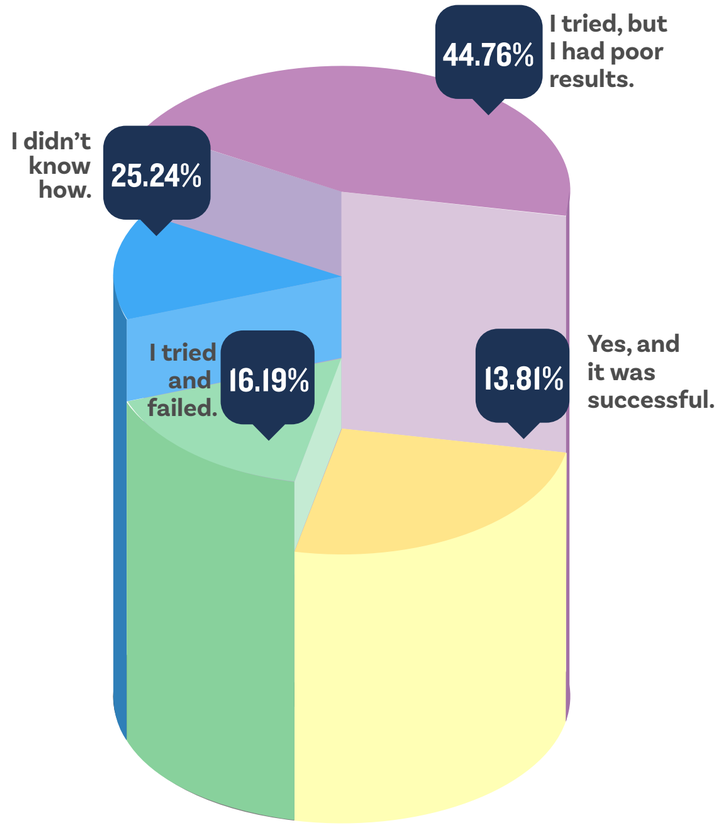
Graph 25. USE OF TECHNOLOGY TO SOLVE PROBLEMS OR IMPROVE BUSINESS PROCESSES



Graph 26. DID YOU TRY TO SELL YOUR PRODUCT OR SERVICE ONLINE?



Graph 27. DID YOU TRY TO ADVERTISE YOUR PRODUCT OR SERVICE ONLINE?



"On Facebook, we had a business page were we would publish flyers or images of our products; we invited people to like the page. Afterwards, we invested a little in advertising, but no one explained anything else to us. We segmented our target market based on the market segmentation we implemented in our store. We applied the same thinking to our online efforts. We focused on women between the ages of 20 and 50 that were located in our city. Maybe I could have developed a better strategy for social media."

– Study participant.

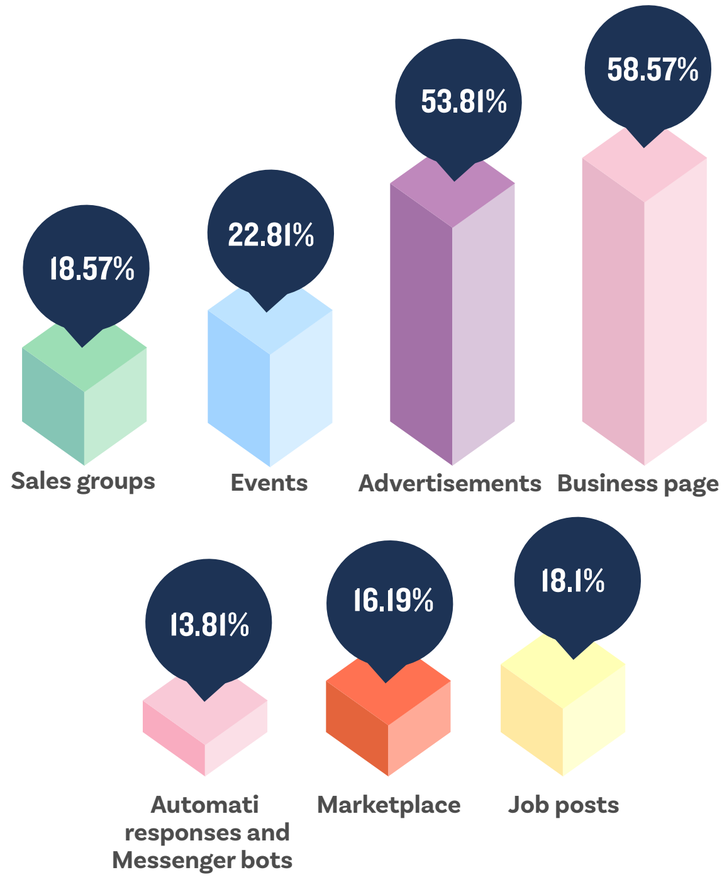
In terms of using technology to resolve business challenges, 66.66% reported that the tool they used most often was spreadsheets to keep track of billing, budgets, and data analysis In second place was using search engines to find technological solutions to business problems, with 60%. Task automation came in third place, with 44.29%.

