

quid NEWS

THE POST-PANDEMIC ECONOMIC RECOVERY VIA DIGITAL



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| FATHER'S DAY

Founding Fathers of Artificial Intelligence

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Quidgest's teams have one main goal in mind: help our clients achieve excellent efficiency and business results by implementing truly impactful technology. Our clients are empowered by our pioneering artificial intelligence-driven software which enables them to pursue a Composable Enterprise approach and develop more with less resources. If you are capable and enthusiastic about bridging the digital divide while also looking forward to expanding your knowledge and developing your career, we are looking for YOU!

DATA PROTECTION SYSTEMS
CONSULTANT

GLOBAL GO-TO-MARKET
MANAGER

SOFTWARE ENGINEER

PRODUCT SALES GROWTH
MANAGER



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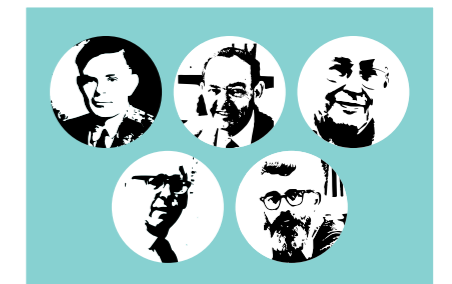
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2024: 80% of technology products and services will be built by those who are not technology Professionals

FATHER'S DAY

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Founding Fathers of Artificial Intelligence





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Upskilling & reskilling for a competitive future

Technology has occupied a critical space in the last year and a half. The pandemic accelerated the digitalization of many traditional businesses, which depended on the online world to continue operating.

As predicted at the G20 meeting in early 2021, the economic recovery will be made through the digital revolution (the one we mention is needed for more than a decade). Already, McKinsey & Company reveals that this revolution is underway at an unprecedented pace: according to a study by the consultancy, the share of digital-based products in companies has accelerated in seven years.

This is the central theme of this issue of QuidNews: the post-pandemic economic recovery via digital. We know how important it is for companies to work more efficiently and how this can be translated into higher profit margins and thus more room to grow, hire more people and take the Economy to new heights.

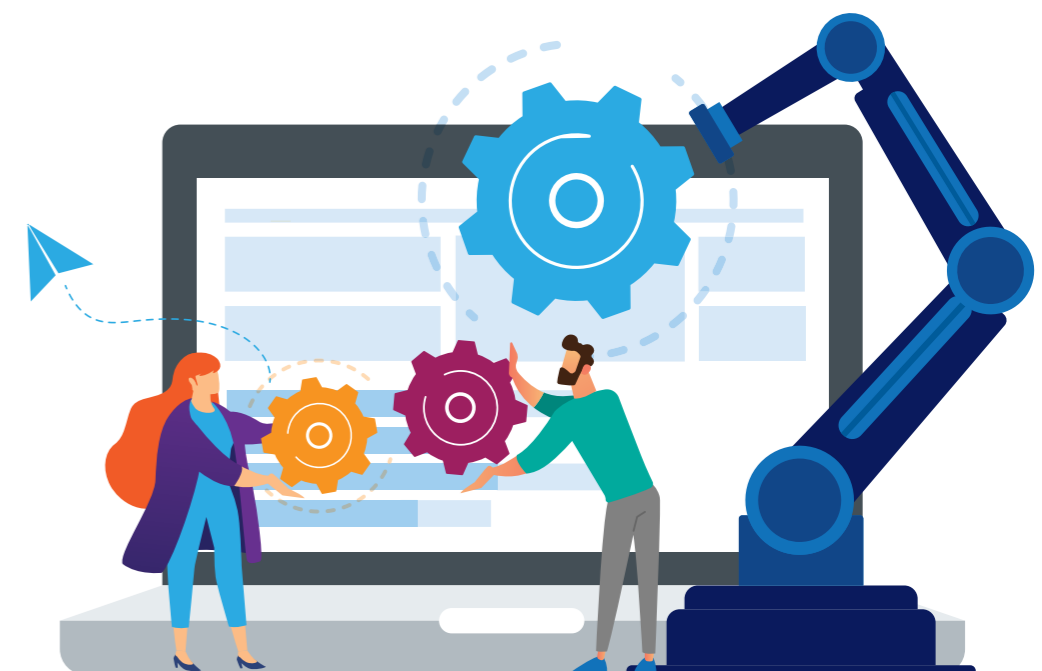
However, we must forget people. Digitalization brings automation of jobs, which in turn translates into unemployment. So even though OECD figures show that employment will have increased between 2012 and 2019, jobs with the highest risk of automation will start disappearing.

For this reason, we must equip people with low education or who have positions with high potential to be exchanged for robots or artificial intelligence with skills that ensure they remain relevant in the labor market. Therefore, upskilling and reskilling are buzzwords.

This is one of the reasons why we have invested in the Quidgest Academy, a vehicle through which we support people to become Genio full-stack developers in a short period, in order to join Quidgest or one of Quidgest's clients, generate more value to the organizations they are part of or create their own business.

Digitalization is part of the recovery plan of many countries - including the most developed ones. However, this transition needs people. So let's look at change as a vehicle to transform businesses and make the skills of our human resources more resilient to crises and changes in the labor market

CRISTINA MARINHAS | CEO at Quidgest





30 YEARS OF GENIO, GENIUSES AND INGENIOUSNESS

1991 was a crucial year in the universe of technology. A couple of years after presenting his revolutionary proposal to CERN, Tim Berners-Lee launched the first website on the Internet, one of the few inventions that revolutionized the world on countless fronts.

In this same year, the tool responsible for developing hundreds of projects worldwide and the considerable increase in programmers' productivity was born. We are talking about GENIO, the platform for modeling and automatically generating information systems. Almost as if by magic, this artificial intelligence-driven tool can turn an experienced developer into a team of a dozen people.

Three decades separate the beginning of the Quidgest platform's journey to the present. We have survived the so-called "Artificial Intelligence Winters" (times that result from the hype around artificial intelligence and marked by decreased funding), changed the programming languages of GENIO, and helped organizations in various industries find in technology an ally to increase the efficiency of their operations.

During this long period, we kept our eyes on the future. Even though the vast majority of companies in the IT market opted for the old ways of developing software, we remained convinced that GENIO was the future. As a substantial part of the engineering and technical fields had found faster ways to do

their work, software engineering preferred to remain stagnant - too many resources for too few results is the motto in this static universe.

It is fair to say that, for a long time, we felt like outliers in a world where everyone spoke the same language, and we refused to communicate in the same way. Suppose we can say that there is a thin line between GENIO and insanity. Some understood our vision and supported us from the beginning. Others did not believe that the path of modeling, automatic code generation, and artificial intelligence was possible. We do not blame them since using fewer resources to get more results seems to be "insanity".

Fast forward to today, and we can say that the perception regarding the way we develop software has changed.

