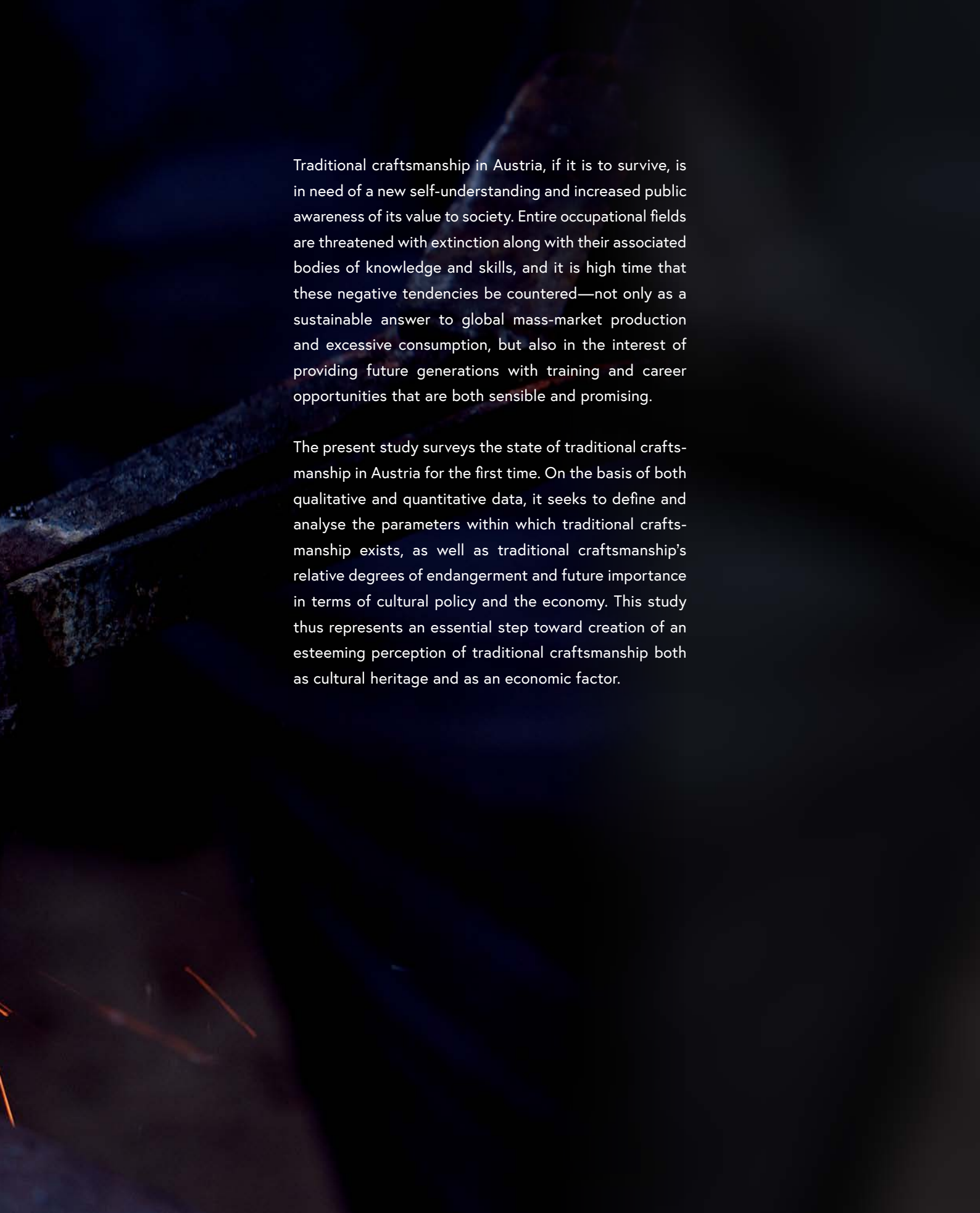


Sandgruber, Bichler-Ripfel, Walcher

Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor in Austria



Traditional craftsmanship in Austria, if it is to survive, is in need of a new self-understanding and increased public awareness of its value to society. Entire occupational fields are threatened with extinction along with their associated bodies of knowledge and skills, and it is high time that these negative tendencies be countered—not only as a sustainable answer to global mass-market production and excessive consumption, but also in the interest of providing future generations with training and career opportunities that are both sensible and promising.

