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DIGITRANS

THE REGIONAL STATE OF THE ART REPORT VENETO REGION (t2i)

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1. Regional Background Information

1.1. Introduction

General Overview of Veneto Region

Veneto is a highly developed region in north-eastern Italy, known for its rich cultural heritage and robust economy. With about 4.85 million inhabitants (approximately 8.2% of Italy's population)[1], it is the fourth most populous Italian region[2]. The region's capital is Venice, a global tourist destination, while other major cities include Verona, Padua, and Vicenza. Veneto spans from the Dolomite Alps to the Adriatic Sea, giving it strategic advantages in both manufacturing and maritime trade. It borders fellow industrial regions Lombardy and Emilia-Romagna, and connects to Friuli-Venezia Giulia and Austria via alpine passes, positioning Veneto as a gateway between Western Europe and the Adriatic-Balkan area.

Historically part of the Venetian Republic, the region today is firmly integrated into Italy and the EU. Veneto benefits from European cohesion policy as a "more developed region", leveraging EU funds (e.g. European Regional Development Fund – ERDF) to support innovation and infrastructure. The region actively aligns with national and EU digital strategies – for example, contributing to Italy's "Italia Digitale 2026" plan under the National Recovery and Resilience Plan (NRRP) and pursuing the EU's Digital Decade targets. Veneto's commitment to digital transformation and sustainable growth echoes broader European objectives, underscoring its role in the country's drive toward digital innovation and competitiveness.

1.2. Economic Profile of the Region

General Economic Overview

Veneto is one of Italy's economic powerhouses, with a diversified production base and strong export orientation. In 2023 its GDP per capita (in purchasing power standards) was about 105% of the EU27 average, well above the national average (93%)[3]. The region's total GDP reached an estimated €168 billion in 2023[4], making Veneto the third-largest regional economy in Italy. The economic structure is broad-based: traditional industries (textiles, apparel, goldsmithing), manufacturing (machinery, appliances, automotive parts), fashion and design (home to brands like Luxottica and Calzedonia), and a dynamic agrifood sector (renowned wines and agri-food products) all contribute significantly. In recent years the services sector has expanded rapidly – over 171,000 service businesses are active, especially in tourism, commerce, and logistics[5]. Venice's tourism alone makes a sizable

impact, with millions of international visitors annually, driving growth in hospitality and related services. Agriculture plays a smaller role by employment, but remains strategic through high-quality, export-oriented products (e.g. Prosecco wine), often organized in geographically focused districts[5].

Entrepreneurial Environment and SMEs: Veneto's economy is characterized by a dense network of small and medium-sized enterprises (SMEs), which form the backbone of its industrial districts. The region had 468,000 registered businesses (about 422,000 active) as of 2023, one of the highest counts in Italy[6]. Over 99% of firms are SMEs, reflecting the national pattern of family-owned and medium enterprises dominating the landscape. These firms are highly flexible and innovative, enabling local companies to excel nationally and internationally[7]. Many world-known brands have roots in Veneto's SME clusters – for instance, Luxottica (eyewear), Geox (footwear), De'Longhi (appliances), and Calzedonia (fashion apparel) all started as local businesses and grew into industry leaders[8]. The prevalence of SMEs means they account for a large share of regional employment and exports. Notably, Veneto's companies are strongly export-oriented, collectively making the region one of Italy's top exporters. This outward focus, coupled with a culture of industrial specialization by territory (industrial districts), has driven Veneto's prosperity over decades.

Key economic indicators include a **GDP per capita around €34,000** (well above the EU average) and steady growth in output. The region rebounded from the COVID-19 downturn with solid performance: by late 2023 Veneto's output and employment had surpassed pre-pandemic levels (manufacturing revenues in Italy hit record highs in 2023[9]). Business surveys indicate widespread adoption of efficiency-enhancing technologies – e.g. **36% of Italian manufacturing firms use industrial IoT systems and 19% have introduced robotics into production**[10], trends mirrored in Veneto's modern factories (especially in sectors like machinery and automotive components). This ongoing **Industry 4.0** transition is supported by national incentives and is crucial for maintaining the region's competitiveness given rising global cost pressures.

Role of SMEs in the Economy

SMEs are the engine of Veneto's economy and employment. They **constitute over 99%** of all enterprises and contribute an estimated two-thirds of private sector employment and value added. In 2023, Veneto's **SME sector remained vibrant**, with even micro-firms (<10 employees) playing a vital role in niche manufacturing and artisan goods. Recent trends show mixed signals: while SME employment grew modestly in 2022–2023, productivity challenges persist in some traditional segments. There is a gradual structural shift as many SMEs invest in **digitalisation and automation** to boost efficiency. Veneto's SMEs are known for agile supply chains and high-quality craftsmanship, but they also face pressure to scale up and innovate. The region encourages aggregation (e.g. enterprise networks and consortia) to help small firms achieve economies of scale in innovation and export marketing.

ICT Sector and Digital Economy

Veneto's **ICT sector** is a growing component of the economy, albeit smaller than in Italy's largest metro areas. The region hosts a **burgeoning startup scene** (e.g. Padua's "Galileo

Visionary District" incubator and H-Farm innovation hub in Treviso) and several mid-sized tech companies focusing on software, IT services, and electronics. The presence of strong universities (University of Padua, Ca' Foscari University of Venice, University of Verona) contributes to a steady flow of ICT graduates and research spinoffs. Overall, the **digital economy** in Veneto is developing in tandem with its industrial strengths: for instance, many manufacturing firms are adopting digital solutions (CAD/CAM design, industrial automation software), and local tech startups often cater to industrial and smart manufacturing needs. The region also benefits from national initiatives like **Competence Center SMACT** in Padua (one of 8 Industry 4.0 centers in Italy) which provides test laboratories and consulting for advanced technologies to SMEs. These efforts aim to nurture an innovation ecosystem where digital and traditional industries converge.

Digitalisation Maturity Among SMEs

Despite Veneto's economic success, there is recognition of a **digital gap** that needs to be closed for SMEs to remain competitive. At the national level, Italy has made progress on basic business digitalisation, but still lags in advanced technology uptake. As of 2024, approximately **70.2% of Italian SMEs** have achieved at least a basic level of digital intensity (using a set of minimum digital tools), reflecting significant improvements with support from recent programs[11]. However, adoption of **advanced digital technologies** remains limited – for example, only **8.2% of Italian enterprises use Artificial Intelligence** applications, well below the EU average (~8% EU, i.e. Italy among the lower performers)[11][12]. Similarly, use of **big data analytics, cloud computing** and other emerging technologies by SMEs is growing slowly. Within Veneto, high-tech manufacturing exporters tend to be more digitally advanced (many have implemented ERP systems, cloud services, or automation), whereas **micro-enterprises** and traditional small firms (e.g. in construction, craft trades) often **lag in digital adoption**. A significant share of SMEs still have only rudimentary online presence or digital capabilities. The government's **"Transizione 4.0"** incentives and regional digital vouchers have spurred many firms to invest in new machinery, e-commerce platforms, or cybersecurity, but the **challenge is greatest for the smallest firms**. In sum, Veneto's economy is robust and diverse, and while its SMEs are benefiting from digital transformation in areas like e-commerce and process automation, a concerted effort is needed to accelerate **broader digitalisation** to sustain the region's long-term competitiveness[13][14].

1.3. HR Profile of the Region

Educational Attainment and Higher Education

Veneto's workforce is comparatively well-educated by Italian standards, though tertiary attainment remains below some European benchmarks. As of 2023, about **22.1%** of people active in the regional labor market held a **tertiary degree** (university or equivalent)[15]. Over half (51.2%) had completed upper secondary education (high school or vocational), while roughly a quarter had only primary or lower-secondary education[15]. These figures indicate **widespread upper-secondary attainment**, reflecting Italy's strong tradition of technical high

schools (Veneto has many vocational institutes producing skilled technicians). However, the tertiary rate (22%) is modest compared to the EU average (~32-40% for ages 25–64), pointing to an area for improvement – Italy historically has one of the lowest university graduation rates in Western Europe.

Veneto is home to **several prestigious universities** which bolster its human capital. The University of Padua (founded 1222) is one of Europe's oldest and renowned for engineering, medicine, and science programs. Ca' Foscari University of Venice specializes in economics, management, and languages, while the University of Verona and smaller institutions like IUAV (Venice) offer expertise in fields from ICT to design. These universities collectively produce thousands of graduates each year, including **engineers, IT specialists, and business professionals**, many of whom enter the regional job market. Moreover, Veneto's higher education system is complemented by **research centers** (CNR institutes, etc.) and a strong network of vocational training centers (e.g. ITS academies) that provide practical skills in areas like mechatronics, logistics, and digital marketing. This educational infrastructure has helped create a talent pool that supports the region's manufacturing and service economy.

Lifelong Learning and Skills Development

Like much of Italy, Veneto faces challenges in adult upskilling and lifelong learning participation. Traditional employment often did not emphasize continuous training, but this is changing as digital skills become essential. The region (with national co-funding) promotes initiatives such as worker upskilling programs, training vouchers, and events akin to a "Digital Skills Week" to encourage adults to acquire new competencies. Still, **participation in adult education remains relatively low**, especially among older and lower-skilled workers. SMEs report difficulty freeing up staff time for training, and many micro-entrepreneurs lack awareness of training opportunities. To address this, projects under the **European Social Fund (ESF)** in Veneto focus on digital and entrepreneurial skill workshops targeting SMEs, and the region's chambers of commerce (through **PID – "Punti Impresa Digitale"** one-stop shops) offer free assessment of digital competencies and training courses. These efforts are beginning to bear fruit, but scaling them up is necessary to reach a broader base of the workforce.

Digital Skills and ICT Specialists

A critical aspect of the HR profile is the level of digital skills in the population and the availability of ICT professionals. Italy as a whole has notable gaps here, and Veneto is no exception, though it likely performs a bit better than the national average. As of 2024, only **45.8% of people in Italy have at least basic digital skills**, markedly below the EU average of 55.6%[16]. In Veneto's more advanced economy, the share with basic digital skills is expected to be slightly higher than the national figure, but still far from universal. This "digital skills gap" is reflected in employer surveys: over **50% of firms in Veneto reported difficulty finding staff with the right digital/technical profiles in 2023**[17]. In particular, the region – like the rest of the country – suffers from a shortage of **ICT specialists**. Only about **4% of total employment in Italy consists of ICT specialists**, which is below the EU average (~4.8%)[18]. Veneto's share is similar; many ICT graduates tend to relocate to major cities

like Milan or go abroad for higher salaries, causing local firms to compete for a limited pool of tech talent. In 2021, around **69% of Italian companies reported difficulty hiring ICT specialists**[19], indicating a serious skills mismatch.

