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## *Growth of Employability through Reinforcing Apprentice Career Paths in Craftsmanship*

*In a sense, unions go back to the mediaeval guilds of artisans,  
insofar as those organizations brought together people belonging  
to the same craft and thus on the basis of their work.*

John Paul II (1981)

### ABSTRACT

The chapter deals with the nowadays questions of employers about whether it makes sense to invest in employees, and how to retain people who are important to the company in prospect of craft SMEs and employability, and how to increase the employment rate in Poland and other EU countries. It describes the concept of job carving and job crafting and shows how to join this ideas with apprentice learning in crafts. The chapter devotes also a place to describe the reigniting the culture of entrepreneurship in Europe as an important response to the COVID crisis with recovery strategies to build resilience within European supply chains and ecosystems, restore consumer and business confidence, stimulate investment and help the unemployed back into work.

*KEYWORDS: job carving and job crafting; career paths in craftsmanship*

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## INTRODUCTION

Apprenticeships have, for centuries, served as important mechanisms to gain the skills and credentials needed for occupations, across many career fields and in many countries. The success of apprenticeship programs is due largely to structured, on-the-job skill development and practice leading to mastery of complex competences that is at their core. This emphasis on structured development experiences leading in a series of steps to a career objective is at the core of the career pathways approach (Noworol, 2020).

Apprenticeships offer an efficient path to gaining valuable credentials and qualifications and thus are an important component of many career pathways in craft. Artisans have taught their crafts to youth since ancient times. Apprenticed learning in craft has become to date more formal, as modern vocational education and training (VET) with apprenticeships monitored by the guilds. However, the career pathways in craft are still traditional in many countries. For example in Poland the artisan's career path is two-stage, to gain qualifications of journeyman and master but they are recognized as partial qualifications due to the PQF. Therefore the Ministry of Development prepares a reform of craft system basing the career paths on dual vocational education and gaining valuable credentials and qualifications through informal and non-formal learning. It requires the involvement of Ministry of Education and Ministry of Family, Labour and Social Policy to prepare a complex system of modern craft and clear career pathways where it will be possible to gain partial qualifications.

The article concludes with some considerations concerning to date methodology and thesis that the growth of employability ratio is possible due to development and reinforcement of the craft sector.

## THE IDEA OF JOB CARVING AND JOB CRAFTING

Nowadays, it is clear that careers have generally become more flexible and dynamic, as e.g. boundaryless careers (Arthur, Khapova & Wilderom, 2005) or protean careers (Hall, 2004). This increase career mobility (Akkermans & Kubasch, 2017) and raise two kinds of questions. The first is about whether it makes sense to invest in employees (De Cuyper & De Witte, 2011), and the second is about how to retain people who are important to the company (Lang, Kern & Zapf, 2016).

However the situation in mini, small and medium enterprise (MSME) and particular in craft seems to be quite different. An artisan who is an owner of MSME can have a problem how to find the best young freshmen and how to facilitate them to gain needed skills and competences through apprenticeships. This means how to develop an attractive and successive apprenticeship programs and how to relate them to the VET or CVET education. Subsequent, how the programs are related to the credentials and qualifications, what in turn can help freshmen to plan their career paths (Noworol, 2020).

The policy of European countries is twofold. From one side there pay attention to the traditional crafts, some of which are slowly disappearing from today's societies, and local and regional governments try to maintain selected fields of craftsmanship like pottery, agriculture, cooking, textile and paper decoration, carving or woodwork, metalwork or jewelry making. From the other side the common European and world policy goes to the direction of developing a modern 4.0 technology by today's and future craft.

In this complex situation arises a problem of individual careers both in young as well as in adults, including impaired persons, on the labor market. Apprenticeships programs developed in the U.S.A. and in some European countries show a clear way to take career pathways in MSMEs, and particularly in craft. Challenges faced in all today's societies, in the post covid-19 world

and especially by vulnerable groups such as the low-skilled, can be proactively addressed through new approaches of job carving and job crafting. It seems to be most likely that due to digitalization and automation processes that drive changes in the world of work, the implementation of job carving and job crafting will increase in importance.