The fact that there are not enough human resources in the market was a warning sign - there is a deficit in the order of hundreds of thousands of developers. As Carlos Costa, Marketing & Partnership Development Manager at Quidgest, explains in one of his articles, "I have 200 programmers, and I need 300!" - a CIO friend of mine said to me some time ago. "Wrong. You need 100!" - I replied." We don't need more people to develop more; we need better tools to increase productivity.

The pandemic was another factor that fostered this change. This past year, business' and public entities' leaders felt the need for the pressing digital transformation more than ever this past year, and platforms like GENIO were and (continue to be) able to quickly support business and public leaders in this change.

It has also been 30 years of research around GENIO. We have accumulated intellectual property now embedded in the platform and respective models created on it over this time, resulting in an immeasurable qualitative leap - from the 1990s generating C++ for Windows 95 to today's ability to automate 98% of a solution in any of the latest languages.

The path we have traveled so far would not have been possible if we did not have support. Among customers and partners, we have counted on travel companions who supported GENIO's growth and helped us overcome challenging times.

It is also important to note that GENIO only grew

due to our teams' dreams and hard work. They developed a culture of resilience, autonomy, responsibility, diversity, and innovation. Together, they form a highly motivated and mission-conscious group.

To all the people who, in some way, have been part of this history, have been with us for years, or have just arrived: thank you very much.

To finish, let's rewind to the beginning. To the year GENIO and the first website were born.

In the early days of the Internet, a one-gigabyte file took nearly 150 hours to transfer with the 14.4 kilobits per second modems. By this time, a highly experienced programmer was able to write three characters per second.

Today, with the arrival of 5G, the same one-gigabyte file is expected to take only one second to transfer. Can you guess how many characters per second a highly experienced manual programmer can write today? Three.

Our vision for GENIO has always been to revolutionize software engineering while adapting to the latest technologies needed, such as programming languages, to ensure its constant evolution.

Contrary to current thinking that information systems are like immovable buildings to which we can only make minimal changes to ensure its integrity, GENIO presents itself as a building with solid foundations but capable of constant mutation to adapt to the changes required by users and their markets.

We have today the only model-driven platform capable of assembling and disassembling business capabilities/functionalities almost instantaneously. Given its moldable and constantly evolving nature, we can say with complete confidence that a GENIO-based organization will never suffer from technological obsolescence problems.

This revolution is already happening. Should we count on you? ■

MODELLING: THE ROLE OF THE DEVELOPER OF THE FUTURE

On April 8, Quidgest organized another MeetUp. In this edition, the central theme was the role of the developer of the future. The subject, which in the eyes of Quidgest is relevant to be discussed not only by technology companies but also by companies that purchase solutions, came at a

time when programmers continue with deficient productivity levels.

To go against the paradigm of the need to work long hours to present few results, something that has already been contradicted in various industries, tools that boost the ingenuity of programmers, as is the case of Genio from Quidgest.

The conversation had the participation and experience of Professor João Álvaro Carvalho, who explained how low-code and model-driven platforms might change the profile and roles of developers.

The video can be seen in full on Quidgest's YouTube channel. ■

QUIDGEST OFFERS SOFTWARE DEVELOPMENT COURSES TO 20 WOMEN



To mark International Women's Day, Quidgest developed an initiative to offer software development courses to 20 women.

The campaign, which ran from March 8 to 12, resulted in the sharing of several testimonials on the social network LinkedIn about the importance of having more women in the universe of technology - something present in the reality of Quidgest, which has about 40% of women in its workforce but intends to increase this number in the upcoming years.

Cristina Marinhas, CEO of Quidgest, indicates that "we have many women on the consumption side of technology, but not as many as we would like on the development side. This balance is critical for IT organizations, which build many of their products and services for female target audiences. Plus, given the stability these more technical jobs provide, it's also a way for us to close the gender pay gap."

The participants received a remote G_Developer course at Quidgest Academy. ■

"DA PEDRA À TELA" ("FROM STONE TO CANVAS") - QUIDGEST AUDITORIUM RECEIVES AN EXHIBITION BY CARLOS EIRÃO



Quidgest's auditorium had the pleasure of hosting "Da Pedra à Tela" ("From Stone to Canvas"), Carlos Eirão latest painting exhibition, between June eight and July eight.

The dozens of works of the painter with decades of experience, displayed on the walls of the ground floor of the Quidgest headquarters, aimed to lead the viewers to reflect on the proximity of sculpture and painting, representing the contiguity of two complementary art forms.

Following all the rules and advice of the Portuguese General Directorate of Health, the inauguration was attended by dozens of friends, family members, and those interested in Carlos Eirão's latest set of works.

Carlos Eirão (1961-2021) was born in Penalonga, Vila Real. Studied at the Faculty of Fine Arts of the University of Lisbon – Degree in Visual Arts and Painting and Master's Degree in Theories of Art. Since 1982, he has held more than 80 group exhibitions and more than twenty individual ones. Among the distinctions are the Editing Prize - "V Bienal de Engraving da Amadora", 1998; the Honorable Mention - "VIII Salão da Primavera", 1998, Casino Estoril Gallery and the Honorable Mention - "III Small Format Painting Biennale, Joaquim Madeira Award", 2007, Moita. He's work is represented in several collections, private and institutional. ■



QUIDGEST MENTIONED AS AN EXAMPLE VENDOR IN 2021 GARTNER® INNOVATION INSIGHT FOR COMPOSITION TECHNOLOGY REPORT



Quidgest was named by Gartner as an example vendor in the 2021 Gartner Innovation Insight for Application Composition Technology ⁽¹⁾.

According to Gartner “by 2023, 60% of mainstream organizations will list composable enterprise as a strategic objective and will use an increasing number of packaged business capabilities (PBCs)” ⁽²⁾ Such interest follows the burden full-scale applications – such as traditional ERPs and CRMs – pose to organizations. Their size, complexity, inflexible user experience, and internal entanglement result in high costs, customized applications that are difficult to maintain, and, most importantly, slow innovation. All this adds up to a monolithic effect that acts as a barrier to an effective digital transformation and composable enterprise. Opposed to this bulky reality, composable solutions meet the business needs embodied by their multi-experience interfaces and take advantage of an advanced set of technologies.

According to Gartner, “A composition technology that is well-designed, implemented and managed, and delivered as an integrated technology set, will improve collaborative application development and execution by potentially providing the following benefits:”

1. COLLABORATIVE COMPOSITION

It provides a foundation for teams of business and IT people (whether these are fusion teams or otherwise) to collaboratively work together in initiatives around composable business applications.

2. BUSINESS AGILITY

Different teams and personas can quickly develop new applications by reusing, packaged business capabilities (PBCs), full applications, process models, user experience (UX) elements, and other components available. This will dramatically accelerate time to value for innovations and increase business agility.

3. MANAGED TRACKING, GOVERNANCE, AND OPERATIONS

Enabling teams and individual users to compose and customize applications poses formidable governance and operational challenges. Therefore, the composition technology set must include functionality that enables curators to track teams’ activity; enforce governance, security, and compliance policies; and put in place integrated administration, monitoring, and management.

