



Past - Present - Future



“HISTORY OF THE FUTURE”: A CONCEPTUAL PROPOSAL FOR RE-BOOSTING INNOVATION AND PIONEER CULTURE IN THE INDUSTRIAL REGION OF VENETO

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PP 6, Chamber of Commerce of Padova - Andrea Galeota



progetti@pd.camcom.it

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0. Abstract

The economic history of Veneto region is relevant for the economic development of the whole area: from the past centuries up today, the region has played a fundamental role both from the economic and industrial point of view. Moreover, Veneto area defined a specific concept of “industry” based on the small enterprises and linked to the pioneers and their families. This model made Veneto region a pillar of growth and one of the richest regions in Italy, contributing to disseminate the industrial culture to the inhabitants of the area. Considering the history of industry in the region is telling a story of genius thinkers, inventors and founders, who often traced non-conformist paths. Their pioneering achievements and innovations have influenced our ways of thinking and still influence our modern technologies today.

On the one hand, this study highlights the pioneering achievements of the Veneto region, which led to the region's emergence as a world-class industrial region. For that purpose, relevant places, events and biographies that influenced the pioneering history were analyzed.

On the other hand, this study points out through which measures the pioneering spirit of the region could be revived and transferred into new schemes and new models much better meeting economic and technology needs and attracting interest of youths, experts, professionals, etc.

It proposes establishment/promotion of existing/new creative places connected with Industry 4.0 and the Data Economy in general

1. Project Context

Since June 2016, Chamber of Commerce of Padova is partner of the EU project InduCult2.0: "Industrial heritage, cultural resources of the industry and creative pioneers - living industrial culture outside the metropolises in Central Europe", financed by the Interreg Central Europe Programme.

With InduCult2.0 project, the approach to the Industrial change is innovative: while the term "industrial culture" has predominantly been used for the preservation of monuments and buildings in recent decades, nowadays there are innovative approaches that include contemporary cultural and creative resources. In this new understanding, industrial culture is a dynamic concept that changes with the transformation of the industrial economy and society. This new approach is very well part of the regional cultural strategy, with significant experiences and investments in this direction. The Chamber of Commerce of Padova, moreover, has a long experience of cooperation with Entrepreneurial Association, Schools and Enterprises concerning the promotion of culture and organization of dedicated and specified events addressed to workers, students, artists, etc. even to promote the entrepreneurial spirit and the “Veneto model” connected with Industry.

The culture approach promoted by Inducult2.0 is particularly suitable for regions that are still heavily focused on industrial production today. InduCult2.0 brings together such regions from Germany, the Czech Republic, Poland, Austria, Slovenia, Croatia and Italy. The Chamber of Commerce of Padova sees InduCult2.0 as an opportunity to increase the regional attractiveness and to create a new model of industrial culture starting from the old tradition in several economic sectors. The challenge is to use the qualities of their industrial past to promote present and future new schemes to make Veneto much more attractive as a place to work and live.

In agreement with the whole partnership, CCIAA PD aims at:

- promoting and establishing the concept of a "living industrial culture" in Central Europe;
- strengthening the specific culture in industrial regions and to use it as a location factor;
- reviving the pioneering spirit in industrial regions;

The concept developed belongs to the work package T4 with the topic "Fostering creativity and innovation in the environment of industry and its remains". In our action "History of the future" T4.5.1 concepts for capitalization of innovation and pioneer culture of industrial regions shall be provided. This concept is supposed to provide proposals how the pioneer spirit of Veneto region can be revived.

The focus of the action is address to the strong introduction of the digitalization concepts within the traditional manufacturing industrial sectors and the innovative services required by the Industry for that.