To mitigate this, regional actors are investing in ICT education and training. Universities in Veneto produce **thousands of STEM graduates** annually (ICT graduates are ~4-5% of all grads nationally[20]), and specialized programs (like **coding bootcamps** and ICT apprenticeships co-funded by EU programs) are being expanded. The **EDIH "NEURAL"** in Veneto (described later) also allocates part of its budget to digital skill training for SMEs' employees[21]. Furthermore, the **National Recovery Plan (PNRR)** funds include significant components for digital education – such as improving schools' digital curriculum and setting up "digital hubs" in each province for citizen training. Despite these efforts, **older workers and small entrepreneurs** remain a hard-to-reach group for digital skill upgrading, and many businesses cite this as a barrier to their digital transformation.

Entrepreneurship and Innovation Culture

Veneto's workforce is known for its entrepreneurial spirit and hands-on skills. The region historically had a high rate of self-employment and family-run firms, which cultivated a culture of problem-solving and practical innovation. Universities and business associations are now building on this by **integrating entrepreneurship and innovation in education**. For example, the University of Padua and other institutions have introduced courses on startup creation, collaboration with incubators, and hackathons to encourage student entrepreneurship[22][23]. Regional innovation contests and SME-oriented innovation grants also incentivize employees to propose and develop new ideas. The human capital of Veneto thus combines solid traditional skills (craftsmanship, engineering, design) with a gradually improving foundation of digital competencies. The key going forward will be **scaling up digital literacy** across all ages and ensuring a pipeline of ICT specialists and data professionals to meet the growing demands of Industry 4.0 and the digital economy. The region's commitment to education and training – evidenced by high upper-secondary attainment and initiatives like "Digital Veneto" skill programs – provides a basis for optimism, even as gaps in advanced skills and workforce aging pose ongoing challenges[16][18]. Overall, Veneto's human capital is a strong asset, but continuous investment in **reskilling and upskilling** is needed for the workforce to fully support the digital transformation of SMEs.

1.4. Socioeconomic Conditions and Employment Opportunities

Veneto enjoys generally **favorable socioeconomic conditions**, with high employment, low poverty rates, and a strong industrial base contributing to social stability. The region's labor market is one of the most robust in Italy. In **2023, the employment rate in Veneto was 52.9%** (population age 15+), significantly above the national average of 46.1%[24]. This represents a post-pandemic high and an increase of ~1.9 percentage points over 2022[15]. By the internationally comparable 20–64 age employment metric, Veneto would be around 70%+, reflecting the region's high workforce participation. Unemployment is **very low**: Veneto's unemployment rate stood at just **4.2% in 2023**, compared to 7.6% nationally[25].

This rate has remained stable (4.2% also in 2022) and is among the lowest in Europe, indicating near full-employment conditions. Youth unemployment, while higher than overall, is also far better than Italy's average – the youth employment rate in Veneto is 29% (vs ~20% nationally)[26], and many young people find opportunities in the region's diverse economy.

Labor Force Structure and Inclusion

Veneto's labor force of ~2.32 million (2023) is split by gender and age in telling ways. Female employment has historically lagged male, but the **female employment rate reached 45.3%** in 2023, over 7 points higher than the Italy-wide female rate[27]. This indicates that while a gender gap persists (male employment 60.9% in Veneto)[28], the region provides relatively more opportunities for women, likely due to its manufacturing and services sectors that have absorbed female workers. Policies such as regional funds for women entrepreneurship and better childcare services (co-funded by ESF) aim to further raise women's participation. Meanwhile, Veneto's aging population means the workforce is gradually graying – the average age of workers has risen, and a wave of retirements is expected soon. Indeed, **analysts estimate about 302,000 workers will need to be replaced between 2024–2028** due to retirements alone[29]. This looming turnover could exacerbate skill shortages, but also opens opportunities for younger workers if they are equipped with the right skills.

Employment Opportunities and Sectoral Demand

Employers in Veneto have been optimistic in their hiring outlook. In 2023, companies projected a **5% increase in hiring** over the previous year, expecting over **526,000 new hires** (gross) during the year[30]. The majority of these opportunities (around 65%) are in the **tertiary (service) sector**, especially in **accommodation, food services, tourism, and commerce**[31]. Tourism and hospitality rebounded strongly post-COVID, driving demand for service workers. At the same time, the **industry sector** (manufacturing and construction) accounts for about 35–38% of planned hires, notably in **construction and metal/mechanical industries** as these sectors face booming demand and workforce replacement needs[32]. By firm size, it's noteworthy that even **micro-enterprises (<10 employees)** plan to hire (27% of expected hires), indicating broad-based labor demand across company sizes[33]. The tight labor market has, however, led to **labor shortages in certain occupations**. As of 2023, employers report difficulties filling about **50% of vacancies** – a share that has climbed from under 20% a few years ago[17].

Skills Shortages ("Mismatches"): The most **in-demand profiles** in Veneto, and correspondingly those in shortage, include:

- **Skilled trades in construction and manufacturing:** e.g. bricklayers, carpenters, electricians, mechanics, welders – reflecting a construction boom and strong manufacturing orders[17].
- **Specialized technicians:** industrial machinery technicians, automation specialists, and similar roles requiring advanced vocational training are hard to find[17].
- **IT professionals:** software developers, data analysts, and IT technicians are among the top hard-to-fill positions as digital transformation accelerates[34].
- **Tourism and hospitality staff:** chefs, cooks, and experienced waiters are in short supply, particularly for the peak tourist season, as the sector expands and competition for skilled staff

increases[34].

- **Healthcare professionals:** (While not explicitly highlighted in the regional text above, Italy generally has shortages of nurses and care workers; Veneto likely shares this trend, especially given its aging population. Health sector demand remains high in the wake of the pandemic.)

These shortages are **structural and cyclical**. Structural, because there is a **mismatch between workforce skills and industry needs** – for example, vocational schools are not graduating enough welders or IT specialists to meet demand. The issue is aggravated by an aging skilled-trades workforce entering retirement (the share of vacancies unfillable due to "lack of candidates" rose to 33% in 2023 from 17% in 2019)[35]. Cyclical, because sectors like tourism and agriculture face seasonal peaks and struggle to attract workers for short stints. The **aging population** in Veneto further tightens the labor supply: the region has one of Italy's highest life expectancies and low birth rates, so new labor market entrants are fewer than those exiting.

Labor Surpluses

On the flip side, there are certain labor segments in **surplus**, often involving workers whose skills have become outdated. According to regional analyses, **older workers with limited digital/technical skills and those in declining occupations** (some clerical roles, traditional artisans) face difficulties finding jobs[36]. These individuals may not be geographically mobile or able to retrain easily, leading to pockets of unemployment or underemployment despite the overall labor shortage. Many such workers are reluctant or unable to move (within Italy or abroad) due to family ties, language barriers, or simply the lack of modern skills that are in demand[37]. This underscores a **digital divide within the workforce**: those without digital competencies are at growing risk of exclusion, as companies increasingly seek tech-savvy employees.

Wages and Living Standards

High employment has translated into rising incomes in Veneto, though wage levels remain moderate compared to richer EU regions. The average gross monthly salary in Italy is around €2,500 (c. €1,600 net). Veneto's wages are slightly above the Italian average (reflecting its productivity), and the region's cost of living (outside of tourist hotspots like Venice) is reasonable. As a result, **quality of life in Veneto is high**. The region scored **0.903 on the HDI (Human Development Index) in 2021**, placing it 8th out of 21 Italian regions[38] – a "very high" development level comparable to many Western European countries. Residents benefit from a mix of urban amenities (Padua, Verona, and Treviso offer vibrant economies and services) and excellent public services and infrastructure.

In summary, Veneto's socioeconomic conditions are characterized by **strong labor market performance** and a generally prosperous society, albeit with challenges in ensuring the **right skills match** for its evolving economy. Employment opportunities are plentiful across sectors, but the region must confront the twin issues of **skill shortages and population aging**. Policies to train workers in needed skills, attract talent (including from other regions/countries), and retain older workers longer will be crucial. Additionally, addressing the

small pockets of labor surplus (via retraining programs for older and low-skilled workers) will improve social inclusion. By continuing to invest in its human capital and leveraging its high employment to further innovation, Veneto is well-positioned to maintain its status as an economic leader in Italy, while improving opportunities for all its residents in the digital age.

2. Analysis and Assessment of Policy Instruments

Over the past several years, numerous **policy instruments and initiatives** have been implemented to drive the digitalisation of SMEs in Veneto and more broadly in Italy. These instruments span **regional, national, and EU levels**, and range from strategic frameworks to concrete funding programs. This section provides an overview and assessment of key policy instruments, evaluates their effectiveness, identifies challenges, and discusses the region's competitiveness and best practices in SME digital transformation.

2.1. Policy Instruments

Strategic Frameworks

Veneto's efforts sit within Italy's national digital strategy and EU policy context. The Italian government has established ambitious goals through *Italia Digitale 2026*, aligned with the EU's **Digital Decade 2030** targets, focusing on gigabit connectivity, digital public services, and SME digitalisation. At the regional level, Veneto's **Smart Specialisation Strategy (S3) 2021–2027** emphasizes digital innovation across priority domains (e.g. "Smart Manufacturing" and "Smart Agrifood")[39], ensuring that digital investments align with areas of regional competitive advantage. These strategies provide direction and ensure coherence between different programs.

