

State of Digitalization, 2023

Digital Maturity Advancement Initiatives, Digital Knowledge Transfer, Skilling & Career Management

by Agusti Miro



Introduction

The previous article “*State of Digital Maturity-2018-2023, Evolution, Stages and Barriers*” outlined three main groups of disincentives to the advancement of Digital Maturity common to all sectors and to the majority of enterprises and countries.

The first group of disincentives involves limited access to the digital knowledge required to make digital investment decisions and deploy new digital capabilities. The second relates to the perceived unclear benefits of undertaking digital advancement initiatives.

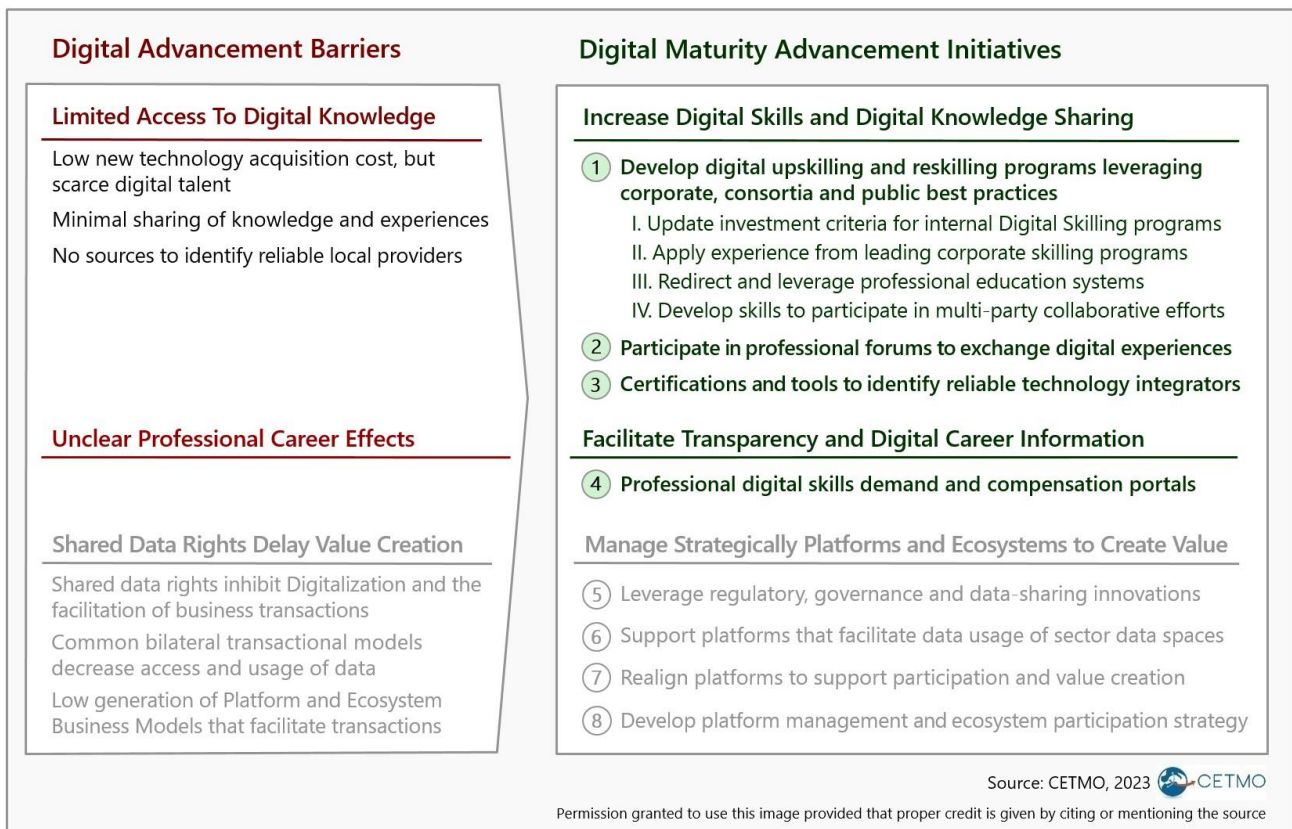
The third group of barriers arise from the conflict over shared data rights and limits the usage of data and the development of platforms and ecosystems that can facilitate transactions, and trigger value-creation network economies.