2. Regional Context

2.1 Introduction: The industrial history in Veneto Region

The long history of the region and the its industrial history are strictly connected with three main factors:

- The republic of Venice and its government that lasted up to the end of XIX century and contributed to the development of a rich economy based on the exploitation of agriculture by very organized farmers, built close to the typical "Villa Veneta" usually belonged to a Noble Venetian Family. The way the "villa veneta" and its surrounding village was organized is a model of effectiveness and operativeness. For some aspect, it can be considered the basis of the present Industrial tradition



- Specific economic sectors that have been "industrialized" in the past. This is the case of the wood value-chain in the mountains (protected areas for the importance of the raw materials to build boats in the Venice's Arsenale and to support the construction sector); the glass sector, that was protected by the Republic of Venice (first law concerning IPR issued around XV century); the shipping sector, located mainly in the Arsenale of Venice and very important for the economy of the city and its capacity to defend the borders and the "dominions"; Agriculture sectors, located in the inner side of Veneto Region: it knew a growing importance in the economy with the discovery of Americas (1492) and following lost of importance of the economy of Mediterranean area and Venetian economy; other sectors that have been developed and become part of the industrial history of the region (printing sector/black art; ceramics; furniture, etc.).



c) The Venetian industrial “model” characterized by the following elements:

- Owners are coming from one family and are strictly linked to the territory, the social “infrastructure” and the citizens; the relationship between the entrepreneur and the employees is very strong
- The employees are in strict relationships (many times relatives, etc)
- Relationship between the industry and the territory; “social responsibility” ante-litteram can be indicated here, even due to the strong religious tradition made of social infrastructures, strong cooperation (even in the financial system) and ethical approach to the work and the economy
- Low attitude to innovation, preferring many time the incremental innovation to the disruptive innovation.
- Good relationship between the Industry and the Universities, mainly for the need of professionals and high-skilled technicians

2.2 The Veneto Region Economy

Veneto region has about 4.9 million inhabitants, which makes Veneto the fifth most populated region in Italy. The regional capital is Venice.

Veneto is a striking example of what in the 1960s was called “Italian economic miracle”. Until the mid-fifties Veneto was a land of peasants, poverty and migration, plagued by frequent floods, with striking contrast between magnificent villas owned by merchant and industrial elite and the starving masses. Later on it became instead one of the leading Italian industrial regional economies.

The industrial sector has a highly specialised and competitive manufacturing base, mostly comprised of SMEs.

According to Unioncamere Veneto data, in the 2nd quarter of 2018 the region had almost 486.000 registered companies: 12% in industry, 14% in construction and 56% in the service sector.

Agriculture is also important. agricultural companies, almost all mechanised and with a high level of specialisation, are export oriented and are a core element of the food processing value chain.

Veneto is characterised by relevant "industrial districts" or clusters: mechanics and machinery, agri-food industry, printing and publishing; fashion (cloths, shoes and glasses); gold and jewellery, electrical appliances, furniture in Bassano del Grappa.

In 2017, the employment rate is higher (66%) than the national average (58%) although still below the European level (67.6%). The employment rate increased between 2016 and 2017 by +2%.

The unemployment rate decreased in recent years, from 7.6% in 2014 to 6.5% in 2017 (Eurostat, 2018). The level of unemployment rate is below the national average (11.4%) and the European one (7.8%). Veneto is in fact one of the Italian regions with the lowest unemployment rate.

Regional economic system is undergoing a general transformation and is evolving towards a new model that can address the changing needs related to the internationalisation of markets and products.

The most important document that defines the regional innovation trajectories is the Smart Specialisation Strategy (S3).

With S3 strategy paper the Veneto Region intends to enhance, qualify and make the regional innovation system more effective by fostering a stronger interaction between knowledge and business institutions, increasing research and innovation in businesses and increasing the innovative production through coordination of enterprises and innovative regional clusters, and by supporting innovative services for businesses and citizenship.

The S3 identified four areas of smart specialisation on which focusing policy interventions for the programming period 2014-2020.

These key areas are: Smart Agrifood, Sustainable Living, Smart Manufacturing and Creative Industries.

The financial allocation of the ROP ERDF 2014-2020 Operational Programme is then an expression of this thematic concentration which operates through investments in the areas of innovation and research. The financial allocation dedicated to measures related to OT1, OT2 and OT3 amount to approximately 49.4% of the whole operational program budget (€284.7b on €576.2b available). The portion allocated to OT1, with specific actions for research and innovation, is 18.99%. These actions are designed to enable the regional system of innovation and research to provide positive impacts on the entire regional economic system, so that companies have an incentive to allocate an increasing share of resources to research and innovation. The new policy strategy is expected to improve competitiveness and innovation intensity of the traditional production system, to promote new entrepreneurship in innovative sectors, to promote greater interaction between the production system and research centres and to ensure the presence of qualified human capital.