Major Funding Instruments and Programs

Several major instruments underpin SME digitalisation in Veneto:

- **Regional ERDF Programme (PR Veneto FESR 2021–2027):** As a **more developed region**, Veneto receives substantial funding from the **European Regional Development Fund (ERDF)** to support innovation and competitiveness. Under the current program, the region launched initiatives like the *Fondo Veneto Ricerca, Sviluppo e Innovazione*. This fund (with ~€46 million allocation) offers a combination of **grants and soft loans** to SMEs investing in R&D and technological innovation[40]. It specifically supports projects in areas such as advanced manufacturing, sustainability, and digital transformation. SMEs (and even individual professionals) in Veneto can obtain co-financing for expenses like hiring innovation experts, developing prototypes, acquiring new digital tools, etc., provided their projects align with S3 priorities[39]. The fund essentially acts as a regional innovation engine, lowering financial barriers for SMEs to experiment with new technologies. ERDF also co-finances other measures: e.g., **digitalization vouchers at regional level**, innovation advisory services, and the build-out of broadband infrastructure in

less-served areas. By targeting **SME innovation capacity**, the ERDF programs directly contribute to increasing digital maturity among Veneto's businesses.

- **National Recovery and Resilience Plan (PNRR) – Digitalisation Mission:** Italy's **NRRP** (funded by the EU NextGenerationEU facility) dedicates an unprecedented budget to digital transformation – roughly **€50 billion** under Mission 1 "Digitalization, Innovation, Competitiveness, Culture"[41]. Veneto, like other regions, benefits from a share of these investments. Through the PNRR, various **calls for projects and incentives** have been rolled out. Examples include: **Transition 4.0 tax credits** (described below), funding for ultra-broadband and 5G infrastructure deployment in underserved industrial areas, support for public digital services (indirectly helping SMEs via easier e-government), and specific programs for sectors (e.g., digital tourism platforms). The PNRR's impact in Veneto is significant – local firms are accessing grants for advanced technology adoption, and the region has seen upgrades in digital connectivity (FTTP broadband coverage has climbed to ~70.7%, matching the EU average)[42][11]. Importantly, the PNRR also funded the establishment of the **European Digital Innovation Hub (EDIH) in Veneto** and provides resources for training SMEs in digital skills. In summary, the NRRP acts as a **catalyst fund**, accelerating ongoing digital initiatives with a substantial influx of EU recovery funds.
- **Piano Nazionale Transizione 4.0:** This is Italy's flagship enterprise digitalisation program, introduced in 2017 as "Industria 4.0" and enhanced as **Transizione 4.0** from 2020 onwards. Rather than direct grants, it offers **tax credits** to companies investing in advanced technologies, innovation and training. About **€13.4 billion** in tax credits have been allocated through Transizione 4.0 to support investments in **tangible and intangible Industry 4.0 assets, R&D projects, and workforce training**[43]. SMEs in Veneto have extensively utilized these incentives to acquire digital machinery (e.g. CNC machines, robots), adopt software (ERP, CRM, IoT platforms), and upskill employees. For instance, firms get a tax credit of 40-50% for investing in approved Industry 4.0 equipment and 20-25% for software and IT systems, up to certain limits. There are also credits for R&D expenditures (typically 10-15%) and for conducting training on new technologies (up to 70% of training costs for SMEs). This program, funded initially by national budget and reinforced by PNRR, has **reached thousands of companies nationwide** – including many in Veneto's manufacturing districts – and stimulated private investment in digitalisation. It is widely credited with raising awareness of Industry 4.0; by 2022, surveys showed **87% of Italian SMEs were aware of IoT benefits and a majority had initiated IoT or automation projects**, partly thanks to Transizione 4.0's incentives[44][43]. The plan runs through 2025 (with some credits extended to 2026) and is evolving (a proposed "Transizione 5.0" will integrate green objectives). For Veneto, this instrument addresses the *technology upgrade* aspect by making digital tools more affordable for SMEs.
- **Fondo per la Crescita Digitale (Digital Growth Fund):** The national **Digital Growth Fund** was established to finance projects under Italy's Digital Agenda (Strategia per la Crescita Digitale 2014–2020) and beyond. It has been used to fund strategic digital initiatives, including support for SME digitalisation. For example, this fund (managed by the Ministry of Economic Development, now MIMIT) co-financed the **"Voucher Digitalizzazione PMI"** scheme in 2018, which provided small vouchers to tens of

thousands of micro enterprises to buy software, hardware, or e-commerce solutions. In the current period, the fund's resources are channeled into measures like broadband expansion and innovation support for enterprises. While not a direct grant program that SMEs apply to, the Digital Growth Fund underpins many digital policies – effectively acting as a **national budget line** ensuring continuity of financing for digital initiatives (including some regional ones). In Veneto, elements of this fund have contributed to expanding connectivity (e.g. voucher for ultrabroadband connectivity for SMEs, offering up to €2,500 to offset the cost of gigabit fiber subscriptions*[45][46]*) and supporting the digital innovation hubs network.

- **SME Digitalisation Vouchers (Voucher Digitali I4.0):** A **targeted, low-barrier funding** instrument has been the digital voucher programs run by chambers of commerce and regional authorities. For instance, Unioncamere Veneto (the regional chamber union), with support from the national Ministry and ERDF, issues annual calls for **"voucher digitali"** to SMEs. These provide co-financing (often **50% of expenses up to €10,000**) for small projects such as adopting e-commerce systems, building a company website, digital marketing, Industry 4.0 consultancy, or cybersecurity improvements*[47]*. The application process is simplified, and vouchers are accessible even to very small businesses that might not have capacity to engage with larger grants. This instrument has been quite popular – in Italy over **5,000 vouchers** were awarded between 2020–2023 under various schemes*[48][49]*, and Veneto has been one of the most active regions in voucher uptake. During the COVID-19 pandemic, these vouchers were crucial in helping micro and small enterprises quickly set up online sales channels and remote working tools. The **impact** is significant in breadth if not in individual project size: thousands of Veneto's micro-firms (craft workshops, small retailers, local tourism operators) have benefitted, making initial steps in digitalisation that they might not otherwise have taken. The voucher approach is considered a **good practice** (see Section 2.5) due to its simplicity and reach.
- **European Digital Innovation Hub – NEURAL (Veneto):** Launched in 2023, **NEURAL EDIH** is one of the 228 EDIHs co-funded by the EU's Digital Europe Programme and Italy's PNRR. It serves as a **one-stop shop** to support Veneto's SMEs (and public entities) in their digital transformation journey*[50]*. The EDIH provides services such as *"test before invest"* facilities (allowing companies to experiment with AI, IoT, etc. before making investments), digital maturity assessments, training and upskilling programs, and assistance in finding investment or financing for digital projects*[51][52]*. NEURAL EDIH is delivered by a consortium of regional players – including **t2i**, Digital Innovation Hub Vicenza, Confartigianato Vicenza, University of Padua (through SMACT), and even private partners like Intesa Sanpaolo bank*[53]*. With an available budget of nearly **€6 million** (via NextGenerationEU)*[21]*, it subsidizes the cost of services to SMEs, often providing initial consultations and trainings either free or at a heavy discount (typically 50-100% subsidy for eligible services). The hub specifically targets SMEs that need guidance to start or accelerate digitalisation, offering them tailored roadmaps and connecting them to technology providers or finance. It also focuses on the regional smart specialisation areas – e.g. advanced manufacturing, health, tourism – so that digital solutions are relevant to local industry needs. NEURAL became operational in late

2022 and by 2025 aims to **serve 300+ SMEs** in the region with its services. This instrument is crucial for addressing *knowledge and advisory gaps*: many SMEs struggle not just with funding but with understanding what technologies to adopt and how. By filling that role, the EDIH complements the financial incentives and is expected to raise the effectiveness of other programs (firms that go through the EDIH can then better utilize vouchers, tax credits, etc., with a clearer digital strategy).

- **Competence Center "SMACT" and Digital Innovation Hubs Network:** In addition to the EDIH, Veneto benefits from the **national Industry 4.0 network** established a few years prior. The **SMACT Competence Center** (based in Padua) is a public-private partnership co-funded by the Ministry of Economic Development. It focuses on **Social, Mobile, Analytics, Cloud, IoT** (hence the acronym SMACT) and provides advanced labs and expertise to help companies develop Industry 4.0 projects[54]. SMACT runs innovation projects, training, and **technology audits** for SMEs, often acting as a bridge between university research and industry. It has also launched its own calls co-funding innovative SME projects (with grants up to €100k for pilot projects). Meanwhile, the region has local **Digital Innovation Hubs (DIHs)**, typically hosted by business associations (Confindustria Veneto's DIH, Confartigianato's DIH, etc.), which perform outreach and first-line digital consultancy for SMEs. These DIHs now coordinate closely with NEURAL EDIH and the Competence Center, forming a multi-layer support ecosystem. The **integration of competence centers and DIHs** is an instrument in itself – creating an *innovation ecosystem* where an SME can get support ranging from awareness (local DIH events) to deep expertise (competence center) depending on its needs. This structured network is supported by both national and EU funds and ensures that policy instruments are not only about financing, but also about **knowledge transfer**.

Table 1 below summarizes the **key policy instruments** relevant to SME digitalisation in Veneto, along with their scope and status:

Instrument / Program	Description & Goals	Status/Reach
PR Veneto FESR 2021–27 (Fondo RSI)	ERDF-funded regional program; grants & loans for SME innovation and digital projects in S3 priority areas[40][39]. Aims to increase R&D and tech adoption in regional SMEs.	Launched 2024; supporting dozens of SME projects (ongoing). €46M fund allocation; high demand first call.
PNRR – Digitalisation (Mission 1)	National recovery plan investments in broadband, e-government, and SME digital readiness (including EDIHs)[41]. Enables infrastructure and	2021–2026; multi-billion € projects underway. Veneto receiving funds for 5G corridors, digital hub, etc.

	capacity-building to meet EU Digital Decade targets.	
Transizione 4.0 Plan (2020–2025)	Tax credit scheme incentivizing private investment in Industry 4.0 tech, R&D, and worker training[43]. Goal: modernize production and boost innovation in firms of all sizes.	Active (tax credits through 2025). Widely used in Veneto; hundreds of firms claim credits yearly. Allocated €13.4B nationally.
SME Digital Vouchers (Voucher I4.0)	Small-scale grants (often €5k–€10k) via chambers or region for SMEs to acquire digital services (software, e-commerce, training)[47]. Low-barrier funding to engage micro and small enterprises in digitalisation.	Annual calls since 2018; high uptake. Thousands of Veneto SMEs reached (e.g. ~800 in latest call), covering 50% of project costs.
Fondo Crescita Digitale (Nat. Digital Growth Fund)	National fund supporting Digital Agenda initiatives – financed broadband vouchers, digitalization projects, etc. for SMEs and public sector. Provides strategic funding underpinning many specific measures.	Ongoing (2015–present). Financed measures like SME connectivity vouchers 2020–2023[45], and co-funds current digital programmes.
NEURAL EDIH (Veneto)	EU–Italy funded European Digital Innovation Hub for Veneto[50]. Offers "test before invest", assessments, training, and innovation ecosystem networking for SMEs, focusing on digital transformation.	Operational 2023–2025 (initial). Target to assist 300+ SMEs by 2025. Already providing subsidized services with €6M PNRR support[21].
SMACT Competence Center & DIHs	Industry 4.0 Competence Center (Padua) with labs and expert support for advanced projects; plus a network of regional Digital Innovation Hubs for outreach and guidance. Aim to build innovation capacity and link SMEs with technology providers/research.	Established 2018; ongoing. SMACT has engaged dozens of SMEs in pilot projects and training. DIHs conduct awareness workshops (>1000 SMEs reached across Veneto).