4. SUPPORT FOR PRODUCT-CENTRIC APPLICATION DELIVERY

In product-centric delivery, individual business capabilities are released and maintained independently of the rest of the application. Well-designed PBCs maximize autonomy by encapsulating the full life cycle of the business entities they represent, and by minimizing external dependencies. Having autonomy of PBCs supports product-centric delivery by reducing component change and replacement friction.” ⁽¹⁾

Since Quidgest has been developing composable technology for more than 30 years now, we believe all of our clients were early adopters of this approach. ■

⁽¹⁾ Gartner, “**Innovation Insight for Application Composition Technology**”, Massimo Pezzini, Yefim Natis, Paul Vincent, Saikat Ray, Published 31 March 2021.

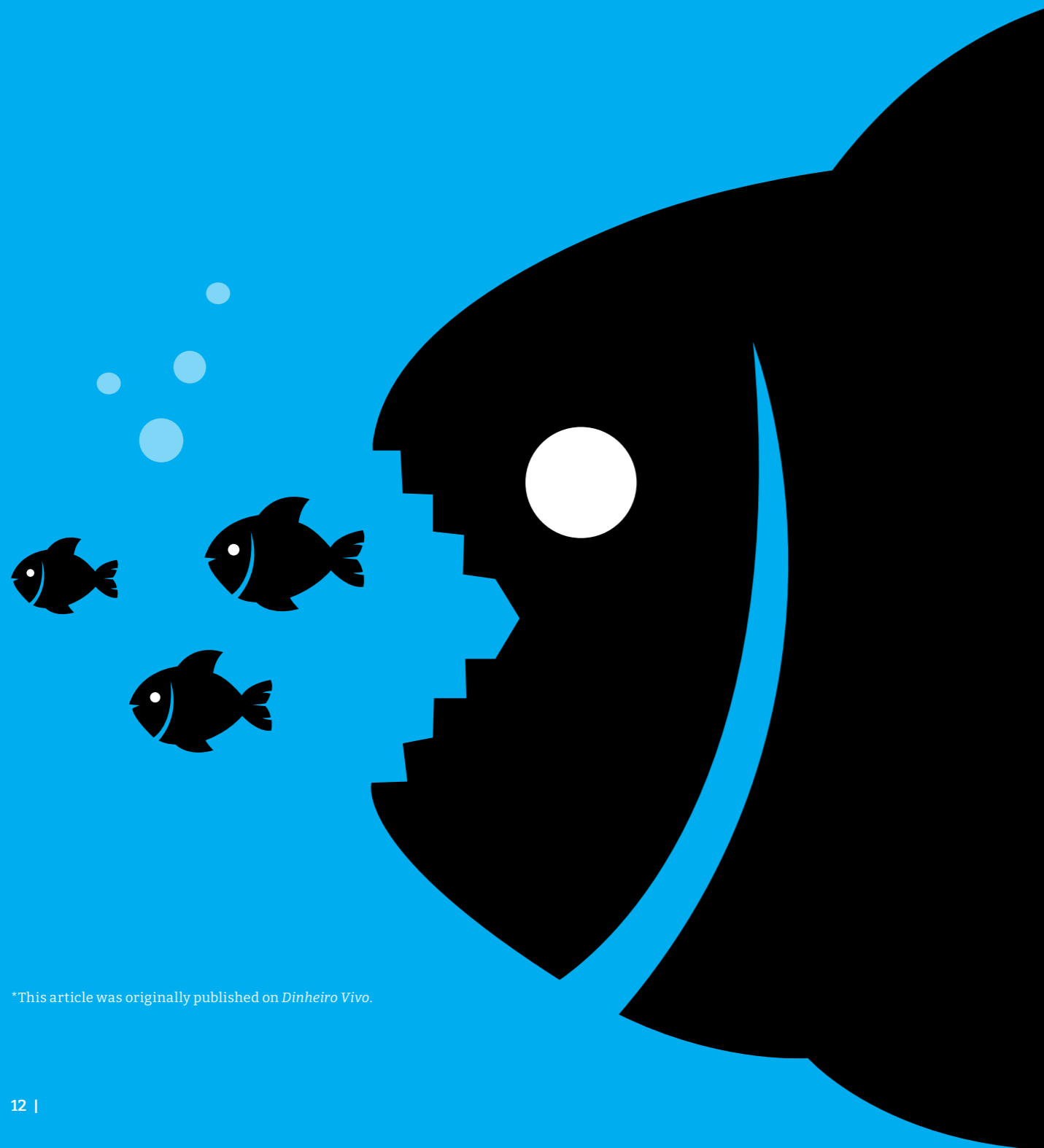
⁽²⁾ Gartner, “**Innovation Insight for Composable Modularity Of Packaged Business**”, Yefim Natis, et al, Published 11 December 2019.

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THE NEW EUROPEAN WAY FOR DIGITAL MARKET

MARIA MARTINS | Global Partnership Growth - Quidgest



At the end of 2020, the European Commission proposed new laws to regulate digital markets through direct impositions on the tech giants. Although the commission has not yet named specific companies, it certainly talks about the small group that controls a large slice of the market.

Although it may be counterintuitive since introducing new rules usually impacts Small and Medium Enterprises (SMEs) the most, the Digital Services and Markets Laws will help organizations of this size be more competitive.

Such a change represents excellent news for Portugal, as most of the companies in our business fabric are small or medium-sized and often need digital platforms to make themselves known internationally.

Digital markets are powerful in terms of efficiency but - in the long run - can easily lead to monopolies by the giant gatekeepers - digital intermediaries that control a large portion of the market.

Here's the problem: as these giants grow and attract more and more users, they gain the opportunity to take a "toll" on companies that want to thrive in a particular geography and industry. For example, the bigger a social network is, the more attractive it becomes to users and, consequently, the greater the need for companies to pay to reach their target audiences.

The need to impose rules on these players grows at a time when the finger has been pointed at the FAMGA group of companies (Facebook, Apple, Microsoft, Google, Amazon) for practices that, among other things, aim to eliminate competition. However, it is important to note that the aim is not to alienate the major gatekeepers of digital. Instead, we must find the balance in this relationship. SMEs need these big tech multinationals to grow (the reverse also applies), as they have two points that are key for companies operating in digital and that do not have many resources: they have a large consumer base and

are a vehicle for more accessible and low-cost internationalisation. We should not want to eliminate the digital giants from the equation but rather find ways to work together.

We should create fairer game rules through transparency and, instead of fighting for survival, fight for cooperation for growth. These new laws are a start on the path that needs to be taken between big corporations and smaller companies.

I believe that this initiative has tremendous potential to improve the performance of SMEs and that it is also crucial to standardise the rules between the Member States of the European Union, as there are currently 27 different sets of rules, which can be extremely complicated to deal with for an SME wanting to expand its operation. Finally, it should be noted that the new set of rules will also serve to address an ongoing concern about the positioning of our businesses in the digital world; and make the case that we must respect and protect our European values, such as our focus on privacy and security.