Other policy initiatives within the OT3 of the ERDF 2014-2020 give specific priority to RIS3 areas, in particular with actions 3.1.1 and 3.3.1 that convey resources corresponding to 12.25% of the budget. These actions, are aimed at supporting the recovery of the competitiveness of the SME system acting to support the emergence and consolidation of

SMEs in order to revitalize the Veneto's business system.

In particular their objective is to consolidate, modernize and diversify local production systems to favour the revamping, the competitive repositioning, upgrading and diversification of production in the Veneto districts and clusters system. This should lead to an increase in the level of internationalization and competitiveness of the regional production system.

Veneto is classified as an "Advanced Manufacturing and Clustering Region with no specialization in knowledge activities", has a high degree of specialization in high craftsmanship, a good presence of KIBS, a limited level of R&D as compared to the most advanced European regions but a high rate of informal relationships that allow to make use of external expertise to generate an high rate of innovation activities. Smart manufacturing represents one of the key areas selected within the regional Smart Specialisation Strategy and hence represent a crucial pillar of the regional RTDI policies. In particular, advanced manufacturing is strategic for an already rich territory of small and medium sized manufacturing firms that need to be sustained in gaining efficiency in the production of high quality products. This is necessary especially in companies organized according to the most traditional systems. Introduce innovative aspects in such structures means allowing them to increase their competitiveness both domestically and internationally. Businesses, increasingly exposed to global competition, should pursue the creation of efficient production processes, combining traditional know-how, synonymous with high quality, with new computer systems, automation, energy efficiency and organizational innovation.

Veneto hosts a significant number of organisations which provide services relevant for advanced manufacturing. The InnoVeneto project mapped the most important regional research and innovation providers such as the local Universities, the National Research Council divisions, regional S&T parks and the Knowledge Intensive Business Services (KIBS).

In total, 88 centres for innovation and technology transfer were identified, most of them offering services to manufacturing firms active in mechanics, electric and electronic devices, traditional Made in Italy productions.

(source <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/veneto>).

Regional priorities for advanced manufacturing are embedded also in other policy initiatives such as those for energy efficiency and usage of renewable energy sources in production processes. Moreover, advanced manufacturing priorities are incorporated in the Rural Development Plan 2014-2020 (approved 10 June 2014) and in the Regional Digital Agenda (approved the 3 May 2013).

Veneto is a strongly manufacturing region and all ongoing initiatives, which support product/process innovation, merge sustainability and innovation objectives and are relevant in terms of advanced manufacturing. Veneto participates in the coordination of the national technological cluster on "intelligent factory". This is a national policy initiative which funds large RTD projects carried out by national networks of firms, universities and research centres from different regions (Emilia-Romagna, Liguria, Lombardy, Piedmont, Marche and Puglia). The national cluster initiative aims at supporting technological development and strengthening national specialisation in robotics, new materials, advanced devices, virtual prototyping and applications of digital solutions to all manufacturing phases (design and planning, production, business organisation and distribution).

"Open Factory" initiative is very important for Veneto's industrial and manufacturing culture.

This initiative aims to open up a hundred companies in the Venetian territory to the public, to showcase about the Veneto manufacturing skills. Every year some new categories are identified (mechanical and robotics, design, food & wine, services, infrastructure, open labs), which lead to the creation of thematic routes of visit and "discovery" of the territory and entrepreneurial fabric of Veneto. Hence, Open Factory becomes an activity for the valorisation of manufacturing sites, districts and chains of high quality and relevance.

3. Objective

The focus of the action is address to the analysis and innovation of the traditional industrial scheme with the introduction of the digital technologies. The main focus of the concept under development is the strong introduction of the digitalization concepts within the traditional manufacturing industrial sectors and the innovative services required by the Industry for that.

In addition, the Chamber of Commerce o Padova intends to connect this activity belonging to Inducult2.0 with the strong "Industry4.0" operation that is under development at regional and national level, with the establishment of a regional network of committed actors around the Competence Centre (established in Padova with the coordination of University of Padova) which mission is to provide expertise, skills and promote innovative approaches to industry and the Digital Innovation Hubs planned at regional level and to be understood as intermediaries in charge to connect the Competence Centre with SMEs and any other relevant business and intrapreneurial actor in charge or interested to work on this topic.