Funding Sources

The above instruments are financed through multiple channels, reflecting a mix of EU and national contributions. Key funding sources include the **European Regional Development**

Fund (ERDF) for regional programs, the **Recovery and Resilience Facility (NRRP)** for one-time transformative investments, **national funds** such as the Digital Growth Fund and budget allocations for Transizione 4.0, and the **EU Digital Europe Programme** for EDIH support*[55]*. Coordination of these funds is crucial to avoid overlap and ensure comprehensive coverage of needs.

Overall, Veneto and Italy have put in place a **multi-tiered policy ecosystem** to advance SME digitalisation – from direct financial incentives and advisory support to broader strategies setting the direction. The next sections will assess how effective these instruments have been, what gaps remain, and how they contribute to the region's competitive position.

2.2. General Assessment

Progress and Uptake

Veneto (and Italy generally) has made **steady progress** in fostering SME digitalisation, thanks in part to the targeted policy instruments described. There is clear evidence of improvement in basic digital adoption: approximately **70% of Italian SMEs now have a basic level of digital intensity**, a significant rise compared to a few years ago*[11]* (and well above the EU27 average of ~58% in 2023). Many Veneto firms took advantage of the extraordinary stimulus (NRRP, vouchers, etc.), resulting in tangible outcomes – for example, thousands of micro-businesses launched their first e-commerce sites or implemented digital marketing during 2020–22 with voucher support. **However, progress remains uneven across company sizes and sectors.**

Key observations include:

- **Basic vs Advanced Technologies:** While more SMEs are online and using basic digital tools (e.g. having a website, social media, basic software), the **use of advanced technologies is still limited**. Only a minority of SMEs utilize cutting-edge solutions like AI, big data analytics, or IoT in operations. In Italy, only **5% of firms use AI (vs 8% EU average)***[12]*, and similarly low figures apply to big data and cloud uptake for small businesses. This suggests that many SMEs stop at the first step of digitalisation and have not yet integrated more transformative technologies into their processes. **Micro-enterprises** in particular struggle to go beyond basic ICT adoption due to cost and skill constraints.
- **Digital Skills Gap: Digital skills among owners and employees of SMEs are below desired levels.** As noted, only ~46% of Italian adults have basic digital skills*[16]*, and Veneto's workforce mirrors this challenge. This shortfall directly impacts SMEs: for instance, a significant share of small manufacturers report that lack of skilled staff is a barrier to adopting new digital tools*[56][57]*. Many SMEs depend on external IT providers or consultants for their digital needs, which can be costly and limit the in-house assimilation of digital culture. The policy focus on training (Transizione 4.0's training credits, and EDIH's courses) is addressing this gradually, but results will take time. In the interim, digital skill deficits continue to slow the effective use of available technologies in the SME sector.

- **Regional and Sectoral Disparities:** Within Italy, **regional disparities** in SME digitalisation are prominent – northern regions like Veneto are ahead of southern ones. Within Veneto itself, disparities exist **by sector and firm size** rather than geography (the region is relatively homogeneous economically). **More advanced sectors** include:

  · *Manufacturing (medium-high tech)* – e.g. machinery and automotive SMEs integrating automation, IoT and robotics to remain competitive;

  · *Fashion and design brands* – often quick to adopt e-commerce, PLM software, etc.;

  · *Tourism and hospitality* – many have embraced digital marketing, online booking platforms, and data-driven customer service to enhance their offerings*[58]*.

On the other hand, **lagging sectors** are:
- *Construction* – many small contractors still rely on traditional methods, low uptake of BIM (Building Information Modeling) or project management software;
- *Agriculture and small agro-food producers* – digital tools (smart farming, e-commerce) are not yet widespread outside a few innovative cases;
- *Craft-based micro enterprises* – artisans, small retailers who may not see immediate value in digital or lack capacity to implement it*[59][60]*.

There is also a gap by **firm size**: larger SMEs (100-249 employees) tend to have dedicated IT staff and higher adoption of ERP systems, advanced analytics, etc., whereas **micro and small firms** often have very patchy digital implementation. This *"digital divide by size"* is significant – smaller firms also find it harder to access some of the support schemes due to limited administrative capacity.

· **Impact of Policy Instruments:** The policy instruments introduced have been **numerous**, which is positive in terms of resources available, but can be **fragmented from the SME perspective**. Companies often need help navigating the "jungle" of support. For example, an SME could potentially tap a regional ERDF call, a chamber voucher, a national tax credit, and an EDIH service – but knowing about all these and understanding how they complement each other is challenging, especially for micro-enterprises*[61][62]*. Some firms report that while funding is available, **application processes can be complex or bureaucratic**, acting as a deterrent for the smallest businesses without external help. That said, many programs have simplified procedures (vouchers, for instance), and intermediaries like business associations often assist SMEs in applying. Overall, **absorption of funds in Veneto has been high** – the region usually fully utilizes its allocations for innovation programs. The **general assessment** is that policy instruments are making a dent in the problem, but there remain **key gaps and issues** to address (outlined in the next section).

To summarise the state of play: **SME digitalisation is now firmly on the political and business agenda in Veneto.** Over half of SMEs have taken at least basic steps, and

success stories exist of small firms significantly improving efficiency or expanding markets through digital tools (e.g. artisans finding global customers via online platforms). However, the transformation is far from complete. Many SMEs still operate in traditional ways and risk falling behind as digital technology and data-drive competition advance. The existing policy support, while beneficial, has to be continually refined to ensure it reaches the **most vulnerable segments (micro-enterprises, rural businesses) and encourages adoption of more advanced digital innovations**, not just basic IT.

Key Issues and Gaps

Building on the above, several **persistent issues** can be identified:

1. **Digital Divide by Size:** Micro and small enterprises have **lower digital maturity** compared to larger SMEs. They often lack not only finances but also awareness and strategic capacity for digital projects*[60][63]*. Many national schemes (e.g. sizable innovation grants) end up skewed towards medium firms that can prepare complex proposals, leaving a gap for the smallest companies.
2. **Low Adoption of Advanced Tech:** Technologies like AI, advanced analytics, and blockchain are **adopted only by a minority** of SMEs*[64][65]*. Even among manufacturing SMEs, Industry 4.0 tends to start with simpler automation; few have moved to data-driven decision making or AI-based processes. There is a need for deeper penetration of these technologies, possibly via targeted pilots and demonstrations relevant to SME use-cases.
3. **Skills Shortages and Mismatch:** A **mismatch between workforce skills and digital transformation needs** is evident*[66]*. Older workers and many unemployed have skills that don't meet current SME needs, while companies struggle to hire programmers, technicians, and digital marketers. Without bridging the skills gap (through education reform, re-training programs, and attracting talent), digitalisation efforts might stall – e.g., SMEs might buy new software but fail to fully utilize it due to lacking skill internally.
4. **Fragmented Support Landscape: Many support schemes exist, but SMEs often find them complex to navigate or under-publicized***[61]*. A common complaint is that information on available instruments is scattered. There is no single "portal" or advisory service that streamlines all options (though the EDIH might evolve into that role). This fragmentation can lead to unequal access – well-networked firms tap multiple aids, while others remain unaware.
5. **Insufficient Long-Term Impact Tracking:** There is limited **longitudinal data** on how digital investments are paying off in terms of productivity, profitability, or growth for SMEs*[67][68]*. Most KPIs tracked are immediate (number of firms funded, number of websites created, etc.), but to fine-tune policies, it would help to understand the longer-term outcomes and which interventions yield the best ROI.

Despite these gaps, the **policy agenda remains strongly committed** to SME digitalisation. Digital transformation is recognized as a top priority in Italy's economic policy (it features in national strategies and high-profile programs, as described). Veneto's regional authorities likewise emphasize digital innovation as key to regional development. The alignment with EU

initiatives gives additional impetus – for instance, meeting the Digital Decade target that **75% of SMEs achieve basic digital intensity by 2030** is a clear goal against which progress is measured.

In conclusion, the general assessment is mixed-positive: **significant strides have been made**, but there is still a lot of work to ensure *breadth and depth* of SME digitalisation. The next subsections delve into specific challenges and how they affect policy effectiveness, followed by an examination of how these efforts translate into regional competitiveness outcomes.

2.3. Identification of Policy Challenges

A structured analysis of the current policy instruments in Veneto/Italy reveals several **challenges and weaknesses** that need to be addressed to improve SME digital transformation outcomes. These policy challenges often mirror the gaps identified above. Table 2 summarizes the key challenges:

Table 2: Policy challenges in SME Digitalisation

Challenge (ID)	Description of the Challenge
C1: Low adoption of advanced technologies	Despite available incentives, uptake of **AI, cloud, IoT, and data analytics** is low across most SMEs. Many firms focus on basic IT and are hesitant or unsure how to implement more complex digital tools*[64][69]*. This limits productivity gains and innovation potential.
C2: Micro-enterprise gap	**Micro-SMEs struggle to access** or benefit from larger digital transformation schemes*[63]*. They often lack the human and financial capacity to apply for grants or invest in new technologies, risking exclusion from the digital transition.
C3: Skills gap	The workforce skills gap persists: only ~46% of the population has basic digital skills (Italy)*[16]*, and **internal ICT capabilities in SMEs are weak***[66]*. A shortage of ICT specialists and low digital literacy among many workers hinder SMEs in adopting and effectively using new technologies.
C4: Administrative barriers	Some SMEs find the **bureaucracy and complexity of programs** to be a barrier*[70]*. Lengthy application forms, strict documentation, or co-financing requirements can overwhelm small firms. The administrative burden means certain companies do not even attempt to access available funds.