Job Carving is a new counselling service, which supports employers in creating new job opportunities for disabled people, especially those from special schools, workshops for disabled people or psychiatric care (LWL-Integrationsamt Westfalen, 2017). It is part of a comprehensive inclusion strategy of the LWL-Integrationsamt Westfalen to improve the professional participation of people with disabilities in regular employment. The idea for this is based on a concept for the individualization of jobs for people with reduced performance. Job carving requires an intensive analysis of the workplace and individual activities, an in-depth understanding of the abilities, talents, skills and desires of a job-seeking impaired individual, and revealing similarities between the job-seeker and employer in the process. Hence, the goal is to create new jobs for people with disabilities at important interfaces in their professional biographies and thus to integrate them into the first job market. A unique feature of job carving is the creative finding of new employment opportunities to accelerate the client's safe adaptation to the workforce, improve workplace relationships and save rehabilitation costs (Griffin, Hammis, & Geary, 2007). Thus, job carving reveals as the redesign of a workplace because it aims to the internal design of possibly simple activities and their combination to create a new job profile suitable for an impaired individual. This means that It is not about adapting a person with disabilities to an already existing job or work stand, but rather about combining suitable activities to design rather new job profile, including a completely new work stand if necessary that will be suitable for a person with disabilities.

The idea of job crafting differs in concept from job carving and refers to self-starting behaviors that employees engage in to design their tasks and work processes or relational boundaries of work. The practice can be regarded as a specific form of job optimizing or redesign the workplace that employees make themselves. These behaviors involve specific physical and cognitive changes of work individuals make on their own initiative without direct involvement of others (Tims, Bakker, & Derks, 2012; Wrzesniewski & Dutton, 2001). This means that workers engaged in job crafting create a better person-job fit by improving alignment between the job and their personal traits and characteristics. Employees are granted the freedom to decide on how they work, which allows them to change certain aspects of the job and not redesign the job and its meaning as a whole, thus it may lead to a more employee-compatible working environment. Due to that employees increase their job satisfaction and decrease the risk of burnout (Tims, Bakker, & Derks, 2013).

Job crafting may take several forms like task-related, e.g. taking on more or fewer tasks, altering their content, adjusting time, effort and the way they are performed (task crafting). Employees may also change some aspects of their jobs that involve the relationships with colleagues or customers, the amount and intensity of interactions they have at work (relational crafting). Next (cognitive crafting), employees can change their cognitions and perceptions of some aspects of their job in order to increase meaningfulness of their work (Wrzesniewski & Dutton, 2001). Further on employees may actively alter and adjusting workplaces, work locations and working hours (time-spatial crafting).

Other author pay attention to various aspects related to work stands, working specificity and work conditions, as well as job environment. One of the most interesting attempt to this concept is Tims, Bakker and Derks (2012), who has taken into account job resources (structural and social), and job demands (challenging and hindering).

## REIGNITING THE CULTURE OF ENTREPRENEURSHIP IN EUROPE

At first we consider the definition of an enterprise, and next of SMEs that represent 99% of all businesses in the EU and is defined by the European Commission (Table 1.)

*An enterprise is considered to be any entity engaged in an economic activity, irrespective of its legal form. This includes, in particular, self-employed persons and family businesses engaged in craft or other activities, and partnerships or associations (Commission Recommendation, 2003, Article 1).*

SMEs are defined by number of persons employed, annual turnover or a balance sheet total (Table 1.)

Table 1. Definition of micro, small and medium-sized enterprises adopted by the commission (Commission Recommendation, 2003, Article 2).

Company category	Staff headcount No. of persons	Turnover in millions	or	Balance sheet total in millions
Medium-sized	< 250	≤ € 50		≤ € 43
Small	< 50	≤ € 10		≤ € 10
Micro	< 10	≤ € 2		≤ € 2

It is clear that the EC definition of SMEs covers also MSMEs (Table 1.) thus, there is no reason to use other term than SMEs, which are the backbone of the European economy. In the past five years, they have created around 85% of new jobs and provided two-thirds of the total private sector employment in the EU. Hence, the EC considers SMEs and entrepreneurship as key to ensuring economic growth, innovation, job creation and social inclusion.

Today it is important to respond to the COVID crisis with recovery strategies to build resilience within European supply

chains and ecosystems, restore consumer and business confidence, stimulate investment and help the unemployed back into work. The SMEs Directorate General ensures the replacement of the necessary protective equipment in the internal market and helps the affected branches to mitigate the effects of the coronavirus outbreak. The Commission will develop a new recovery strategy to support SMEs in their sustainable and digital recovery phase.