In this sense, the revitalization of the old traditional pioneer spirit in our Region is strictly connected with the innovative approaches coming from the new technologies, the skills required and the new opportunities coming from their application in traditional industry.

4. Applied Approach

After a SWOT analysis of Innovation Culture in Veneto region, we will set three propositions (theses) as guidance for the further derivation of measures for enhancing innovation capability and pioneer spirit in the future.

The following SWOT analysis derives from different studies performed by Veneto Region, the Chambers system and Confindustria industrial companies association.



Strengths:

- Vital industries, clusters;
- High specialization of companies;
- Strong internalization;
- Highly specialized workers

Weaknesses:

- Small size of companies;
- Small capacity to invest for innovation projects;
- Ageing of industrial leaders;

Opportunities:

- Presence of top level Universities and Research centres;
- Good relations between schools and companies;
- Favorable public investment schemes (S3, Industry 4.0 plan);
- Services provided by the Chambers of commerce system;
- Cluster system;

Threats:

- Limits on loans, credit system;
- Difficulties by industries in getting high skill workers and employees;
- Brain drain;
- High taxation/high labour costs;

“Industrial Change” is the process which allows a productive sector to react to the evolution of the economical context and ensure competitiveness and continuous growth opportunities. Unlike “Restructuring”, it does not present any discontinuity feature, as it anticipates trends through competitors evaluation and markets evolution’s analysis. A part from public-funded support, the essential factors to overcome the problems aroused from industrial change are considered to be the Development of New Technologies and the qualification of Human Resources to be implemented through a flexible approach and with all the tools necessary to adapt to different criticalities at structural, economical and geographical level.

Innovation represents the key for competitiveness, essential factor for the development of enterprises and employment. It is based on the capacity to implement changes and manage them over time. Change shall therefore become an opportunity for business.

Innovation is something more than a “good idea”, it is a mix of ideas proposed by a motivated staff able to fulfill market’s expectations.

Innovation requires the organization of a an “enabling track” based on a strategy, a development of relations among functions and people, a structuring of an adequate and innovative organizational context, an acquisition of knowledge and competences suitable for its management.

The financial investment to innovate may result a burden for small enterprises, like those representing the backbone of economy in Veneto region; therefore, cooperation frameworks shall be foreseen to reduce costs and risks, to create economies of scale, reduce realization times and promote shared learning structures.

One of the key factors for innovation and positioning of industrial companies is currently the shift towards Industry 4.0 paradigm.

It’s a change which affects both technical appliances, machineries and human resources of industries.

In this frame, one key issue are the competences companies need to become “4.0 industries” and how the industrial regional eco-system can work to ease this shift and propose it as a location factor.

Vocational Training has been organized according to two main approaches: “intentional” (or Formal Learning), planned and organized to develop learning and “implicit” (or non-formal learning) as a result of activities not organized on purpose (e.g. work).

Today a third approach, defined “context-based”, is applied to on-the-job practices structured to develop learning during, within and through work experiences. It encompasses research-intervention initiatives, improvement projects, action learning, plans and actions from development.

This is the shift from a teacher-based method and Programme to a track built and shared with the participant, in order to connect new knowledge to prior learning, knowledge and systems already integrated and active in her/his working and everyday life.

This third path is currently fostered by the Regional government as well as the most important industrial business association, Confindustria, and by the Chambers’ system, with specific actions and projects.

An organization nowadays survives and competes according to its ability to identify, acquire and apply competences, avoiding on the one hand the risk of overload and considering the necessity for keeping useful competences (“core competencies”) and on the other outlining the essential processes for knowledge transfer and knowledge development; as pointed out by Anthony G. Oettinger “How much tradition to avoid death and how much innovation to avoid outburst?”

Answering to this question means dealing with the mix which could represent measures for enhancing innovation capability and pioneer spirit in future.

Digitalization process is considered a key issue. Both the Chamber of Commerce of Padova and the overall Chamber of Commerce system has a central role for the digitalization of SMEs and support to their innovation process.