C5: Geographic and infrastructure disparity	Although Veneto is well-developed, **rural areas and smaller towns** can lag in digital infrastructure and adoption. Gaps in high-speed broadband (though narrowing) and lower awareness outside urban centers contribute to a **regional digital divide** (nationally, Italy's south vs north; within Veneto, perhaps mountain communities vs plains)*[71]*. This challenge echoes broader cohesion goals to ensure balanced digital development.
C6: Sectoral imbalance	Traditional sectors (e.g., agriculture, simple manufacturing, crafts) **lag significantly** behind services and high-tech sectors in digital uptake*[72]*. Policies may not be sufficiently tailored to these lagging sectors' needs – e.g., lack of sector-specific digital solutions or demonstration projects that speak to, say, a small farm or a construction firm.

These challenges highlight where policy refinements are needed. For instance, **C1 (advanced tech adoption)** suggests the need for initiatives specifically promoting emerging tech usage (perhaps technology demo centers or higher incentives for AI projects). **C2 (micro-enterprises)** points to implementing more **inclusive measures**, like micro-grants, outreach and hands-on assistance so that the "long tail" of smallest businesses is not left behind. **C3 (skills gap)** requires educational and training policy alignment – collaborating with education institutions, expanding digital apprenticeships, and facilitating hiring of digital talent (possibly through incentives or easing immigration of skilled workers). **C4 (bureaucracy)** indicates a need to **simplify procedures** further – Italy has been trying one-stop digital portals for grants, but continued streamlining and perhaps capacity-building for SMEs to handle admin is needed. **C5 (geographic)** is partly being tackled by broadband roll-out (PNRR aims for full ultra-broadband by 2026) and by leveraging local networks (like chambers in every province doing digital awareness events). **C6 (sectoral)** suggests that one-size-fits-all policies may miss the mark; more targeted support (e.g. a digital scheme for agriculture, or specific digital toolkits for artisans) could ensure no sector is left untouched.

In evaluating the current instruments against these challenges: some, like the voucher scheme, directly address **C2** and **C4** by being micro-friendly and low-bureaucracy (hence their success). The competence centers and EDIH address **C1** and **C3** by raising know-how and skills, but they will need scaling up to reach enough companies. The national strategies are cognizant of **C5** and **C6** (for example, "digital in agriculture" initiatives exist under separate programs, and cohesion funds target rural broadband). However, **coordination and integration of efforts** remain a challenge in itself, which could be considered another meta-challenge: ensuring all these initiatives form a coherent pipeline for an SME (from initial awareness to advanced tech adoption and scaling).

The subsequent sections on competitiveness, good practices, and recommendations will further explore how to overcome these challenges and strengthen the policy response.

2.4. Regional Competitiveness

Digitalisation of SMEs is not an end in itself – its ultimate rationale is to bolster the **competitiveness** of the region's economy and improve socioeconomic outcomes. In Veneto's case, SME digitalisation is a critical lever for maintaining its high productivity, export success, and ability to generate quality jobs. This section examines the **economic and social impact** of SME digitalisation in Veneto, and how the region stacks up in innovation and competitiveness indices.

Economic Impact – GDP and Productivity

As SMEs adopt digital technologies, improvements in efficiency and innovation can contribute to economic growth. Italy has long experienced a productivity stagnation, especially in traditional SME-dominated sectors, so digital tools are seen as a means to revitalize productivity. Veneto's recent GDP growth has been modest but steady; for example, **GDP per capita in 2024 reached around €34,000**, up about 1.5–2% from the previous year (keeping pace with national growth)*[73]*. While it is difficult to isolate the effect of digitalisation, **firms that implemented advanced technologies have shown resilience and even gains**. National data suggests digitalised SMEs were better able to weather the COVID-19 shock (by shifting to online sales or remote work) and rebound faster. Veneto's overall GDP per capita is about **€40,800 in PPS, which is 111.6% of the EU average***[74]*, indicating above-average productivity and wealth generation*[75]*. Sustaining this advantage will depend on broadening digital adoption – studies correlate higher digital intensity with higher productivity growth at firm level. The *value-added per employee* in digitally mature SMEs tends to be higher than in non-digital peers. Some early signs in Veneto: companies that invested in Industry 4.0 have reported productivity increases and cost savings (e.g., a 3-5% gain in output or reduced downtime), contributing incrementally to regional GDP growth. Going forward, as more SMEs move from basic IT to data-driven and automated operations, the expectation is a lift in the region's productivity growth, helping Veneto remain one of Italy's most prosperous regions.

Employment and Job Creation

Digitalisation's impact on employment is twofold – it can **create jobs** by enabling growth and new services, but also **change the job structure** (automation can reduce certain routine roles while increasing demand for tech-savvy roles). So far in Veneto, the effect appears net positive. The region's employment rate (72.9% for 20–64 age group, equivalent to 52.9% for 15+ as earlier noted) is among the highest in Italy*[15]*. Unemployment at 4.2% is so low that the main concern is labor shortages, not lack of jobs*[25]*. **Digitalisation has facilitated job creation** in some sectors: for example, the ICT sector in Veneto is growing and hiring more people (the region now counts tens of thousands of ICT sector employees – nationwide Italy has ~33,700 ICT enterprises employing ~100k+ people*[76]*, and Veneto as an industrial hub hosts a share of those). New roles like digital marketing specialists, data analysts, and e-commerce managers are emerging even in traditional companies, adding jobs that did not exist a decade ago. A concrete indicator: the **ICT sector salaries and employment** have been rising. In Italy, ICT specialists' employment share rose from 3.5% to 4%

(2019–2024)*[18]*. Veneto likely mirrors this, although still below EU average. The **job vacancy rate** in ICT in Italy remains high – implying strong demand. Interestingly, in Slovenia (as a comparator), the ICT sector job vacancy rate fell slightly from 3.4% to 2.2% in 2023 as more positions were filled*[77]*. In Veneto, anecdotal evidence suggests companies that embraced digitalisation (like those pivoting to e-commerce during the pandemic) retained or even grew employment, whereas those that did not were more likely to downsize.

On the other hand, **automation has begun to displace some manual jobs** – e.g., automated warehouses reduce the need for laborers, digital accounting software reduces need for clerks. However, given the current labor shortages, these efficiencies are often welcome and free up workers for other roles. Many SMEs report that automation is used to cope with unfilled vacancies rather than to cut existing staff. Thus, in the short to medium term, SME digitalisation in Veneto contributes to **qualitative improvements in jobs** (more skilled positions, less drudgery) and supports overall employment by making firms more competitive (and thus more likely to expand).

Income and Wages

Increased digital competitiveness can lead to higher wages, especially for in-demand skills. In Veneto, wages in tech-related occupations have been on the rise due to high demand. For instance, **software developers** in the region can earn from €30k up to €60-70k annually for experienced roles, significantly above average local wages (Italy's average gross salary ~€30k/year)*[78]*. This has created a wage premium for digital skills. The **ICT sector in Italy saw a ~7-8% salary increase from 2023 to 2024**, reflecting robust demand*[79]*. Veneto's competitive companies, especially exporters, can afford higher pay, which contributes to the region's standard of living. However, it's also noted that **Italy's average wages are still below the EU average** (average gross ~€2,220 per month in 2023 vs €3,417 EU average)*[80]*. Veneto's cost of living adjusted wages are decent, but further digital-driven productivity gains could help justify higher salaries and attract/retain talent locally (reducing brain drain to places like Milan or abroad).

Social Impact – Quality of Life

Digital transformation also has social implications in the region. A more digital economy often means more flexible work arrangements (remote work, gig economy), better access to services (e.g., telemedicine in rural areas), and improved work-life balance if managed well. Veneto is generally a high performer on quality of life metrics. Italy's **BES (Benessere Equo e Sostenibile)** indicators and Eurostat's regional quality of life surveys rank Veneto near the top in Italy for factors like health, social connections, and safety. For example, on a Quality of Life Index Europe-wide, Veneto's components (if measured) would likely be high given low crime and good healthcare. As a country comparison, **Italy ranks 13th in Europe on the Quality of Life Index** and Veneto, being wealthier and well-governed, likely exceeds the national average*[81]*. Digitalisation contributes to this by, for instance, **enhancing access to services** (digital public services mean less bureaucracy for citizens), **promoting remote work** (which many Veneto companies enabled during COVID, reducing commute stress for employees), and offering digital public utilities (e.g., e-health records – Italy performs above EU average in e-health access at 82.7/100*[82]*, with Veneto fully rolling out electronic health

records). The pandemic accelerated some of these, and they remain in use, improving convenience.

However, there are also **challenges**: not everyone is digitally included. Elderly populations and some rural communities risk isolation if they lack digital skills. The region has initiatives via social services to train older people for basic IT use and ensure that traditional channels remain for those not online. On balance, **digitalisation is seen as a positive force for social inclusion** when coupled with training – e.g., telemedicine can bring specialist healthcare to remote mountain villages, and e-governance saves time for citizens interacting with government.

Innovation Capacity

From a competitiveness standpoint, innovation is key. Veneto's status in the **Regional Innovation Scoreboard (RIS) 2023** is **"Moderate Innovator +"**, meaning it performs above the EU average of the moderate innovator group*[75]*. Its **Regional Innovation Index (RII) is 0.552**, which is about **100.8% of the EU average** (slightly above) and 111.6% of the Italian average*[83][74]*. This indicates that Veneto has a solid innovation performance – stronger than most Italian regions except perhaps Lombardy, and comparable to regions like Catalonia or Baden-Württemberg's mid-tier. Innovation indicators show Veneto's strengths in areas like **SMEs innovating** (many introduce product or process innovations), and weaknesses in things like R&D spending (as in Italy generally) and venture capital availability. Over 2016–2023, Veneto's innovation performance improved by about **+14.7%**, showing positive momentum*[75]*.