As it happened with the General Data Protection Regulation, currently adapted and adopted by several countries outside the European Union, such as the recent Brazilian case, this new legislative act may consolidate the positioning of our companies as examples to follow, helping us to stand out internationally and allowing us to set or influence the standards that operate in the brave world of technology.

*This article was originally published on *Dinheiro Vivo*.



THE POST-PANDEMIC ECONOMIC RECOVERY VIA DIGITAL

Dear reader, we are living at an unprecedented juncture.

While History books remind us of pandemics as far back as the 20th century, the one we are experiencing today, the SARS-CoV-2 virus, is the first to have such a profound transformative effect. We are now forced to work from home. Students are accessing classes via online conference rooms, and e-commerce has taken on a new dimension - just three of the many aspects that have changed in the ordinary life of our society.



At the epicenter of all the changes, we find a common denominator: the digital medium - an enabler of business continuity across many industries and a vehicle for what we have called the “new normal”. Admittedly, pre-pandemic trends revealed a transition to the digital economy in several sectors. Still, the entry of the virus catalyzed the adoption of digital products and services. Consulting firm McKinsey predicts that we have accelerated the adoption of digitally enabled products in seven years. Moreover, according to Bruno Horta Soares, executive advisor, and university professor, “IDC data indicates 65% of the economy will be digital by 2022.”

Digital technologies played a crucial role in holding up the walls of many sectors that previously relied on the physical presence of customers and gained new relevance in the post-pandemic recovery. More than a third of companies anticipate that the pandemic has had a permanent effect on the services or products they offer, as well as on supply chains.

In early 2021, the G20 summit strengthened this idea, making it clear that economic recovery will

have to be done through a digital revolution. In Europe, reports by the European Investment Bank share the vision that companies whose channels are digitized can better cope with difficulties.

“Digitized organizations are less likely to terminate jobs. They also pay better wages. Our study of digitization in Europe shows that digital needs are the foundation of recovery,” one of the articles published by the investment institution reads.

“Several difficulties we experienced in the initial phase of the pandemic would have been minimized if there had already been a more significant digital transformation of the value chain of our activities and businesses”, explains André Magrinho, deputy chairman of the AIP Foundation.

However, the report also shows that, in terms of digital adoption and investment in research and development in software, when compared to the United States and China, the Old Continent is far behind, something that hampered the performance of organizations in the most critical moments of the pandemic.



Several difficulties we experienced in the initial phase of the pandemic would have been minimized if there had already been a more significant digital transformation of the value chain of our activities and businesses.

ANDRÉ MAGRINHO
Deputy Chairman of the AIP Foundation



Digital has the unique power to dematerialize, automate and generate consequent efficiency gains from all the transformations that drive and empower the business fabric.

VANDA DE JESUS
Executive Director of Portugal Digital

THE OPPORTUNITY

Therefore, the current situation presents itself as a push for the countries and respective business fabrics that lagged in the digital marathon to finally invest in technology that makes their operations more resilient and ready to face an ever-changing future.

As Vanda de Jesus, executive director of Portugal Digital, points out, “digital has the unique power to dematerialize, automate and generate consequent efficiency gains from all the transformations that drive and empower the business fabric”. “All the [axels of organizational management] more routine and more repetitive are more easily ‘softwarizable’,” adds José Crespo de Carvalho, president of the executive committee of INDEG-ISCTE.

The boost via technology is one of the most relevant axes for the economic recovery of dozens of countries and their respective large organizations, which, in turn, translates into high public and business funds that boost this reality. Portugal and its renowned companies creating proprietary technology have a tremendous opportunity ahead of them. “If collectively we can combine efforts and develop spaces for strategic cooperation, between the business community, the education, science, and technology systems and the government and its institutions, the conditions will be created for Portugal to assert

itself internationally through the development of important features, namely as a platform of services and digital solutions to companies and global communications networks and transversally in a significant diversity of sectors and activities.

First, however, we have to bridge some collective strategy deficit to act proactively and gain market space”, explains André Magrinho.

Vanda de Jesus assures that “Portugal is safe, innovative, present in a competitive European economy and projecting itself in the world of technology, startups and digital” and adds that “according to the Tech Talent Insights report, by Hays Talent Solutions, Portugal is one of the most attractive European countries for companies to open and expand their businesses in the technological and digital area”.

Even so, for the creation of value to be lasting, “we cannot just be technology integrators of the large multinationals, be they European, American or Asian, nor should we just be resource providers for near-shore competence centers for large international companies that come to Portugal to hire cheap qualified labor, namely our computer engineers”, clarifies José Salas Pires, president of ANETIE - the Portuguese Association of Information Technology and Electronics Companies.



THE HURDLE

About the possible change in positioning regarding the hiring of highly qualified but cheap labor in Portugal by international companies, Crespo de Carvalho explains that we will only be able to reverse this reality when there is a “favorable macro framework” and that, currently, we do not have sufficiently “attractive conditions for our companies to take risks and for our talents to want to stay”. Questioned about how Portugal can use the post-pandemic recovery to position itself as a qualified technology supplier to the world, the president of the executive committee of INDEG-ISCTE tells us, “in all honesty, that we have very good things: good heads, good solutions, but, unfortunately, a legal and fiscal framework that discourages investment and the search for more and better. Additionally, our companies clearly lack the size. When pandemic loans were made, for example, nobody thought about the need to gain critical mass, which is fundamental to Portugal, and to be able to reach the world. These loans should have been based on the merger and concentration of companies to be granted. They were not. Another lost opportunity to create bigger and more solid companies”.

THE RISK

The transformation of public administration and business is certainly an opportunity to renew monolithic systems that no longer meet the requirements of the current era - software solutions that often become blockers rather than enablers to the smooth operation and service provided to stakeholders. Although it is an excellent opportunity to raise the service provided, Horta Soares points out that “in the post-pandemic there is a high risk of public institutions focusing on digital without committing to transformation, ending up digitalizing the current reality and not evolving towards a more citizen-centric public administration, capable of better optimization of resources and ability to respond to the risks of an increasingly connected context”. Therefore, it is vital that the strategy for the purchase of technology does not just involve solving current problems but is capable of quickly adapting to the increasingly accelerated and challenging environments that lie ahead. “It is important that the strategy involves equipping the most varied bodies with technology capable of adapting quickly - without the need to allocate dozens or hundreds of programmers to each change that is required,” explains Carlos Costa, director of marketing and partnerships at Quidgest. “In this sense, when buying technology, it is central that buyers think not only about the price of the acquisition but - even more importantly - about how much time and money the following changes will cost them,” he adds.

In the post-pandemic there is a high risk of public institutions focusing on digital without committing to transformation.

BRUNO HORTA SOARES

Executive Advisor and University Professor



Software automation is by far the best way to sustainability and to position ourselves competitively in this global market of great opportunities.