In this article, we outline a set of potential initiatives to lessen, the first two groups of barriers, and provide key learnings and Best Practices drawn from the experience of leading enterprises and the most digitally advanced countries. A future third article “*Digital Advancement Initiatives–Strategic Platform Management and Ecosystem Participation*”, will cover the rest of the initiatives to address the rest of the disincentives.

The objective of these articles is to provide a broader analytical framework, that may facilitate the formulation of digital advancement strategies and the evaluation of investments and digital initiatives. They also provide an introduction to the large corpus of experiences and Best Practices, able to be adjusted and applied by any kind of enterprise, to digital advancement projects of any scale.

These barriers to Digital Maturity and the actions to address them are summarised in the illustration below:

– Digital Maturity Advancement Initiatives, 2023 –



1. Increase Digital Skills and Digital Knowledge Sharing

CETMO's research in 2021 and 2022 pointed out that despite the low digital technologies acquisition costs, many enterprises lacked the necessary digital knowledge. This hinders their decision-making, regarding digital technologies deployment, and the undertaking of process adjustments to materialize their benefits.

Digital knowledge scarcity not only includes the well-known shortage of personnel with up-to-date digital skills, but also the limited knowledge-sharing mechanisms to accelerate the learning curve. Compounded by the lack of sources of information to identify reliable second-tier digital solutions providers, that cater to enterprises, consortia and development agencies not serviced by major global providers.

Digital Skilling at a massive scale emerges as the core requirement for Digitalization.

The main barrier to digital advancement at enterprise, sector and national levels is the sheer quantity of digitally skilled personnel required. In 2023 the World Economic Forum estimated that within five years, 23% of the overall workforce will require Digital Skilling.

Digitalization has triggered an unprecedented-scale need for technological and managerial digital skills, to transform a wide range of business processes and develop new go-to-market and business models. That implies the creation of brand-new job categories. In 2023 the World Economic Forum estimated that within five years, the new jobs generated by Digitalization would reach 10,25% of the total workforce.

Most enterprises in all digitally advanced countries are able to fulfil their digital skills requirements.

All digitally advanced countries, since 2018, have been strategically planning and deploying digital reskilling and upskilling programs. Leading programs were and are led by corporations, consortia, and, development and public agencies, generating a significant body of Best Practices.

The leading countries with strong collaborative cultures and national digital development strategies have even reached near-universal Digital Skilling (Denmark, the Netherlands, Switzerland, Finland and Sweden). Leading organisations and countries have been strategically managing Digital Skilling, and an important body of Best Practices has emerged.

Many enterprises from the rest of the countries cannot fulfil their skilled personnel needs.

In the majority of countries from all continents, enterprises rarely offer limited training to their employees. Instead, they address their skill gaps through employees' self-directed individual skilling, and by hiring personnel, recently educated or from other enterprises.

Most countries are also equipped with professional education systems historically oriented to young students' training, and with limited adult professional education capabilities.

Digital Skilling requirements often exceed the capabilities of a single enterprise.

All international development institutions' analyses conclude that despite significantly increasing and financing internal Digital Skilling programs, corporations big or small, will not be able to address their skilling challenges just by themselves. International development agencies and leading consulting firms' projections indicate that even large corporations will manage to internally reskill and upskill only an estimated range of 40% to 45% of the employees required.

There is a significant body of digital reskilling and upskilling Best Practices.

The digital upskilling and reskilling programs developed by leading companies and digitally advanced public agencies in the last 5 years have generated an important corpus of Best Practices, which can be leveraged by enterprises of any size. Many of these Best Practices entail multi-party efforts, and a leading role of development agencies, enterprise associations and consortia with public agencies. The following is a brief description of some of them.

1.1. Key Learning: Update Investment Criteria for Internal Digital Skilling Programs

23% of the world workforce will require Digital Skilling within 5 years.

This unprecedented requirement of digitally skilled employees turns enterprises' most common corporate approaches to obtaining human talent and new skills insufficient.

Common mechanisms are insufficient to fulfil their digitally skilled personnel requirements.

Hiring new personnel, limited internal training, and employees' self-directed professional education, are insufficient by order of magnitude, and only a planned

employee reskilling and upskilling program can fulfil the digital skills requirements to remain competitive.

The major cost of employees’ Digital Skilling is the salaries of the employees in training.

Reskilling requires 1 to 6 months, and upskilling to advance to a new role takes over a year.