To bring Europe back to growth and create new jobs, we need more entrepreneurs (the Entrepreneurship 2020 Action Plan, 2013). This was the Commission's answer to challenges brought by the gravest economic crisis in the last 50 years. However, what I mean is that this action plan to unleash the entrepreneurial potential in Europe and revolutionize the entrepreneurial culture in the EU is still valid after the COVID crisis. Today it should aim to ease the creation of new craft and to create a much more supportive environment for existing entrepreneurs, and artisans in particular, to thrive and grow. The Entrepreneurship 2020 Action Plan identifies three areas for immediate intervention:

- entrepreneurial education and training to support growth and business creation;
- removing existing administrative barriers and supporting entrepreneurs in crucial phases of the business lifecycle;
- reigniting the culture of entrepreneurship in Europe and nurturing the new generation of entrepreneurs.

Fortunately entrepreneurship can be regarded as is a competence that can be learnt. Thus, entrepreneurial education is one of the crucial activities directed to response to the challenge that Europe needs more entrepreneurs creating jobs. Hence the main objective of the EC states that it is necessary to support this type of education in all EU countries and stress its importance at all levels from primary school to university and beyond. This education helps people develop the skills, knowledge, and attitudes necessary to achieve the goals they set out for themselves to be responsible and enterprising individuals. What is more evidence

also shows that people with entrepreneurial education are more employable (ec.europa.eu, 2020).

The proposed by the EC EntreComp: The Entrepreneurship Competence Framework (Margherita Bacigalupo, Panagiotis Kampylis, Yves Punie, Godelieve Van den Brandeprovides, 2016) provides a shared definition of entrepreneurship as a competence, with the aim in order to reach a consensus among all stakeholders in order to build a bridge between the world of education and the world of work. In the context, entrepreneurship is defined as a transversal key competence applicable by individuals and groups, including existing organizations, across all spheres of life as follows (ibid, p.10):

*Entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social.*

This shared definition of entrepreneurship as a competence is to become a point of reference for any initiative aiming to foster entrepreneurial capacity of European citizens. *It refers to value creation in the private, public and third sectors and in any hybrid combination of the three. It thus embraces different types of entrepreneurship, including intrapreneurship, social entrepreneurship, green entrepreneurship and digital entrepreneurship* (ibid, p.10).

The EntreComp framework consists of 3 interrelated and interconnected competence areas: *Ideas and opportunities, Resources and Into action*. Each of the areas is made up of 5 competences, which, together, constitute the basis of entrepreneurship as a competence. Thus, the framework develops the 15 competences along an 8-level progression model and proposes a comprehensive list of 442 learning outcomes. Due to that the framework can be used as a basis for the development of VET and CVET curricula and apprenticeships learning activities fostering entrepreneurship as a competence. This can be particularly important for transi-

tion of youth from school to the labor market because young people with entrepreneurship education are more likely to set up their own companies. Up to 20% of students who participate in a SME apprentice program in secondary school will later start their own company what is up to five times higher than in the general population.

Our approach deals with apprenticeships as a quickest and most effective career paths in craft.

#### CAREER CARVING AND CRAFTING IN CRAFTSMANSHIP

Taking into account the specificity of SMEs and particular craft, and the crucial role of apprenticeships, we can adopt the idea of job carving and job crafting to strengthen choices of career paths in craft.

However, the idea of choices career paths in craft may be based on efforts made by the EC and regional and local governments for the implementation of policies and projects supporting the competitiveness and the skilling up potentials of SMEs belonging to the crafts sector, in order to modernize it and reduce the risk of disappearance of many traditional crafts. Craftsmanship is a specific production sector deeply rooted in tradition and knowledge transfer and plays a key role as an innovator in the economy and social stability of Europe. Its competitiveness depends on artisans ability to improve processes, products and services to increase awareness and recognition of craftsmanship as an integral part of societies cultural, social and economic prosperity.

Nevertheless that the origin of job carving was to create new jobs for people with disabilities the idea could be important for all people in their transitions to the job market from various settings like school, apprenticeships or workshop, unemployment, medical rehabilitation etc. Job carving requires a clear operational mission, close coordination and good cooperation between all par-

ties involved. Basics for successful job carving are the willingness of master artisans in craft SMEs to cooperate actively and accept advice from an external specialists, e.g. career counsellors or ergonomists. Process responsibility and process implementation remain with the commissioning enterprise that is the craft SME.

Though job carving and job crafting describe similar processes in the sense of job personalization, they are driven by different actors and by opposite directions. Job carving is a top-down process driven by master artisan or other board members in management of craft SME to adapt tasks, processes or workplaces based on the talents, needs and interest of current or future employees. By contrast, job crafting is a bottom-up process driven by employees. Both concepts, however, show clear economic benefits for the SMEs. They enhance productivity and increase the health of workers and their job satisfaction (Tims, Bakker, & Derks, 2013).