CARLOS COSTA

Marketing and Partnerships Director at Quidgest

CLIMATE ACTION

Alongside digitalization, we also find sustainability and climate action as axes on the priority agenda of many countries in the post-pandemic. These, in turn, are directly linked to technology - “one without the other does not work”, says André Magrinho. Technology is fundamental both for the digital transition and for the energy transition, as “in smart energy grids or in the intelligent management of data and knowledge, associated namely to artificial intelligence, to large databases, big data, where business intelligence tools are relevant, or even tools associated to digital health or e-government”, exemplifies AIP’s executive.

Digital tools have a high impact in boosting sustainability in several traditional industries. Jack Soifer, consultant, investor, and columnist in various media outlets, gives the example of civil construction. While construction sites generate between 30 and 33% waste in Portugal, “among the Nordics, this figure does not reach 18%”. The secret, according to Soifer, is the use of CAD/CAM systems with data from previous works. This way, it is “possible to adjust the project to the best use of materials”. It is also important to note that the use of digital tools is not restricted to civil engineers or professionals in charge of construction planning - “bricklayers, electricians, etc., have also invested time to understand how they can use these tools to speed up work and limit rubble”.

The focus on climate goals is evident among member states of the European Union (EU). In



recovery plans, the four significant economies have planned to invest over 80 billion euros in meeting climate objectives - Germany will lead 42% of recovery plans on this front; France (46%); Italy (37.5%); Spain (40%).

Carlos Costa recalls that “New technologies have a double aspect. On the one hand, they promote gains in productivity and energy and avoid a lot of pollution and environmental aggression. But, on the other hand, they also generate a lot of waste that is difficult to recycle and, in some cases, leave a heavy energy footprint. In any case, well designed, intelligent, and explainable software is usually a good solution”. And he underlines that “Of course, software automation is by far the best way to sustainability and to position ourselves competitively in this global market of great opportunities”.

RISK

THE NEAR FUTURE

Given that technology will be one of the central points of the whole transition plan for a more digital, sustainable, and resilient future, demand is expected to be substantially higher than supply. If in 2020 we had a shortage of 700,000 developers in Europe alone and we were living in so-called standard times, with the raising of new needs for the development of solutions, this value would grow abruptly.

In this sense, it is vital to change the paradigm that is still rooted in the industry: "if there is more demand, we need more manpower".

Instead of this, maybe we need better tools that drive developers faster in development and

empower experts from diverse fields to create technology solutions for the industries and sectors they know best.

This change is already happening in companies and industries at the forefront of using technology. According to Gartner, by 2024, 80% of technology products and services will be built by those who are not technology professionals.⁽¹⁾ This trend will grow due to artificial intelligence-assisted tools that promote code automation.

Technology, namely digital, will be at the center of the vast majority of economic recovery initiatives. And for economic recovery to be sustainable, development and future upgrades must also be sustainable. ■

⁽¹⁾ Gartner Says the Majority of Technology Products and Services Will Be Built by Professionals Outside of IT by 2024 (Press Release), Published June 14, 2021 www.gartner.com/en/newsroom/press-releases/2021-06-10-gartner-says-the-majority-of-technology-products-and-services-will-be-built-by-professionals-outside-of-it-by-2024



IMPACT OF THE PANDEMIC BY THE NUMBERS

5,7% is the forecasted change in global gross domestic product due to covid-19 in 2021
- Statista

76,69 trillion US dollars is the monetary GDP loss in best case covid-19 scenario
- Statista

11,6% increase of people living in extreme poverty in 2020
In 2021, estimates point that

771 million people are living in extreme poverty
- World Bank

+207 million Number of people that could be pushed into extreme poverty by 2030 due to the severe long-term impact of the pandemic
- UNDP

Remittances (money sent home by migrants) are forecasted to decline by **14%** by the end of 2021
- World Bank

1,38 billion students were out of school at the peak of the pandemic
- Forbes / Statista -

The equivalent to **255 million** full-time jobs were lost in 2020 (particularly high in Latin America and Caribbean, Southern Europe, and Southern Asia)
- International Labour Organization

4 trillion US dollars Estimated loss to the global GDP for the years 2020 and 2021 caused by the crash in international tourism
- UNCTAD

COMPOSABLE: THE UNKNOWN OPPORTUNITY FOR TRADITIONAL BANKING*

ANNA MUZALSKA | Fintech Solutions Manager - Quidgest

The pandemic has profoundly changed the way businesses communicate with customers. Digital channels have proven their importance, and organizations that have developed their technology in this direction have been rewarded by attracting new customers, driven by new needs to turn to online services.



*This article was originally published on *Dinheiro Vivo*.

The pandemic has profoundly changed the way businesses communicate with customers. Digital channels have proven their importance, and organizations that have developed their technology in this direction have been rewarded by attracting new customers, driven by new needs to turn to online services.

Banking has not escaped this shift. According to a report published by the World Bank, in late 2020, fintech companies experienced substantial growth in the first half of the year. Analysts consider this acceleration came about because of the way people started interacting with financial services.

The fact that fintech organizations grew abruptly during the pandemic is not only due to the fact that they are natively digital but mainly to the agility of their infrastructure. The time between ideation, development, testing, and bringing new products to market is a better-developed capability in fintech than in traditional banks. During the same period, they saw either their profits shrink or communicated losses.

Behind this agility are not better managers but better core technologies. Decision-makers at traditional banks predicted the changes just as well as fintech CEOs and strategists. However, no matter how good a driver is, we cannot expect to win a high-speed race driving a low-cubic capacity car that, as a matter of analogy, has a team that takes longer to change tires when necessary.

On the other hand, the same report published by the World Bank clarifies the difficulty that fintech companies have experienced in raising investment rounds in the future, which hinders future innovation initiatives.

In addition, traditional banking technology makes it difficult for operations to adapt to regulation, which is increasingly tighter and with more frequent changes, representing a burden on the operation.

This brings us to the first significant plus that traditional banking has over fintech: the ability to self-finance innovation initiatives. In addition, traditional banks usually beat them in three other areas: market trust, which already knows and recognizes the value of the brand; the considerable customer base, which makes the

launch of new products and their communication more effective; and the information and data already available on customers, which facilitates the design of new products that, through surgical predictive analyses, can anticipate needs and market penetration success.

A unique opportunity thus presents itself for established banks in the market to start adopting the agile modus operandi financial technology startups and attract new demographics, start a new, faster process of introducing new products attractive to the target audience and effectively retain existing customers.

To achieve such results, they must move away from cumbersome and costly legacy systems and adopt a composable approach - the essence of composable is the creation of businesses made of interchangeable blocks rather than traditional monolithic ones. A company based on this concept is the natural acceleration of the digital organizations we experience every day. It allows banks (and beyond) to deliver the resilience and agility that these very interesting times demand and accelerates the ability to respond to any necessary changes.

Suppose organizations are not able to keep up with market needs. In that case, they will be at the mercy of variables uncontrollable by cumbersome, slow systems, and, as a result, they will miss opportunities and fall behind their competitors.