Need to revise common corporate employee skilling investment criteria.

All international development institutions and world-class consulting firms, unanimously advise corporations to adopt updated investment criteria for long-term training for employees and steadily advocate for long-term training of employees.

1.2. Key Learning: Apply the Experiences from Leading Corporate Skilling Programs

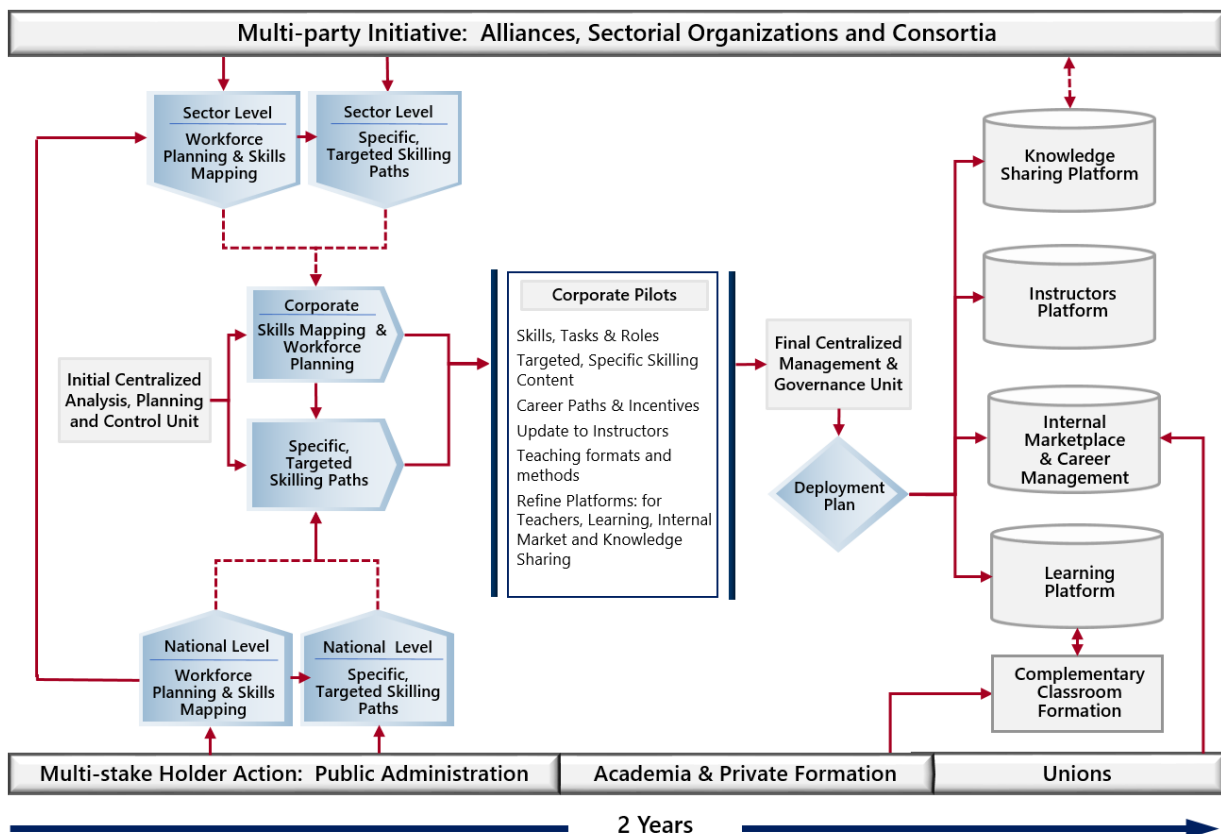
Large corporate Digital Skilling programs started in 2018 with AT&T’s pioneering program.

AT&T successfully digitally skilled 100.000 employees, and filled internally 81% of the company’s new digital jobs. This successful experience paved the way and incentivised other leading corporations to undertake similar efforts.

Our analysis of the 12 large corporate Digital Skilling programs of AT&T, Amazon, Best Buy, Cargill, Google, Procter&Gamble (USA), Lloyds Banking Group and PwC (UK), Unilever (the Netherlands), L’Oréal (France), Invesco (Canada), and Bosch (Germany), indicate that near all these programs, followed, a well-defined set of principles, with a similar implementation methodology that has been improved over time.