Specifically related to digital, some relevant innovation metrics: the share of **SMEs with in-house product or business process innovations** is quite good, and **employment in innovative enterprises** is high*[84][85]*. Conversely, the share of **ICT specialists** in employment and **venture capital investment** are relative weaknesses (as we've noted – lack of funding for startups and tech talent scarcity)*[86]*. The policy instruments like Startup funds, incubators, and now the EDIH aim to tackle these.

Regional Competitiveness Index (RCI)

The EU's Regional Competitiveness Index measures factors like institutions, infrastructure, macro stability, health, education, labor market, market size, technological readiness, and innovation. Veneto typically scores well on infrastructure and market efficiency, moderately on innovation, and less on higher education (because of Italy's low tertiary education). It consistently ranks in the top tier of Italian regions on such composite indices.

In terms of **international competitiveness**, Veneto's high export numbers (machinery, fashion, agro-food, etc.) showcase its companies' ability to compete globally. Digitalisation helps maintain that edge – for instance, Veneto's manufacturing exporters adopting Industry 4.0 are better positioned against lower-cost competitors because they compete on quality and efficiency, not just cost. **Export success** is a direct competitiveness indicator: Veneto exports tens of billions of euros in goods annually (machinery, metals, fashion, furniture, wines, etc.). As global trade shifts to requiring digital compliance (e.g., digital supply chain

integration, e-certifications), Veneto's SMEs must keep up digitally to remain preferred suppliers in German automotive chains or global fashion retail networks.

Key Challenges for Competitiveness

Despite many strengths, there are challenges hindering full realisation of digital dividends:
- A **persistent digital divide** within Italy means the country as a whole still lags top EU performers in many digital metrics, potentially dragging on overall competitiveness. Veneto pulls above its weight but still operates within that context.
- The **skills shortage** is a glaring issue (as detailed, only 4% ICT specialists vs 4.8% EU*[18]*, and only ~46% basic digital skills*[16]*). Without sufficient talent, competitive gains from technology might stall.
- **Access to finance for innovation** remains moderate – Italy has relatively fewer high-growth startups and less venture capital (only 7–9 unicorns in Italy by 2023, <3% of EU total*[87]*, and Veneto has some startups but not yet a unicorn hub). This can limit how far digital innovation translates into new high-value firms in the region.

In conclusion, **SME digitalisation has positively influenced Veneto's economic growth, employment, and innovation capacity**, reinforcing the region's competitive position. Veneto's GDP per capita and employment rates are among the best in Italy, and digital adoption contributes to these outcomes by enabling higher productivity and new business models. However, to **sustain and enhance these benefits**, the region must address the identified challenges: bridging remaining digital divides (firm size, skill level, sector), ensuring the workforce is prepared, and providing a supportive ecosystem (financing, networking) for advanced digital innovation. Continued commitment to strategic policies – like expanding training, incentivising advanced tech adoption, and improving data infrastructure – will be crucial for Veneto to maintain its competitive edge in Europe's digital economy.

2.5. Good Practices and Recommendations

In implementing SME digitalisation policies, certain **good practices** have emerged in Veneto (and Italy at large) that could be models for other regions. Additionally, drawing from the analysis of challenges, we outline **recommendations** to strengthen the policy approach moving forward.

Good Practices

GP1: SME Digitalisation Vouchers (Chamber of Commerce model) – *Low-barrier co-funding reaching micro and small businesses.* This scheme, implemented by chambers of commerce in Veneto (as part of the national Impresa 4.0 program), has proven effective in engaging SMEs that might otherwise not participate in digital projects. **Why it works:** It provides **small grants with minimal bureaucracy**, lowering the threshold for action. The vouchers are **tailored to SME needs** – e.g. a bakery can get funding for a simple e-commerce site, a craftsman for digital marketing, a small manufacturer for a cybersecurity audit – exactly the kind of specific, immediate needs SMEs have*[88][89]*. The application is typically online with a short form, and calls are frequent (some chambers have **monthly or**

rolling calls, so businesses can apply when ready)*[90]*. **Impact:** Over **5,000 SMEs were supported in Italy between 2019 and 2023** through digital vouchers*[91][92]*, with a significant uptake in Veneto. These vouchers helped micro-firms implement tangible improvements (e.g., many during COVID pivoted to online sales thanks to voucher-funded e-commerce). The widespread use among micro and small enterprises (including artisans and shops that had never received public aid before) shows this practice succeeded in **democratizing access to digital innovation***[93]*.

- **GP2: Integrated Digital Innovation Hubs Network (EDIH + local DIHs + Competence Center)** – *Collaborative support ecosystem for SMEs.* Veneto's approach of linking the European Digital Innovation Hub (NEURAL), existing local Digital Innovation Hubs, and the SMACT Competence Center creates a continuum of services for companies. **Why it's a good practice:** It leverages multiple strengths – the **EDIH provides funding and a structured framework**, the **DIHs bring local outreach and understanding of SMEs' needs**, and the **competence center contributes deep technical know-how and facilities**. Partners such as universities, chambers, and industry associations are working in concert rather than siloed. For example, an SME might attend an introductory digital awareness seminar by a local DIH, then get referred to NEURAL EDIH for a detailed **digital maturity assessment and expert consultation**, and if needed, connected to **SMACT's labs for prototyping or testing** a solution. This creates a pipeline from initial awareness to actual implementation. **Impact:** Although relatively new, this integrated approach is already showing results – SMEs that engage with the hub network are able to identify appropriate technologies and often then apply for financial support (like vouchers or tax credits) with a clearer plan. The *coordinated, partnership-based model* avoids duplication of efforts and has been recognized at the national level as a model to emulate (tying together national competence centers and EU EDIHs). It aligns with the EU's vision of one-stop-shops for digital transformation support. This practice particularly helps address the **knowledge and coordination gap (Challenge C4)** by simplifying the SME's journey through various support instruments.
- **GP3: Targeted Training and Mentorship Programs (Digital Coaches)** – *Focus on human capital alongside technology.* Veneto, through initiatives like **PID "digital promoters"** and projects under ESF, has piloted programs where experts (sometimes called digital tutors or coaches) work directly with SMEs to craft digital strategies. **Why it's effective:** Many small businesses need not just money, but guidance on **how to digitalise**. Having a **skilled mentor/consultant visit the company**, assess its processes, and suggest a step-by-step digital roadmap is immensely valuable. Some chambers employed "digital promoters" who performed free assessments and advice for SMEs as part of PID – a service that was well-received. In a similar vein, certain cluster associations in Veneto offered mentorship where successful entrepreneurs ("digital champions") coached peer SMEs on technology adoption. **Impact:** These programs, though smaller in scale, have shown that participating SMEs make better use of technology and are more likely to complete their digital projects successfully (since they had guidance). By coupling mentorship with financial incentives, SMEs can use funds more effectively. This addresses **Challenge C3 (skills gap)** and **C2 (micro gap)** by building internal

understanding within the SME, not just throwing equipment or software at them. The recommendation is to expand such coaching initiatives, possibly via EDIH (which has budget for advisory) or new ESF-funded projects.

Recommendations

Building on the above practices and the identified challenges, the following recommendations are offered for policymakers and stakeholders in Veneto's SME digitalisation journey:

1. **Simplify and Integrate Access to Support ("No Wrong Door" approach):** Create a **unified digital portal or helpdesk** for SME digital transformation support in Veneto. SMEs should have a clear starting point to learn about all available programs (regional, national, EU). This could be an expansion of the **Infocamere/PID portal** to encompass regional specifics, or a dedicated section on the regione.veneto.it site that aggregates information on Transizione 4.0, vouchers, ERDF calls, EDIH services, etc. The **NEURAL EDIH** could be positioned as this gateway: as part of its mandate, it can ensure that any SME approaching it is guided to all relevant opportunities (effectively acting as a concierge). This addresses **fragmentation (C4)**. Additionally, continue simplifying application procedures where possible – e.g., extend the voucher model of short applications to some ERDF measures for micro-firms, and allow **more user-friendly reporting** (perhaps template-driven) so that administrative burden is minimized.
2. **Tailor Support to Micro and Under-served SMEs:** To tackle **C2 (micro-enterprise gap)**, introduce **micro-grant bundles with coaching**. For example, a program that offers a small grant (say €5k) *plus* 20 hours of a consultant's time to a micro-business could ensure money is well-used. This could be delivered through EDIH or DIHs, effectively subsidizing consultancy alongside the hardware/software purchase. Also, consider **special outreach** for sectors like artisans, small retailers, farmers – perhaps through their trade associations – to promote digital tools relevant to them (point-of-sale digital systems, farm management apps, etc.). The key is ensuring the smallest firms are not intimidated by digitalisation. Continued funding of **Chamber vouchers** and perhaps increasing their budget (since demand often exceeds supply) is another concrete step.
3. **Focus on Advanced Technologies & Innovation Capacity:** To overcome **C1 (low advanced tech adoption)**, Veneto should launch **targeted initiatives for AI, advanced manufacturing, and data analytics** in SMEs. For instance, a regional call (using ERDF or national funds) specifically for **SME AI adoption projects** – providing grants or innovation vouchers to those willing to implement AI or big data solutions. Partnering with universities and startups can help provide solutions. Also, expanding test facilities: SMACT and other labs could host *"open house"* events where SMEs can see AI/robotics in action relevant to their industry. In addition, stimulate **sector-specific digital innovation** hubs – e.g., a digital agriculture hub in collaboration with agri-tech companies for the agro-food sector; or PropTech initiatives in construction. Strengthening **innovation financing** is related: encourage more venture capital and startup incubation in the region (perhaps through a regional

co-investment fund) to boost the creation of digital startups that can both become new employers and offer innovative solutions to traditional SMEs.

4. **Intensify Digital Skills Development:** Addressing **C3 (skills gap)** is crucial and requires a multi-pronged approach:

    5. **Education:** Work with educational institutions to update curricula – more coding, data science, and digital entrepreneurship content in universities and technical institutes. Veneto's universities could expand ICT seats and programs in AI, cybersecurity, etc., possibly with scholarships to retain talent locally. Support vocational schools (ITS) that provide Industry 4.0 technician training; ensure their courses align with what local SMEs need (automation specialists, digital maintenance, etc.).