In addition to this there are gender aspects linked to employment, which are not to be overlooked in ideas of job carving and job crafting (Wuiame, 2019). Opportunities and challenges of job carving adapted to the craft apprenticeships are in Table 2.

Table 2. Aspects of craft apprenticeships in terms of opportunities and challenges of job carving (own elaboration based on Wuiame, 2019).

Opportunities	Challenges / risks
Assessment of different aspects of apprenticeship due to craft specialization.	Assessment by independent career counsellor and master artisan of individual competences based on a competence measure like Competence Repertory (Noworol, 2020a) of women and men.
Specialized approach for people facing barriers to enter craft apprenticeship, e.g. people less educated, like school drop outs or with reduced capacities.	Reducing barriers for newcomers in craft apprenticeship without reinforcing stereotypes associated to skilled worker journeyman or master artisan, e.g. offering women selected craft trades or part-time work.

Adapt the workways, craftsmanship culture and style of management to apprentices.	Developing an inclusive working culture to integrate newcomers and apprentices with employed staff i.e. skilled workers, journeymen and master artisans.
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In this approach, opportunities encompass newcomers and apprentices of men and women facing barriers to entering employment. Consequently, the challenges are reducing barriers without reinforcing stereotypes associated with people in danger of social exclusion, females, migrants and offerings of low paid or part-time jobs.

The second concept is job crafting that is a bottom-up process driven by employees providing to similar opportunities and challenges as well as risks but by employed craft staff (Table 3.) They concern on various competences and skills and relate both to roles and responsibilities in the labor craft and private sphere.

Table 3. Aspects of craft apprenticeships in terms of opportunities and challenges of job crafting (own elaboration based on Wuiaime, 2019).

<b>Opportunities</b>	<b>Challenges / risks</b>
Supports apprentices, skilled workers and journeymen in personalizing their tasks and work stands to get more satisfaction.	Taking participative style of management by sharing managerial responsibilities to employed craft staff without adapting work organization and labor culture.
Adjusting work tasks and stands to gender like lighter work, less demanding for female apprentices, more routine tasks or different expectations for those who need it, etc.	Be familiar with gender identity as an important factor of craft apprenticeships and organization culture to proper redesign of work tasks and stands.
Enhancing participatory management and greater flexibility in order to prevent burning out in craft professions.	Gender stereotypes and biases should be respected to understand different ways of emotional exhaustion, depersonalization and personal accomplishment in women and men.

It is clear that job carving and crafting are more flexible and adaptive concepts in craft sector and easier to introduce than in other sectors like industry or corporations. In many craft SMEs the concepts of job carving and crafting are natural ways of functioning and they constitute a vital part of work organization and craft culture. The both processes develop opposite directions and involve theoretically different actors but in fact those are the same members of craft staff involved in the job carving and crafting. Every craft apprentice, skilled worker and journeymen modifies a job to highlight their abilities and get around their limitations, as also Hagner, Noll, & Enein-Donovan (2002) emphasized that for each job. Every master artisan has his own way of work, which is his secret as a top-class professional. He can only pass on the arcana of this mysterious masterful work to his apprentices. That is a deep sense of craftsmanship. In this regard, master artisans understand and perform naturally job carving and gain insight into why and how their apprentices craft tasks and can enable the process to be beneficial for the individual apprentices and their craft SMEs. The master artisan can also prepare or modify the workplaces for newcomers with special needs benefitting from the help of professional career counsellors.

#### CAREER PATHS IN CRAFTSMANSHIP

The European crafts sector encompasses a wide range of disciplines as a mirror of the diversity of European cultural identity combining tradition, heritage, culture, skills and design (Noworol, 2020). Thus, all efforts of EC, local governments and crafts itself are directed that craftsmanship and its inherent skills will be valued as a vital part of cultural, social and economic life and appreciated at every level of society.

In addition there is a number of initiatives and regional development policies and programs aimed to enhance the attractiveness



sary to support SME employers for processes of job carving in craft sector. The EC make also efforts to integrate the long-term unemployed into the labor market by promotion of measures that can support this group into work, through holistic, individualized support provided with the involvement of employers Council Recommendation (2016).