The following table conceptually summarizes the organizational model, components and steps used in large Digital Skilling programs in the financial, technology and professional services, agribusiness, consumer goods, retail, manufacturing and telecommunications sectors.

– Large Corporate Digital Skilling Programs, Organizational Model Summary –



©CETMO 2023 - Permission granted to use this image provided that proper credit is given by citing or mentioning the source CETMO

Six years of corporate Digital Skilling programs have generated an important body of Best Practices.

These Best Practices and guiding principles' detailed explanations exceed the scope of this article. The following is a brief list of some of them:

- **Digital Skilling programs follow a well-defined digital development strategy** and have a clearly defined organizational model with standardized processes set around three separate organizations in charge of leading the program, strategy formulation, and its deployment.
- **Revised concept of leadership, hierarchy and cooperation** plus, compensation and evaluation changes to reward and stimulate innovation and controlled trial-and-error and risk-taking.
- **The highly important application of Strategic Workforce Planning** and Skills Mapping that analyses enterprise and labour market demands and determines the required digital skills.
- **Reliance on platform-based learning solutions**, that provide customized content, and sophisticated program and career management capabilities at low cost. The analysis of the range of experiences, business models and applications of the top enterprise-level platform-based learning providers like EdX, Coursera and Udacity exceeds the scope of this article.
- **Use of enterprise internal job-mobility portals**, with information on skills in demand, compensation and learning path for employees.

1.3. Redirect and Leverage Professional Education Systems

Professional education systems have evolved uniformly in all advanced countries, except in the USA.

These systems have evolved from young students' training to employee skilling programs.

In Denmark, the Netherlands, Switzerland, Sweden, Finland, Singapore, the Republic of Korea and Taiwan, national professional education systems, also known as Vocational Education and Training Systems (VETs), have evolved from just young students' training (I-VET), to offer a broad range of professional skilling programs for employees of enterprises of any size (C-VET).

Additionally, these countries have intertwined C-VET with the tertiary educational system, to provide professionally and technically oriented education and short-term degrees.

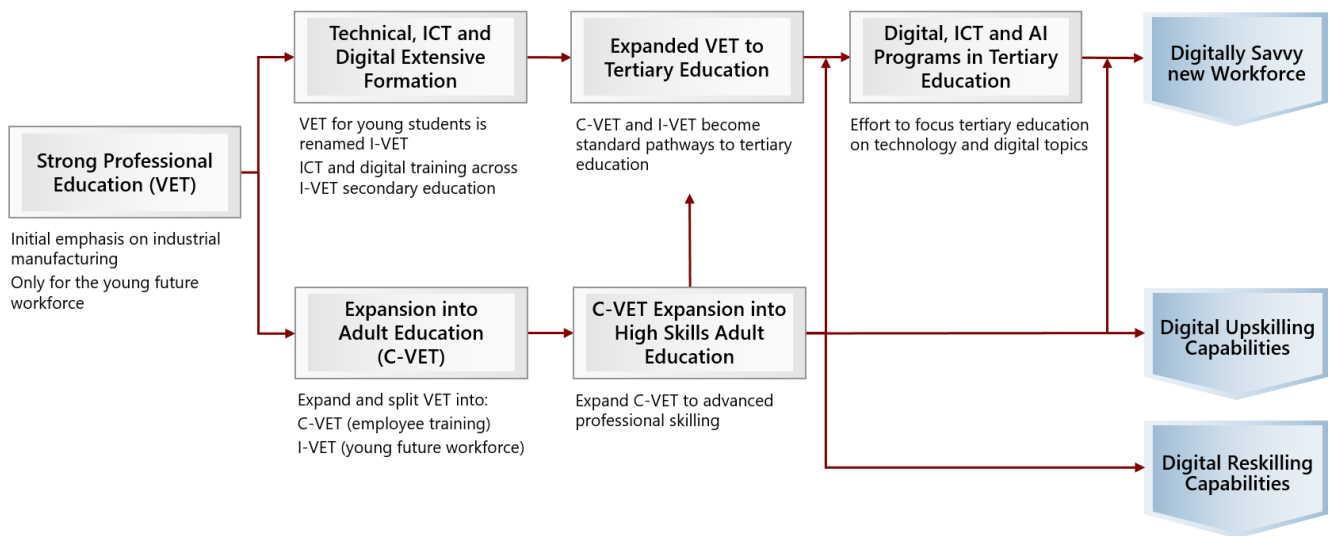
Specific examples include Denmark's adult vocational training system (AMU), which offers 3,000 programs organized around 130 work areas, and Finland's tertiary educational system which counts 23 technical universities, and just 12 research-oriented ones.