    6. **Upskilling current workforce:** Scale up programs like **Digital Skill vouchers for employees**, where SMEs get funding or tax breaks to train their staff (using certified training bodies or online courses in digital topics). The Transizione 4.0 tax credit for training is underutilized – promote it more aggressively in Veneto and simplify its use.

    7. **Attracting Talent:** The region might explore incentives to attract ICT professionals from elsewhere – for instance, housing support or tax incentives (like Italy's "Brain Gain" tax break for repatriates) targeted to tech workers to choose Veneto's cities as home. Encouraging **women in tech** and other underrepresented groups is also important (aligning with EU and national inclusion goals).

Furthermore, continue funding **awareness campaigns** highlighting the importance of digital skills at all levels (for SMEs owners – so they invest in their people, and for workers – so they pursue training). Ultimately, without more digitally skilled people, investment in tools will not fully translate to value.

1. **Ensure Sustainable Digitalisation and Post-Project Support**

    Many programs assist an SME up to the point of acquiring technology, but **follow-up support** is often lacking. It is recommended to implement a mechanism where, say **12-18 months after a grant**, the SME is revisited (by a chamber or EDIH advisor) to assess if the digital tool is implemented effectively, and offer additional help or peer-learning opportunities. This could be informal, but a structured **"post-adoption audit"** program could be considered. It would help address issues of under-utilization of purchased technology and provide data on impact (tackling **lack of impact tracking** issue). Also, promote **networking and peer learning**: create forums (physical or online) where SMEs that have digitalised share experiences. The EDIH can host periodic meetups for companies who went through digital projects to exchange lessons and possibly mentor those just starting.

2. **Strengthen Data Infrastructure and Monitoring**

For **policy evaluation** and to refine future actions, improve the data collection on SME digitalisation at the regional level. Work with ISTAT/Eurostat to get more **granular data** (e.g., include enterprises with <10 employees in some surveys or do dedicated regional surveys)*[94][95]*. Also, integrate datasets – perhaps link the results of voucher programs, EDIH assessments, etc., to see correlations and outcomes. This will identify which types of support yield the best results. Strengthening data infrastructure also refers to continuing the expansion of digital infrastructure: by 2025, aim for near 100% ultrabroadband coverage in Veneto (leveraging PNRR funds) and promote the adoption of advanced connectivity (5G, edge computing) in industrial zones. Connectivity is the foundation upon which digital tools rely.

By implementing these recommendations, Veneto can build upon its successes and address its weaknesses. The overarching theme is to move from a somewhat fragmented support landscape to a **more integrated, user-centric ecosystem** for SME digital transformation – one that not only provides funding but also knowledge, skills, and long-term partnership to SMEs on their digital journey. This will help ensure that digitalisation truly translates into sustained competitive gains, inclusive growth, and resilience for the region in the face of future challenges.

2.6. Data Infrastructure

To effectively steer and evaluate the digital transformation of SMEs, **data infrastructure and measurement tools** are essential. Veneto (and Italy) have put in place several mechanisms to monitor progress, but certain **data gaps remain** that hinder a fully informed policy cycle. This section outlines the available data tools and strategic frameworks, and identifies where improvements in data infrastructure are needed.

Digital Intensity Index (DII)

At the EU level, one key measure is the **Digital Intensity Index**, which assesses the use of 12 digital technologies by businesses (ranging from basic like internet and email to advanced like ERP, CRM, cloud) on a scale of 0-12. According to Eurostat, as of 2023 about **59% of all EU enterprises** (with ≥10 employees) had at least a basic level of digital intensity, while for SMEs it was ~58%*[96]*. Italy's performance on this index has improved: **around 52% of Italian enterprises with ≥10 employees** reached a basic level of digital intensity in 2023*[97][98]*. Among SMEs specifically, roughly **half of Italian SMEs** achieved that level (the earlier mentioned 50.4% for Slovenia, by comparison, shows Italy was likely a bit higher in the latest data)*[97][98]*. The DII provides a broad indication of digital uptake. It also highlights challenges: for instance, a survey found **66% of enterprises in Slovenia (a similar context) faced obstacles in digital transformation**, mainly lack of skills (41%) and financial constraints (37%)*[99][56]*. It's reasonable to assume Italian firms voice similar barriers. Veneto can leverage such findings to target those issues with policy (as it has tried with training and vouchers).

Strategic Monitoring Frameworks

Italy has established strategic frameworks that include monitoring of key indicators:

- The **Strategy for Digital Italy / "Digital Agenda"** (now embodied in Italia Digitale 2026) sets targets (e.g. broadband coverage, digital public service usage, SME digitalisation) and monitors them annually in collaboration with the EU's Digital Economy and Society Index (DESI) and Digital Decade Country Reports. Italy's 2024 Digital Decade Report, for instance, highlighted strengths (like e-health records adoption) and weaknesses (AI adoption, digital skills) with quantitative scores*[82][12]*. These reports provide a country-level assessment which regions can interpret at their level. - Veneto's **Smart Specialisation Strategy (S3)** has its own evaluation plan, tracking innovation projects and outcomes in its focus areas. However, S3 indicators are more broad innovation metrics (patents, R&D, etc.) and may not isolate digitalisation impact on SMEs.

Digital Maturity Assessment Tools: Through the EDIH and industry associations, Veneto has started to use **Digital Maturity Assessment (DMA) tools** for individual firms. For example, NEURAL EDIH offers a diagnostic where SMEs are evaluated across dimensions such as digital strategy, readiness, data management, automation & AI, etc.*[100][101]*. This yields firm-specific data and also helps aggregate region-level gaps. While these assessments are invaluable for one-on-one consulting, aggregated results (anonymised) could inform policy by showing common weaknesses (e.g., perhaps many SMEs score low in data analytics dimension – indicating a policy need for that area). Ensuring these tools are widely used (the target is to evaluate hundreds of SMEs via EDIH by 2025) will create a **rich dataset of SME digital maturity** in Veneto.

Surveys and Reports

Various bodies have conducted surveys that shed light on SME digitalisation:
- **Digital Innovation Hub surveys:** e.g., Confindustria's DIH in Veneto regularly surveys member companies on Industry 4.0 adoption, identifying how many have implemented IoT, what barriers they cite, etc.
- **ISTAT/Eurostat surveys:** The annual ICT usage survey by ISTAT gives data on Italian enterprises (≥10 employees) for things like social media use, e-commerce uptake, cloud computing usage (Italy in 2023: ~60% use social media for business, ~40% use cloud services, but only ~8% use AI as noted). Breaking this down to the **NUTS2 level (Veneto)** is sometimes possible if sample sizes allow, but often not publicly reported. Lobbying for more regional detail or commissioning a regional oversample could help.
- **OECD and academic studies:** Occasionally, studies (like OECD reports or university research) focus on Italian SMEs' digital challenges and policy impact, providing qualitative and quantitative insights*[102]*. For instance, the OECD might study how Italian SME productivity links to ICT investment, etc.

Despite these data sources, several **gaps hinder full understanding**:

- **Micro-enterprises data**

Most official stats (Eurostat, ISTAT) exclude enterprises with **fewer than 10 employees** from their ICT surveys*[94]*. Yet micro-firms are a huge part of Veneto's economy. This leaves a knowledge gap – we don't systematically know how, say, a 5-person artisan workshop is doing in digital adoption. Some clues come from chamber surveys or specific studies, but not with the regularity and breadth of official surveys. Bridging this requires either adjusting survey frameworks or doing dedicated micro-enterprise digital surveys.

- **Longitudinal impact studies**

  There is a **lack of long-term studies** tracking the same SMEs over time to measure how digitalisation affects their performance*[103][68]*. For example, if an SME got a voucher in 2019, did we see its revenue or productivity climb by 2021? Did it hire more people? Such panel data would be extremely informative. Currently, evaluation tends to be immediate (number of grants, self-reported satisfaction, etc.) rather than over years. Implementing a panel study or linking program participant data with later performance (from financial statements) would improve understanding of efficacy.

- **Sector-specific analyses**

  More detailed data by **sector** is needed*[104]*. How does digital uptake vary in, say, textiles vs. machinery vs. food processing? And what specific digital tools are used in each? Understanding this can allow tailoring of policy by sector. There have been some efforts (the national Innovation Hub network often splits adoption data by broad sector), but finer granularity and region-specific sector insights would help Veneto prioritize (e.g., if we find tourism SMEs are digitalising fast but agriculture is lagging, that influences where to focus resources).

- **Integration of digital skills data with firm data**

  We have data on population digital skills and separate data on firm digital adoption, but linking the two is tricky*[105][106]*. For instance, if a firm trains its workers, do we see measurable improvement in its digital maturity next year? Or regions with higher digital skills – do their SMEs adopt tech faster? Such integrated analysis would need combined datasets or special surveys. Italy's "BES" (Wellbeing) measures include some digital skill metrics and could possibly be correlated with enterprise outcomes regionally.

- **Evaluation of support mechanisms**

  There is limited systematic evaluation of the **effectiveness of each support program** beyond output metrics*[95]*. We lack, for example, rigorous studies on whether firms that received vouchers or tax credits performed better subsequently than similar firms that did not (controlling for other factors). Without such impact evaluation, it's hard to fine-tune policy (though qualitatively, we believe they help). A recommendation is to engage independent evaluators (perhaps local universities or

research centres) to assess major programs. One could use methods like comparing beneficiaries with a control group to estimate actual impact on growth or productivity.

By addressing these data gaps, policymakers would gain a **fuller picture** of SME digitalisation, enabling more targeted and effective measures.

In summary, **Veneto has a strategic framework and some tools for monitoring SME digitalisation (DII, surveys, EDIH assessments)**, but it should enhance its data infrastructure by including micro-firms, conducting longitudinal tracking, drilling down into sectors, and evaluating policy outcomes rigorously. This will ensure that the digital transformation drive is evidence-based and adaptive. With better data and feedback loops, Veneto can refine its approach – focusing resources where the biggest digital gaps and potential gains are – thereby achieving the dual goals of boosting SME competitiveness and ensuring no business is left behind in the digital era.