The Recommendation (2016 points 6 and 7) encourages closer links with employers:

*(6) Encourage and develop partnerships between employers, social partners, employment services, government authorities, social services and education and training providers to provide services that better meet the needs of enterprises and registered long-term unemployed persons.*

*(7) Develop services for employers such as the screening of job vacancies, placement support, workplace mentoring and training, and post-placement support to facilitate the professional reintegration of registered long-term unemployed persons.*

How far craft sector can solve the problem of long term unemployed and other people seeking work like disfavored groups on the labor market and especially youth being in transition from the world of education to the world of work (Noworol, 2010, 2007)?

Before answering this question let consider that EU states attach increasing importance to developing crafts in their countries. For instance Germany based on the learning outcomes levels have strengthen the Master Craftsman qualification by placing it at level 6 of the GQF and EQF from 2019 onwards. One example shows that higher GQF levels are open to qualifications from different education sectors and regarded as comparable. Advanced vocational programs are offered at EQF 6, lasting one and a half to four years. Entrance requirements include specific vocational qualification and work experience. They lead to an

advanced vocational qualification such as technician, educator, master craftsman. The familiar case one can observe in German-speaking Community of Belgium where it distinguishes between general and vocational qualifications. In vocational education and training, completed apprenticeship (dual system) is at level 4. A master craftsman with two years of training is placed at level 5, one with three years of training at level 6.

Such developments, which can also be observed in countries such as Switzerland, Austria and Norway, signal a rebalancing of the education and training systems that gives greater visibility and priority to vocational and professional aspects.

The case of Poland is different and more familiar to other countries where a short-cycle academic qualifications as well as advanced vocational qualifications are introduced at the level 5 of national qualification frameworks. For instance, it was decided to place each of the ten master craftsman qualifications at PQF level 5, a few years ago. However levelling of some of the master craftsman qualifications was accompanied by discussion on whether to place them at PQF level 4 or 5. The debate focused on how much weight should be given to learning outcomes associated with autonomy in running a business, leadership skills and tutoring skills required to become a master craftsman, in comparison to VET learning outcomes. This have also been encountered with regard to diplomas awarded after post-graduate studies.

Nowadays, it seems that the discussion should be renewed, especially since the Ministry of Development is taking the initiative to introduce a law on crafts and dual education. In current world, after dramatic consequences for the economy due to the effects of the Covid 19 pandemic the Ministry initiative is significantly valid. I am deeply convinced that the development of craftsmanship, among other things, by giving the right status to the master craftsman and balancing vocational and informal learning outcomes, e.g. through apprenticeships, and non-formal learning outcomes is the quickest way to overcome the crisis.

Some recommendations to Poland, and may be to other EU states as well.

- The mere improvement of the existing law, which at present does not meet social expectations and arouses a lot of emotions among the craftsmen, who are right, and which mainly concern the issue of financing education and apprenticeships, is not enough.
- The law is set in a broader context, and this must be taken into account. The attention should be paid to PQF and the problem of the whole vocational education, of which craftsmanship is a part, and the consequences that result.
- Vocational and school education (and even academic education) must be of equal value, and this is now visible to everyone. However, this fact also requires that the current clutter of levels in PQF should be corrected. Master craftsman certificates should be treated as full professional qualifications that correspond to level 6 in PQF and EQF. A bachelor degree is also assigned to this level. The diploma of the Polish master craftsman should be a mark of quality, and should prove its value to society. Therefore, the master's diploma and dual education in craft occupations cannot be subordinated to the education sector alone.
- In this context, the development of career counseling and the creation of its new branch, i.e. validation counseling in Poland, becomes essential. This will ensure the supply of personnel to crafts and SMEs, recruited from young people and adults seeking work and from the long-term unemployed.
- To do this requires the cooperation of at least three ministries, responsible for development, labour and education sectors.

High-quality vocational training, including professional training, especially apprenticeships, are the most effective career paths and prove successful in employing young people. However, in a rapidly changing and uncertain labour market, the consequences of current trends mainly affect those who no longer participate

in initial vocational education and training and do not participate in the formal education and training system.

That is why it is so important to provide validation counseling and the entire process of validation and certification of informal and non-formal competences, i.e. the possibility of passing exams confirming qualifications. This is all the more important due to the fact that we have many professionals on the labour market working in the grey market or even “black”. If they also have the opportunity to pass qualification exams, without the long educational process, such professionals will feed and strengthen SMEs and crafts. At the same time, it is worth emphasizing that such qualification exams end the process of dual education. In this context, it would be good if the qualification exams were also about the partial qualifications that each interesting person could collect and submit for a full qualification.