The VETs of these advanced countries provide the bulk of the required digitally skilled labour force.

Digital skills supplied by VETs are complemented by enterprise, consortia, and development agency programs. Denmark, the Netherlands, Switzerland, Finland and Sweden have digital development strategies in place and have developed the skills and business culture to participate in multi-party collaborative Digital Skilling programs, which results in near-universal Digital Skilling.

The diagram below summarizes the evolution of the professional educational systems model, also known as Vocational Education and Training (VET), evolution in digitally advanced countries.

– Professional Educational Systems Model, Evolution –



©CETMO 2023 - Permission granted to use this image provided that proper credit is given by citing or mentioning the source CETMO

Even though, in most countries, present professional education systems are predominantly aimed at young students, their capabilities and infrastructure can be leveraged to reskill and upskill adult employees, regardless of their level of qualification. Considering that adult professional education can be integrated with tertiary education to provide short-term degrees and technical and professional training.

The use of existing professional and tertiary educational systems should be considered as an important component of any digital reskilling and upskilling pilots and programs at any scale and geographical scope.

1.4. Develop the Skills to Participate in Multi-Party Collaborative Efforts

All the best large-scale Digital Skilling programs are to a diverse degree multi-stakeholder collaborative efforts, as the capabilities and resources that these projects require often exceed the capabilities of a single agent, either corporations, employees, sector organizations, academia or development and public agencies.

Best Practices from the most digitally advanced countries indicate that successful large-scale skilling is often the result of a multi-stakeholder cooperative approach.

2. Participate in Professional Forums to Exchange Digital Experiences

Many Countries and Sectors suffer from a chronic lack of knowledge-sharing.

There is limited knowledge-sharing of Digitalization experiences, details of their implemented solutions, and common pitfalls. This lack of knowledge sharing flattens the learning curve and significantly slows down digital advancement. On the other hand, digitally advanced countries strive to increase their collaborative business culture.

Cloud-based forums are platforms for facilitating collaboration and accelerating the learning curve.

In these forums, the central problem is to achieve and maintain depth and quality of participation, which is in the hands of each participant, who collaborates voluntarily. Enterprises, consortia, and development agencies can support existing forums, and can also lead the development of new ones.

The best forums offer exchange and collaboration mechanisms.

Forums facilitate sophistication of content and hyper-specialization by setting subgroups and awarding levels to the most useful participants to access restricted levels of information. Also, add publications and studies to define and raise the level of discussions. Additionally, technical forums offer extensive knowledge depositories

and advanced indexing, training and collaboration tools on a massive scale.

They also manage content quality with high-level moderators, restrictions and payments for participation, authentication of members and use of real names, as well as facilitating the history of participation that is included in the profiles and conversations, to which the other participants react and professional prestige of participants is at stake.

TMForum.org is an international association of suppliers and customers of digital equipment and services with 162,000 individual members. It is oriented towards technology certification, standardization and the facilitation of quotations and transactions. To support these two functions, it provides an extensive knowledge exchange forum service with extensive indexing of documents, materials and discussions, complemented by training programs. It is considered a Best Practice in both professional forums and technology standardization and certification services.

Control.com is a forum for knowledge exchange, training and digital calculation tools in industrial and electronic engineering with 35,000 members 45,000 posts and 200,000 monthly visits. It contains a large number of highly specialized sub-forums.

GCcollab, created by the Government of Canada in 2016, is a great example of a platform for external collaboration and professional networking created by a Public Administration. It is an expanded forum with digital tools for collaboration, content repository and community building for the exchange of knowledge and experiences among civil servants, faculty and specialists for the improvement of public service.

GCcollab is complemented by a battery of digital tools provided by GC Tools Canada, that provide channels and tools for navigating collaborative ecosystems that connect more than 160,000 federal civil servants, plus academics and experts by invitation, including its own wiki and chat services emulating Twitter. GCcollab is considered a "Best Practice" referenced by the OECD as an example to follow in the creation of collaborative forums for any sector.

3. Certifications and Tools to Identify Reliable Technology Integrators.

Many third-tier local technology integrators do not have the skills to provide reliable digital solutions.