Traditional banking has everything to succeed in this new scenario - it just needs modern tools that are compatible with the new strategic decisions and that allow long-term plans without technology being an obstacle to their realisation.

COMPOS SABILITY



BUILT TO CHANGE, (NOT) TO LAST

Our world changed fast. The pandemic brought a new perspective to the organization's flexibility.

Those who had systems flexible enough were able to cope with the changes that were needed to adapt. Adjust their businesses to keep serving the clients, introduce new products that met their target's new needs, and deploy mechanisms that made remote working possible.

Such changes were especially painful to traditional banks. The new social rules severely punished the ones heavily dependent on clients' physical presence in branches.

The "old-styled" financial institutions eventually adapted, but many opportunities to satisfy existing customers and attract new ones were lost. Why?

THE BURDEN OF LEGACY SYSTEMS

It was not a lack of knowledge about the social-economic conjuncture. Board and management teams were well aware of the situation, but

how could they follow market needs with a heavyweight system on their shoulders? The problem was not anticipation – it was agility.

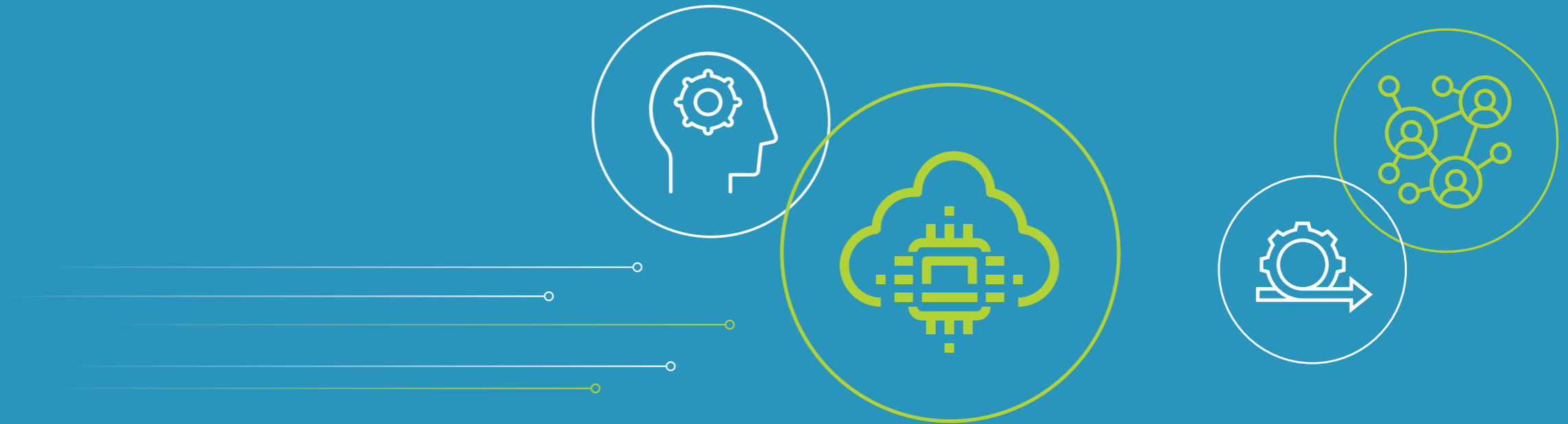
Old legacy systems were built to last. Companies would acquire a new monolithic core system, and they expected it to last a lifetime. After (a most likely painful and lengthy) implementation, the stable solution would fit companies' basic needs. And that worked for a long time. However, monolithic systems do not cope with today's real-world needs, which are profoundly marked by the constant need to change.

Monolithic systems are obviously able to change. But at what cost and how fast? Outdated core software relies on big teams with specific knowledge about the ancient programming language in use, which is often highly vulnerable to mistakes – changes are not worth it if you are breaking everything around you. It all comes down to the fact that new features are a long and troubling process.

composability

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Natural acceleration of the digital businesses that we live in every day.



ENTER COMPOSABILITY

To be able to cope with this new agility-centric paradigm, organizations must adopt what we now know as a composable approach.

Composability is a natural acceleration of the digital businesses that we live in every day. In simple terms, this translates into creating an organization made from interchangeable building blocks that can be switched on and off or created from scratch whenever the strategy demands. The approach is particularly prolific in delivering the resilience and agility these interesting times demand.

According to Gartner®, “By 2023, organizations that have adopted an intelligent composable approach will outpace competition by 80% in the speed of new feature implementation”.⁽¹⁾

With Quidgest’s composable approach, traditional banks will be able to handle the challenges their current operations are facing swiftly:

- Customer expectations are shifting more often. Clients now demand more

straightforward access to communication tools and service use. Monolithic systems do not cope with introducing new products or tools to establish a fruitful remote relationship with the clients.

- The Fintech-threat. Startups in the banking and financial industries are changing the game with digital-native operations.
- Strict regulation. Regulation updates are happening more and more. Traditional core systems have a hard time handling the constant changes, and a law change usually means hefty costs for the banks using outdated technology. We recently helped BBVA, ING, and Banco do Brasil with their agile approach to regulation.

KNOWLEDGE ENGINEERS

The composable approach also creates the perfect environment for knowledge engineers – people who have a deep business understanding (from the client’s needs and journey to the way the business operates) but lack hands-on technical skills.

With composability, knowledge engineers can easily comprehend where technology can be applied, switched, or merged and create new market opportunities. Such empowerment nullifies the “Chinese whispers/ broken telephone game” between the strategic business decision departments and the IT teams.

PLANNING WITH NO STRINGS ATTACHED

Being built to change and (not) to last is a fundamental shift of perspective. With this, we are not suggesting the composable strategy will not last. On the contrary, we mean that the approach will be centered on changing and not on staying put. The more often and faster you can change and learn, the longer you will remain competitive in your field of work.

With Quidgest’s composable approach, you will plan short, medium, and long-term with no strings attached. Technology will no longer be a constraint to your new strategy. Technology will be an enabler.

Composable systems do last much longer than monolithic ones. They are continuously adapting to change. So, we can also properly say “Built to change, not only to last”.

Monolithic implementations only “worked” for a while, because “to work” only meant “to be executed”. Top managers’ expectations from the digital part of their companies were low.

Today, the power of digital transformation was uncovered. If not by your company, then certainly by your top-performing competitors. ■

In sum, by using Quidgest’s composable approach, you are creating the environment for knowledge engineers:

- 1 Ready to change;
- 2 Ready to change fast, safe and efficient;
- 3 Ready to use the existing internal skills to drive your business more efficiently.

⁽¹⁾ Gartner, “The Top Strategic Technology Trends for 2021; Intelligent Composable Business Andrew White, Gene Alvarez, Dennis Gaughan, Yefim Natis, February 12, 2021.



80% OF TECHNOLOGY PRODUCTS AND SERVICES WILL BE BUILT BY THOSE WHO ARE NOT TECHNOLOGY PROFESSIONALS⁽¹⁾

Recent research by Gartner predicts the majority of tech products and services will be built by professionals outside of IT by 2024.