When asked about selling products or services online, only 9.52% of respondents said they had been successful, while 46.67% said they tried but with poor results, 16.67% tried to sell online and failed, and 27.14% said they did not know how to sell online.

These numbers are consistent with the responses regarding the use of advertising. 44.76% of respondents said they tried to advertise their product or service online but had poor results, 16.19% said they tried and failed, while only 13.81% stated that online advertising had a positive impact on their business. A quarter of respondents said they did not know how to use online advertising.

The Facebook tools most frequently used by respondents were:

Graph 28. THE FACEBOOK TOOLS MOST FREQUENTLY USED BY RESPONDENTS WERE BUSINESS PAGE, ADVERTISEMENTS AND EVENTS



The percentages above do not total 100%, as respondents were able to select multiple responses.

“I was one of the pioneers of Facebook campaigns. I was in Queretaro at that time. I had to think about people’s profiles, if they are architects, housewives, what you want to communicate, what you want to say, what campaign, what information, and then evaluate if it had a good impact. There were people who came and told me: ‘I saw the photo from a friend of a friend of a cousin of a neighbor...’”

– Study participant.

“Technology is like a job: if you define your role well, you can develop a good strategy and consolidate it over time. Out of desperation, I did anything, trying to move forward blindly, so if something worked, I didn’t know what or why because I was doing so many things that I didn’t know what was useful. First you have to define your goals, then you have to take a basic training course on social media or the tools you will use to understand what to do, how it will benefit your business, and how to incorporate it into your efforts. The point is to give yourself time to measure, sometimes we get desperate and think that the business should work in 15 days. You have to give it time to mature, to see if the technology you are using is right for your industry.”

– Study participant.

Conclusions and recommendations

The recommendations proposed here are focused on developing digital competences in Mexican entrepreneurs. It is worth mentioning that increasing digital competences increases economic growth and positions Mexico as a country that is transitioning from an efficiency-driven economy to an innovation-driven economy.

The following recommendations are not directed towards specific actors; rather, they are presented so that they can inform the design and integration of comprehensive policies within the corresponding sectors.

Study the role of business incubators. The evidence presented in this study shows that entrepreneurs who participate in business incubators have a higher level of digital competence. Consequently, we believe that further study of different business incubation methodologies is essential in order to understand how they promote digital competences in entrepreneurs, whether directly or indirectly. We recommend mapping the best practices implemented by incubators in this field.

Promote the use of self-evaluation tools among entrepreneurs. Online self-evaluation tools allow business founders to understand their abilities across various digital competences. A good example is the LSMA online diagnostic tool, developed in Northern Ireland. Additionally, we suggest that these assessment tools also offer entrepreneurs information on where they can receive training on the competences they need to further strengthen or develop.

Facilitate access to online education for digital competences training. Experience has shown the impact of simplifying current and future entrepreneurs' access to online training resources on digital competences. For example, the Athens University of Economics and Business recently launched an online course on digital entrepreneurship. In France, the National Conservatory of Arts and Crafts developed a series of courses targeted to students interested in gaining digital competences in the French-speaking world.

Facilitating access to online courses means more than simply ensuring that they exist; it also means ensuring that they are high quality, evidence based, and financially accessible for entrepreneurs who normally prioritize investing in their business over investing in training.

Incorporate digital competences into curriculum. A lack of digital competence limits educational opportunities and professional development, which is why it is important to acquire these competences from a young age. We propose incorporating them as an obligatory element of the elementary and secondary school curriculum. As technology rapidly evolves, the digital competences required to use it must also evolve, and the school curriculum should reflect this rapid evolution.

Provide digital competence education to adults. This includes a broad range of skills for digital competence, including basic ICT skills for work and personal life, continuing education, and training in the competences needed for entrepreneurship.

Understand and measure digital competences. More work is needed to create a shared language that helps improve our understanding of digital competences, above all in terms of research, education, training, and the workplace. This will make it easier for citizens and entrepreneurs to understand what it means to be competent in the digital era and how these skills are relevant for their businesses and their lives.

Create tripartite relationships between government, society and private initiatives. This research has shown that the development of digital skills has a positive impact on entrepreneurship, education, and as a consequence, on economic development. Therefore, it is essential that government institutions collaborate with Facebook and other digital platforms in the development of public policies and programs that allow access to digital skills and tools to be scaled up. Teamwork between government, society, and private initiatives is essential to increase the digital skills of entrepreneurs in order to support the survival of their businesses and the growth of the Mexican economy.

“I see a big difference between people who are not taking advantage of digital trends and new tools and those who are using them (the latter tend to have a more agile vision of work and are able to execute their ideas). I don’t think that Millennials are more capable of doing the work, they are just more up-to-date. I don’t think age matters.”

– Study participant.

“If I had understood the power that technology gave me, I wouldn’t have spent all my capital on renting a space. Instead, I would have spent it on training, I would have spent my money differently.”

– Study participant.

“After my first business experience, I think that technology and digital competences are fundamental to success.”

– Study participant.

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