## CONCLUSIONS

Taking into account presented considerations concerning the theories of Craftsmanship’s Apprentice Learning, SMEs, job carving and job crafting, as well as cases of Austria, Germany, Poland and general situation in EU seems to be possible to give answer to the stated question in form of the following thesis.

*The improvement (growth) of employability ratio through developing and reinforcement of the craft sector seems to be quite real because the predominant number of craft SMEs can take students being in dual education, IVET and CVET graduates and other adults (e.g. working in the grey area) as apprentices.*

Craft sector can also prepare work stands for disfavored groups like people with disabilities, school dropouts or long term unemployed through job carving and special apprenticeship programs.

It can also attract craft apprenticeship learning through offering the job crafting processes directed to apprentices and staff employed. That all will constitute the vast growth of craft sector through the exponential process of the transformation of micro businesses into small enterprises and these in turn into medium-sized, and medium-sized into large enterprises of modern crafts and industry.

Let us to support this way of thinking and the above thesis by considering the Purchasing Managers' Index, PMI, which is the financial activity ratio created by the Market Group and Institute for Supply Management of financial activity. The main PMI index is a weighted average of individual sub-indexes (production, new orders, employment, etc.) and can take values from 0 to 100. Usually this index takes a value between 40 and 60 points. Values higher than 50 points indicate an increase in economic activity in the examined sector, and below it a decrease. For instance, let us see a few PMI indexes in central European countries. In Austria, despite the 1.8 pts. decrease due to the effects of the Covid 19 pandemic crises, the PMI currently equals 51.0 pts., and in the Czech Republic, despite the 2.1 pts. increase, it remained below 50 pts. and was 49.1 pts. In Germany the PMI equals 52.20, in Hungary, PMI for industry in August was 52.8 pts.

In Poland the PMI index for the industry in August remained above the 50 pts. threshold, which means that positive sentiment prevails, although it dropped 2.2 pts. from July to 50.6 pts. This indicates continued economic activity in Poland, which is confirmed by another increase in production, recorded only for the second time since October 2018. The reason indicated is the reduction of production backlogs from the previous months of the most severe pandemic restrictions. The number of new orders in the industry remained at the level of July, but this took place mainly under the conditions of growing export orders. The consequence of this is the slowdown in the reduction of the employment rate,

the highest in 14 months, which may indicate an improving mood in the coming year (Figure 2.)

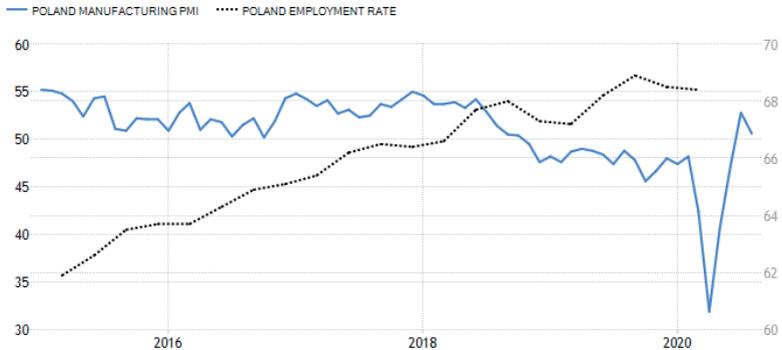


Figure 2. The employment rate and manufacturing PMI in Poland since 2016.

Source <https://d3fy651gv2fhd3.cloudfront.net/charts/germany-manufacturing-pmi@2x.png?s=germanymanpmi&lbl=0&v=202009182300V20200908&lang=all&type=line&url2=/poland/employment-rate>

It may be observed a similar tendency in Germany (Figure 3.)



Figure 3. The employment rate and manufacturing PMI in Germany since 2016.

Source: <https://d3fy651gv2fhd3.cloudfront.net/charts/germany-manufacturing-pmi@2x.png?s=germanymanpmi&lbl=0&v=202009182300V20200908&lang=all&type=line&url2=/germany/employment-rate>

However, it is visible that in spite of the comparable tendencies in the behaviors of the manufacturing PMI in Germany and in Poland, the employment rate in Germany is about 10% higher than in Poland. Thus, the postulated thesis about the growth of employability ratio through developing and reinforcement of the craft sector, seems to be much more important in Poland and may be in other European countries than in Germany.

Nevertheless, it is visible by comparing the trends of employment rates and manufacturing PMIs (Figures 2. and 3.) that there is a need for future study directions to prepare the empirical basis for developing apprenticeship 4.0 concepts dedicated to blue and white-collar workers in craft as well.

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