“Digital business is treated as a team sport by CEOs and no longer the sole domain of the IT department,” said Rajesh Kandaswamy, distinguished research vice president at Gartner, in a press release⁽¹⁾.

According to Gartner, this trend is driven by a new category of buyers outside of the traditional IT enterprise who are occupying a larger share of the overall IT market. Today, total business-led IT spend averages up to 36% of the total formal IT budget.⁽¹⁾

COVID-19 LEADS TRANSFORMATION

As per Gartner, “Technology encroachment into all areas of business and among consumers creates demand for products and services outside of IT departments. These buyers’ needs do not always fit neatly into offerings from traditional providers.

This has been compounded by the COVID-19 crisis, which has only expanded the amount and type of use cases technology is needed to fulfill. In 2023, Gartner anticipates that \$30 billion in revenue will be generated by products and services that did not exist pre-pandemic.”⁽¹⁾

LOW-CODE AND AI-ASSISTED DEVELOPMENT

What used to be a field where only experts were able to prosper is now beyond those who have hundreds of hours of training. Technology development is now possible for non-IT professionals due to low-code and AI-assisted development.

“Growth in digital data, low-code development tools, and AI-assisted development are among the many factors that enable the democratization of technology development beyond IT professionals,” says Gartner distinguished research vice president Rajesh Kandaswamy.⁽¹⁾

HOW GENIO IS EMPOWERING NON-IT PROFESSIONALS

GENIO, Quidgest’s extreme-low code platform, uses artificial intelligence in the software development process to substantially increase productivity outputs and guarantee zero errors in the solution.

Most importantly, it is a business-driven tool. Quidgest is a firm advocate that it should be the technology that adapts to businesses and not the other way around. As a result, Quidgest Academy is helping people outside of IT learn to develop future-ready solutions without requiring a significant financial or time investment (such as the ones needed in full-stack developer courses).

On top of this, it makes software development about 100 times faster than manual coding and eight times faster than traditional low-code platforms.

Through GENIO, non-IT professionals can get hands-on projects without 500+ hour training. Instead, they are only required to understand GENIO’s base-concepts and develop from that point forward.

The new urgency for Digital Transformation, the empowerment of non-IT professionals in the tech field, and the global shortage of developers make up the perfect time to start developing business-driven solutions swiftly. ■

⁽¹⁾ Gartner Says the Majority of Technology Products and Services Will Be Built by Professionals Outside of IT by 2024 (Press Release), Published June 14, 2021 www.gartner.com/en/newsroom/press-releases/2021-06-10-gartner-says-the-majority-of-technology-products-and-services-will-be-built-by-professionals-outside-of-it-by-2024



Alan Turing

Allen Newell



Herbert A. Simon

John McCarthy



Marvin Minsky

FOUNDING FATHERS OF ARTIFICIAL INTELLIGENCE*

The 20th century was packed with geniuses who propelled us to heights never experienced before. The personal computer, the Internet, and the television encouraged knowledge exchange and made humanity dream of a science-fiction reality. The last 100 years were also responsible for the rise of five prominent figures who set the cornerstones for developing one of the most impressive technologies we know so far: Artificial Intelligence (AI).

Alan Turing, Allen Newell, Herbert A. Simon, John McCarthy, and Marvin Minsky are frequently considered the founding fathers of the technology that has revolutionized countless industries. Learn more about the five men's contributions that dreamed of endowing a machine with human intelligence.

* This article was written to celebrate the Portuguese Father's Day (March 19th)

ALAN TURING (1912 – 1954)

The earliest significant work in the field of AI was done by Alan Turing. In 1935, the British logician and pioneer in the computation field described an abstract computing machine with infinite memory and a scanner that could move back and forth through the memory, reading what it finds and writing further symbols – the activities of the scanner were controlled by a program of instructions that was also stored in the memory in the form of symbols.

This concept, which is now known as the universal Turing machine, implies a constant self-modifying and self-improving machine and set the basis for every modern computer.

During World War II, Turing led the British Government to crack German codes and give the Allies an advantage over their fighting opponents. The British genius work was disrupted during the war years, and he was only able to resume his work when the war had finally come to an end in 1945.

However, amidst the chaos that undermined his work and research, he further developed his thoughts on machine intelligence. Donald Michie,

Turing's colleague in the Code and Cypher School during the war years and who, years later, founded Edinburgh University's Department of Machine intelligence and Perception, recalled that Turing frequently talked about how computers could learn from experience and solve new problems through the use of guiding principles – a procedure now known as Heuristics.

Just two years after the war, Turing gave what – most likely – became the first public lecture to mention computer intelligence. "What we want is a machine that can learn from experience," and that the "possibility of letting the machine change its own instructions provides the mechanism for this," reportedly said the then 36-year-old Turing to an audience in London.

Many of the ideas the British founding father introduced in "Intelligent Machinery", a 1948 report which included many of the central concepts of AI, were later reinvented by other people. One of them was to train a network of artificial neurons to perform specific tasks.

The British genius is also known for developing a test that could evaluate if a computer is intelligent

enough to pass as a human being. The Turing Test, which was firstly introduced in a paper in 1950, involves a computer, a human interrogator, and a human interviewee. The conversations are made via a keyboard and a display screen. Even though the test's development took place in the '50s, only in 2014 was a computer able to pass the Turing test. Turing's work still prevails, and he is often remembered as THE founding father of AI. The A.M. Turing Award was created to honor his great work and is frequently referred to as the computer science equivalent of the Nobel Prize.

ALLEN NEWELL (1927 – 1992) AND HERBERT A. SIMON (1916 – 2001)

Newell's career spanned the entire computer boom era (which started in the 1950s). He became internationally known for his work with the theory of human cognition and computer software and hardware systems for complex information processing. Newell's goal was to make the computer an effective tool for simulating human problem-solving. Most of the work he developed in the AI field was in collaboration with Herbert A. Simon, his lifelong partner in computer science. Simon, who had a Ph.D. in political science, developed a research career on the nature of intelligence, with a particular focus in problem-solving and decision-making – perfectly aligning his knowledge to Newell's goal. In the 1960s and afterward, Simon's main research efforts were aimed at extending the boundaries of AI. The two founding fathers of AI work came together in the 1950s. They founded what is most likely the world's first hub dedicated to studying AI at Carnegie Mellon University (CMU) and propelled the Pittsburgh institution's name internationally. The work developed at CMU's lab included the General Problem Solver, a machine built to work as a universal problem solver via the mean-ends analysis technique.

In 1956, Claude Shannon, John McCarthy, and Marvin Minsky organized an event on the

“artificial intelligence” subject – an avant-garde term made up by McCarthy for the conference. Newell and Simon had the opportunity to show the participants their Logic Theorist – a computer program deliberately engineered to perform automated reasoning. The system is coined the first artificial intelligence program. It established the field of heuristic programming and proved 38 of the first 52 theorems of the Principia Mathematica. Although it was in the forefront for its time, the program received an unenthusiastic reception by the participants.