We can consider three theses which serve as an orientation for the developed approach:

Thesis 1: The so-called “Industry 4.0 revolution” is a great opportunity for Veneto region SMEs and entrepreneurs to innovate and make much more attractive the traditional industrial environment of the Region and its attractiveness both in terms of youth and investors. This requires a strong connection between industries and school/university system.

Thesis 2: Regional SMEs show a lack of knowledge and resources which could be filled by stronger cooperation among the regional innovation actors.

Thesis 3: The Chamber of commerce of Padova and the regional Chamber of Commerce systems are well connected with the main actors in charge to disseminate and raise the attitude of SMEs toward “industry 4.0” and therefore its capacity to capitalize Inducult2.0 results and contribute for a new industrial culture at regional level is quite high.

These theses, as exposed in the Chapter about “Regional Context”, require a strong commitment of the regional actors, and could profit of peering with foreign successful initiatives.

The Chamber of Commerce of Padova is participating to the most important investment action for Padova, that is the establishment of a “Smart District” (Soft City Padova), whose

core will be an “Innovation Hub” meant as a “industry4.0 district” where the Chamber of Commerce, the Scientific and Technological Park Galileo, the University of Padova and leading industrial companies should work jointly on the topic of “digital innovation” addressing specific actions to SMEs, start-ups and spin-off.

This action fits with “Inducult2.0” project’s goals: the main focus is how to revitalize the traditional industrial pioneer spirit of our Region, to make this culture attractive and able to create new growth and job opportunities.

5. Results

The activities to be undertaken should lead to the following main results:

- a) contribute to the elaboration of a “new industrial culture”, based on Industry4.0, in Veneto Region that will lead to make the region much more attractive in terms of jobs and investments;
- b) contribute to the regional innovation eco-system, including industrial culture values (e.g. pioneer spirit, creativity, cluster approach, family business) as a key elements to be fully included in the process of modernization and digitalization;
- c) to establish an operative network composed by all stakeholders in charge to support Industry 4.0 processes, where the Chamber of Commerce of Padova will bring not only the entrepreneurial attitude that is part of its specific mission, but even the proposal of an innovative industrial culture well connected with the past but looking at the future;
- d) to establish an Innovation Centre and develop the existing network to support the startup companies, enabling the Chamber of commerce of Padova, the University, the Scientific Technological Park and the Industrial Companies to propose new intervention models to foster and revitalize the old industrial pioneer spirit.

These steps can profit of the currently actions in the implementation phase:

Industry 4.0 and traditional industry in Veneto Region

- Develop the action started with the innovation centre in Piazzola sul Brenta (InduCult2.0 D.T.4.4.3), working with a quadruple helix approach to transfer the concept of Industry 4.0 into the traditional industrial schemes and foster creativity linked to the valorization of the industrial heritage in the region;

Identify relevant best practice and success stories

- The identification of best practices, thanks to international peering, both in terms of innovative approaches and revitalization of the old industrial pioneer spirit
- Selection of specific examples coming from existing running experiences, like Open Factory yearly event (<https://www.open-factory.it/>)

6. Transnational Added Value

The concept developed by the Chamber of Commerce of Padova can be transferred to other European partner regions because of the topic and its importance at EU level: how to revitalize traditional industry (and industrial culture) with the digitalization processes and in general Industry 4.0 topics. It is important, however, that the concept needs to be adapted to local conditions considering that:

- A pioneer region needs inspiring projects that value what the region has and produces and brings it into a regional cycle: the identification of best practices to be proposed as models is necessary, together with the development of Programme able to produce new creative situation
- It is essential to establish committed regional stakeholders to stimulate pioneering culture and to set common strategic goals.
- Digital hubs should be generated in an old industrial environment.
- It is always important to increase political attention to the region, particularly looking at the needs of incentive and fiscal benefits for those SMEs interested to work on this topic.

7. Outlook and Sustainability

The connection of the overall concept to the running regional, urban and local strategy addressed to strengthen the digitalization processes and established HUBs with the involvement of the Regional Government, the Chambers system, the University, the Regional and local Industrial Association and the most relevant industrial companies, will assure the conditions for the sustainability of the proposed actions.