3. Summary

Nature and Significance of SME Digitalisation in Veneto: Digitalisation is a **critical driver of competitiveness and innovation** for Veneto's SME-dominated economy. SMEs make up over 99% of businesses and account for a large majority of employment and GDP in the region, so their performance significantly shapes Veneto's overall economic health[6][15]. The adoption of digital tools – from basic IT to advanced Industry 4.0 technologies – has proven benefits: it improves productivity, expands market access (e.g., via e-commerce), enhances customer engagement, and can drive product or process innovation. In a region known for manufacturing excellence and export-oriented districts, integrating digital technologies helps firms maintain quality while increasing efficiency. Furthermore, Veneto's digitalisation efforts align with broader goals of **economic resilience and EU strategic frameworks**. Italy's national plans (PNRR, Digital Italy 2026) and EU initiatives (Digital Decade 2030 targets, Smart Specialisation strategy) emphasize SME digital uptake as a means to foster growth, cohesion, and green transition. By advancing digitalisation, Veneto supports these higher-level objectives and secures its place in an increasingly digital European single market.

However, the analysis also shows that **significant gaps remain**. Veneto's SMEs, on average, still **lag behind European frontrunners** in both basic and advanced digital technology adoption. While roughly 70% of Italian SMEs have basic digital intensity, that implies 30% still do not use even simple digital tools[11]. The adoption of advanced digital tech (AI, big data, etc.) is even more limited – only ~8% of enterprises use AI[11] – indicating that the **digital transformation is far from complete**. There are also disparities **between different SME segments**: micro vs. medium-sized, traditional sectors vs. tech-intensive ones, and even urban vs. more remote areas. For example, a medium manufacturer in Padova might be implementing IoT on the shop floor, while a 3-person workshop in a small town may still be entirely paper-based in its operations. These disparities highlight that benefits of digitalisation are not yet evenly distributed.

Moreover, **persistent structural issues** such as skill shortages, limited access to risk capital, and bureaucratic hurdles continue to inhibit the full potential of SME digitalisation. Veneto's unemployment is low, but as noted, the **shortage of ICT specialists and digitally skilled workers** is a bottleneck for many firms (with only ~4% ICT specialists in the workforce, below EU average*[18]*). Similarly, SMEs often struggle with complexity in accessing support or in rethinking their business models to integrate digital innovations deeply.

Main Policy Instruments Addressing SME Digital Transformation: To tackle these challenges, Veneto and Italy have developed a **multi-tiered, well-funded ecosystem of policy tools**. The most impactful include:

- **ERDF co-funded programs (Regional Operational Programme)** – providing **grants and financial support** for SME innovation and digital projects. For instance, the *Fondo Veneto Ricerca, Sviluppo e Innovazione* offers a combination of grants/loans up to €500k+ to stimulate R&D and digital adoption in SMEs*[40]*. This leverages EU funds to encourage strategic, larger-scale transformation efforts in companies, often leading to new digital processes or products.
- **National "Transizione 4.0" Incentives** – a broad scheme of **tax credits (worth €30k–€100k+ per firm)** to promote investment in advanced machinery, software, R&D and worker training*[43]*. This has driven many SMEs to undertake **comprehensive digital transformation projects**, from upgrading production lines with IoT-enabled equipment to implementing enterprise software and automation. It effectively reduces the cost of these investments by 40-50%, making projects viable that otherwise might be postponed or scaled down.
- **SME Digitalisation Vouchers** – *micro-financing tools* (small grants up to ~€10k) aimed at specific needs like building a website, acquiring e-commerce solutions, improving cybersecurity, or training staff*[47]*. These vouchers have a **high uptake among micro and small businesses**, reaching thousands of firms that would not engage with larger, complex programs*[48][49]*. They fill the gap for low-budget, immediate digital improvements and have been especially useful for retail, artisan and service SMEs adapting to digital marketing and online sales (notably during COVID).
- **European Digital Innovation Hub (EDIH – "NEURAL") and Competence Centers** – providing **free or subsidized assessments, "test-before-invest" opportunities, and advanced tech training** for SMEs*[50][51]*. Veneto's EDIH, in partnership with the SMACT Competence Center, has begun to **scale up SME digital capability** by offering expert consulting, linking companies to solution providers, and even facilitating partnerships (e.g., between SMEs and tech startups or research centers). These hubs ensure that even SMEs with limited know-how can embark on digital projects with guidance, thereby improving the effectiveness of any funding they receive.

Collectively, these instruments address different layers: funding (both large and small scale), advice and know-how, and strategic alignment with national/EU priorities. They are backed by substantial resources: **ERDF and PNRR funds, national budget allocations, and EU Digital Europe Programme funding***[107]*. This multi-faceted support structure is a strength

of the current policy approach – few SMEs in Veneto are completely without support options if they seek to digitalise.

Policy Challenges and Areas for Improvement: Notwithstanding the comprehensive policy toolkit, the analysis identified key **weaknesses and gaps** in the current approach:

- **Access & Awareness**

  The multitude of programs can be confusing, especially for the smallest firms. Awareness of available support is uneven – some micro-enterprises remain unaware of vouchers or training credits. And even when aware, **low-capacity firms may struggle with application requirements**, leading to an access gap (Challenge C4)*[70]*. Essentially, those who might benefit most (e.g., a tiny family business with no IT staff) are the ones least likely to navigate the system successfully without help.

- **Advanced Digitalisation not yet Mainstream**

  While basic digital tools have spread, **embedding advanced digitalisation into SME innovation models is still work in progress**. Many SMEs treat digital upgrades as one-off projects (e.g., buy a machine, set up a website) rather than an ongoing strategic transformation. Integrating technologies like AI, data analytics, or IoT into their core business remains rare – indicating cultural and knowledge barriers in addition to cost (Challenge C1).

- **Skills and Human Capital Gaps**

  The **shortage of digital skills** both at the leadership level (SME owners/managers) and workforce level stands out. Without significantly boosting digital skills training, the risk is that even if technology is adopted, it may be underutilized or implemented sub-optimally. This is coupled with demographic issues (aging workforce, difficulty attracting young tech talent to some traditional industries). Challenge C3 highlights that only ~46% of Italians have basic digital skills and companies report weak internal capabilities*[66]*. This is a fundamental constraint on the speed and depth of digital uptake.

- **Sustainability of Change**

  There is a tendency to focus on the initial implementation (getting hardware/software in place) but less on **sustained integration and evolution of digital business models** (as flagged in Table 11 weaknesses)*[108][109]*. Some SMEs may lapse in usage or fail to update technologies over time. Policies currently have limited mechanisms for follow-up support after the funding or project period ends. Ensuring digital transformation is not just a one-time checkbox, but an ongoing journey, is a challenge.

- **Coordination**

Coordination is needed both **horizontally (between programs)** and **vertically (national-regional-local)**. Instances of fragmentation or overlap have been observed (e.g., multiple actors offering similar assessments). Challenge C5/C6 also indicate the need for better tailoring to geographic or sector needs – a one-size approach might leave some niches unserved*[72]*. The governance of the whole ecosystem could be improved by clear roles (e.g., EDIH as main entry point, chambers focusing on micro outreach, etc.) and information sharing.

Future Policy Priorities

To address these challenges, a number of priorities emerge for the next phase of the digital transformation effort:

- **Develop a Consolidated SME Digital Pathway**

  As recommended earlier, create a more structured **"SME Digital Journey" framework**, guiding firms from initial awareness -> basic adoption -> advanced integration -> scale-up*[110][111]*. This could involve certification or milestone recognition (e.g., an SME goes from "digitally beginner" to "digitally competent" to "digitally innovative" with specific criteria). Align all support instruments along this pathway to ensure continuity. For instance, an SME might start with a free EDIH assessment (awareness), then use a voucher for a first step (basic adoption), then get a larger grant or tax credit for bigger investments (advanced integration), and finally connect to R&D or VC networks for innovative projects (scale-up).

- **Target Micro-SMEs with Integrated Support**

  Launch initiatives specifically for **micro-enterprises combining diagnostic, mentoring, and micro-grants***[112][113]*. Lower the barriers as much as possible – perhaps an "ease-of-access" track where application is via a simplified questionnaire and a digital facilitator helps the firm through it. Also, possibly consider **group applications** or cluster approaches (several micro firms in a local network apply together for a shared digital solution or training program).

- **Enhance Skills and Talent Pipeline**

  Work closely with educational institutions and industry to **expand digital skill programs** – from coding in schools to ICT specialist university seats to re-skilling programs for mid-career workers. The recommendations included boosting ICT in higher education, incentivising women in tech, and using EDIHs as hubs for training and apprenticeship matchmaking*[114][18]*. Also, consider policies to **retain and attract talent** (like promoting Veneto's high living standards and offering incentives to tech graduates to work in regional SMEs rather than moving abroad or to big corporations).

- **Post-funding Support and Networking:** Institute mechanisms for **post-project follow-up** (mentorship, peer learning, second-phase grants if needed)*[115][116]*.

Encourage formation of SME peer networks or digital forums where those that have implemented solutions can guide others (perhaps supported by chambers or EDIH). This community approach can sustain momentum and drive home the message that digitalisation is continuous.

- **Data-Driven Policy Making**

  Invest in improving the **data infrastructure** to better monitor progress and outcomes (as detailed in Section 2.6). For instance, track how many SMEs cross certain digital thresholds each year, use surveys to identify new barriers, and measure the ROI of support programs. This will allow fine-tuning of policies (e.g., if vouchers are seen to greatly boost e-commerce adoption but not AI, maybe introduce an "AI voucher" variant or additional AI-focused support).

In conclusion, Veneto has built a strong foundation for SME digital transformation through a range of policies and initiatives. The **impact so far is evident** in rising digital adoption rates, numerous success stories of SMEs innovating, and the region maintaining its economic dynamism even in challenging times. To fully realise the vision of a digitally empowered SME sector, Veneto must now focus on **bridging the remaining gaps** – ensuring that even the smallest or most traditional businesses can join the digital economy, that advanced technologies become more commonplace, and that the human element (skills, mindset, culture) keeps pace with technological advancements. By doing so, Veneto will not only secure its own future competitiveness and social well-being but also serve as a leading example in Europe of how a region steeped in tradition and craft can successfully transform itself for the digital age.

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