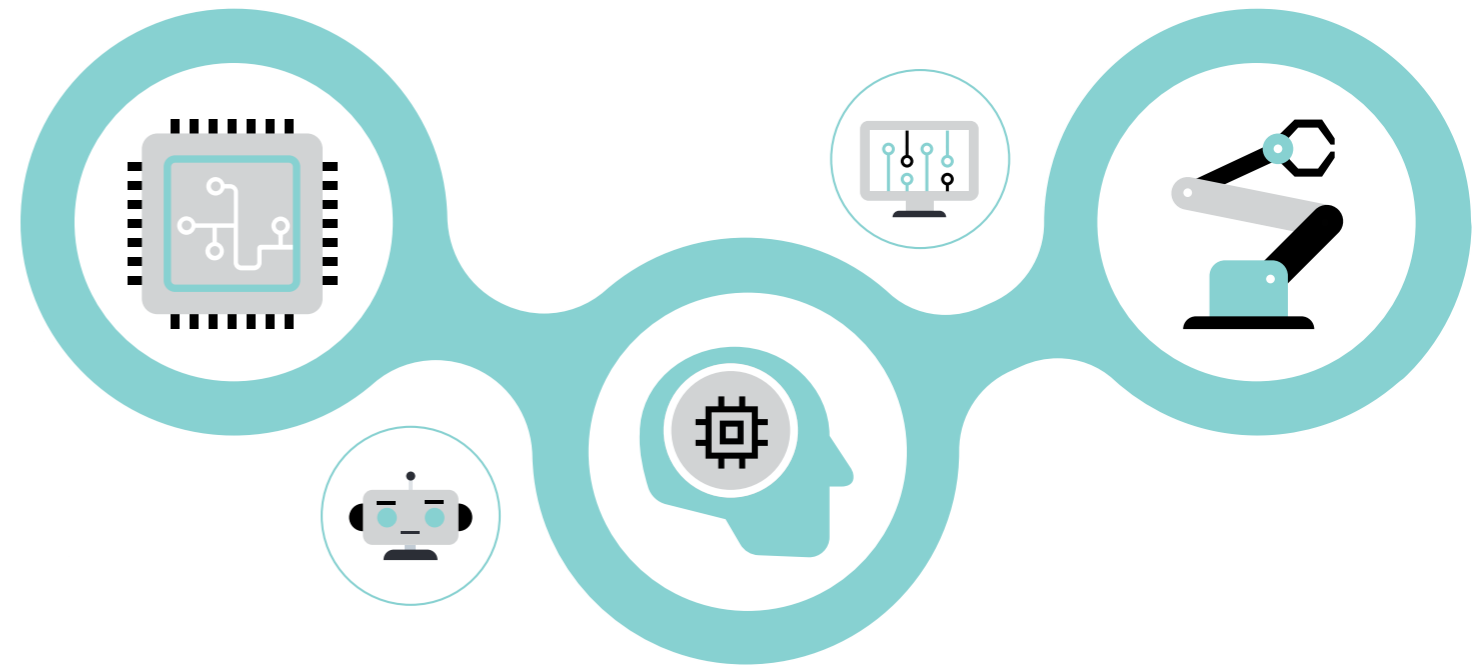
The pioneering AI duo combinedly received dozens of awards, but the most significant one was the A.M. Turing Award in 1975.

JOHN MCCARTHY (1927 – 2011)

McCarthy earned the A.M. Turing Award four years before Simon and Newell. He extensively contributed to some of the world's most transformative technologies, such as the Internet, robots, and programming languages.

So much so that he invented the List Processing Language, or Lisp, the programming language that became the standard tool for artificial intelligence research and design. In 1959 he came up with a technique in which pieces of computer code that are not needed by a running computation are automatically removed from the computer's random access memory (RAM) – the combination of this technique with Lisp is now routinely used in many programming languages.

In 1964 he followed Newell's and Simon's steps of bringing AI to academia and became the founding director of the Stanford Artificial Intelligence Laboratory (SAIL). This research center was one of the most prominent places for the development of technology during the 1960s and 1970s and played a crucial part in machine-vision natural language and robotics. While at SAIL, McCarthy published numerous articles about science fiction and future technologies by predicting AI's accomplishments. He expected that the capability to operate genetic code would be among the significant scientific developments in the 21st century.



As stated above, he was the principal organizer of the first conference on “artificial intelligence” (where Newell and Simon introduced the Logic Theorist). From that point forward, the term stuck in the community.

MARVIN MINSKY (1927 – 2016)

Minsky was a firm believer that the human mind was no different from a computer. Such belief made him focus on engineering intelligent machines. His most significant impact on the AI – which shaped the field forever – comes from his insights into human intelligence. As stated in his MIT biography page, Minsky's work was driven by the concept of “imparting to machines the human capacity for commonsense reasoning”.

His passion and goal to endow machines with intelligence eventually drove him to be the first electronic learning system creator. Dubbed SNARC (short for Stochastic Neural-Analog Reinforcement Computer), the project would become the original neural network simulator.

As the fear and the alarmist warning about the dangers of AI began to grow, with science-fiction novelists depicting machines with enhanced capabilities that could overtake us, Minsky took a positive view of a near-future when machines

could be able to think.

Although this seemed to spread fear among the critics, he believed that AI could eventually solve some of humanity's most pressing problems. Like some of the other founding fathers, he also took an important role in bridging AI early researchers and education institutions, being one of MIT's Artificial Intelligence Lab cofounders. He was also awarded the A.M. Turing Award in 1969.

“ Quidgest has strengthened its focus on the sustainability sector to be an accelerator of customer and employee retention and attraction as a way to support the United Nations 2030 agenda in meeting the 17 Sustainable Development Goals. ”

- JORNAL ECONÓMICO

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- HUMAN RESOURCES PORTUGAL

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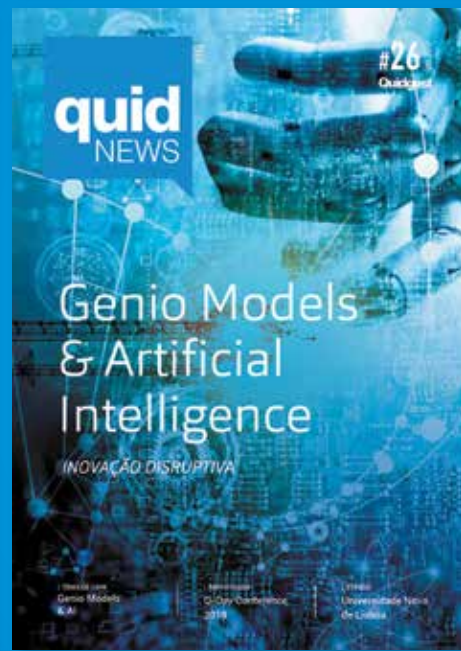
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