Direct research indicates that a considerable number of third-tier providers are not able to provide well-adjusted enterprise platforms to the medium and small-size enterprises that they cater to. CETMO's research indicates that this often results in unsuccessful initial Digitalization efforts and a posterior digital investment interruption.

Integrators are technical providers of enterprise-specific digital solutions.

They leverage world-class PaaS cloud services (Platform-as-a-Service) to assemble blocks of cloud-based digital services, existing applications and also their own applications adjusted to a specific industry, sub-sector and enterprise needs.

Integrators include international consulting firms catering to the largest corporations and consortia, medium-sized reliable national integrators catering to large and some medium enterprises, and third-tier small local integrators whose digital solutions often do not yield the expected results.

There is a lack of comparative information on the quality and experience of these local integrators.

Information about their true capabilities and the level of satisfaction in previous projects, which compounded with previous unsuccessful Digitalization projects, becomes a significant Digitalization barrier. Such information could be accessed through certification or rating schemes by users and former customers.

Professional-level technology and assessment and certification systems are scarce but sophisticated.

These systems typically appear in worldwide platforms that combine valuations, certifications, forums and collaboration tools and offer to either directly participate or to replicate at a national or sector scale.

MEF.net is a global industry association of network, cloud and technology providers to drive the development and adoption of digital technologies.

TMForum.org is an association of digital service providers and clients with forum and certification services. It is a Best Practice for both professional forums and certification services.

G2.com provides free ratings and direct comparisons of 400 types of software and technology services for corporations.

4. Professional Digital Skills Demand and Compensation Portals

CETMO's research indicated that technologists, managers and technicians are not applying all their digital knowledge and skills, as they perceive that the risk-taking of participating in innovative Digitalization efforts will not have positive effects on their compensation, continuity and professional careers.

This reservation greatly varies depending on country and sector business culture, the tolerance of failure and how risk is rewarded. As the articles on digital competitiveness further develop, the most digitally advanced countries prime business agility, and stimulate and reward managers' and technicians' digital innovation and risk-taking. Also leading corporations have evolved their business cultures and developed Best Practices in in digital career information and transparency.

Digital skills market demand and compensation portals.

The positive professional career effect of undertaking Digitalization efforts can be determined by accessing public portals that provide detailed digital skills demand at the sector level. Countries with national-level strategic workforce planning, offer their digital labour market available to professionals and corporations.

Denmark National Guidance Portal:

(Uddannelsesguiden.dk) provides up-to-date labour-market information, digital skill demand and compensation, career guidance and information about all digital reskilling and upskilling programmes available.

Finland's National Forum for Skill Anticipation is another Best Practice providing labour-market information, digital skill demand and compensation by sector through portals.

Internal corporate skills demand and compensation portals.

Large corporations have a long battery of Best Practices to engage the labour force in Digitalization and Digital Transformation efforts, among them the creation of internal marketplaces and career management portals. Some examples include AT&T's "Career Intelligence" and

Amazon's "Amazon Technical Academy", where employees identify future jobs, compensation and required training.

Closing

This article has presented four sets of initiatives to lessen and address limited digital knowledge and unclear benefits of Digital Maturity barriers.

A future third article, "Digital Advancement Initiatives – Strategic Platform Management and Ecosystem Participation", will present the initiatives to address the third group of disincentives. These arise from the conflict over shared data rights resulting from generally outdated regulations and governance models, which inhibit digital business transactions and reduce the value-creation potential of platforms and ecosystems.

The Digital Maturity advancement initiatives included in the third article are:

5. Leverage regulatory, governance and data-sharing innovations
6. Support platforms that facilitate data usage of sector data spaces
7. Realign Platforms to support participation and distributed value-creation
8. Develop Platform Management and Ecosystem Participation Strategy

As indicated before these articles' objective is to provide a framework to facilitate the formulation of digital advancement strategies and the prioritization of digital advancement initiatives. They also provide an introduction to the corpus of experiences and Best Practices, able to be adjusted and applied to digital advancement projects of any scale.

CETMO Foundation

Agusti Miro
Av. de Josep Tarradellas 40 entlo. - 08029 Barcelona

cetmo@cetmo.org - <https://www.cetmo.org/>
Registered with the number 129
in the "Protectorado único de Fundaciones".

Copyright © 2023 CETMO. All rights reserved.