The present study surveys the state of traditional craftsmanship in Austria for the first time. On the basis of both qualitative and quantitative data, it seeks to define and analyse the parameters within which traditional craftsmanship exists, as well as traditional craftsmanship's relative degrees of endangerment and future importance in terms of cultural policy and the economy. This study thus represents an essential step toward creation of an esteeming perception of traditional craftsmanship both as cultural heritage and as an economic factor.

**Traditional Craftsmanship
as Intangible Cultural
Heritage and an Economic
Factor in Austria**

Imprint

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Study of the Austrian Commission for UNESCO
commissioned by the Austrian Federal Chancellery
and the Austrian Federal Ministry for Digital and
Economic Affairs

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1 Background and Objective of this Study

1.1 Starting Point

In 2009, Austria ratified UNESCO's Convention for the Safeguarding of the Intangible Cultural Heritage of 2003. This convention provides a basis for international cooperative efforts that aim to safeguard the intangible cultural heritage of humanity in an era of globalisation as well as to enhance both the awareness and the esteem enjoyed by intangible cultural heritage in society. As examples of intangible cultural heritage, the Convention mentions various types of cultural expression, language, knowledge, and artistic skills, as well as artefacts and cultural spaces connected with the cultural traditions of communities and ethnic groups. Specifically, the Convention defines five domains of intangible cultural heritage:

- Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage
- Performing arts
- Social practices, rituals, and festive events
- Knowledge and practices concerning nature and the universe
- Traditional craftsmanship

The intangible cultural heritage, transmitted from generation to generation, is constantly recreated and provides communities with a sense of identity and continuity.

Traditional craftsmanship techniques, one of the five domains of intangible cultural heritage, are brought to bear in the processing of various materials such as wood, metal, textiles, etc. as well as in the production of various objects such as household items, toys, clothing and jewellery, musical instruments, etc.

The central concern here is not to preserve the objects in and of themselves, but to safeguard their production—which entails safeguarding the abilities, skills, and specialised knowledge needed to produce such objects. In order to accomplish this, it is necessary both to ensure the conditions under which craftsmanship is possible and to ensure that experience-based knowledge is passed on to subsequent generations. — <http://immaterielleskulturerbe.unesco.at>, 2015.

During the process of the Convention's ratification and while researching the topic of "traditional craftsmanship", the Austrian Commission for UNESCO became aware of a Swiss study on the topic (Haefeli et al., 2011)—and of the fact that comparable basic research had not yet been done in Austria. The Swiss study aimed to examine the present situation of traditional craftsmanship including the transmission of artisanal knowledge, to analyse the effects of Switzerland's 2004 reform of vocational training on traditional craftsmanship and its continued existence, and to develop specific measures and other recommendations for the preservation of traditional trades and craftsmanship skills.

The basic research represented by the present study analyses traditional craftsmanship in Austria

- with regard to the parameters and essential characteristics that describe traditional craftsmanship,
- with regard to its degree of endangerment, and
- with regard to its economic and cultural policy significance for the future.

Traditional craftsmanship's significance for the Austrian economy is undeniably great. To this day, Austria's trade businesses are organised primarily as part of the Austrian Economic Chamber's Crafts and Trades Division, which stands for:

- 151,558 active guild members in Austria who train nearly half of all apprentices and comprise over one third of all employers that are Austrian Economic Chamber members,
- 537,418 individuals out of the altogether 2.265 million employees of Austrian Economic Chamber members who are employed at businesses in the traditional craftsmanship category,
- quality of life and local jobs,
- reliable export partners, and
- outstanding skilled professionals and quality.

(see "WKO Jahresstatistik und Beschäftigungsstatistik 2015 der Sparte Gewerbe und Handwerk" [WKO Annual Statistics and Employment Statistics of 2015 for the Crafts and Trades Division], active guild memberships by guild without the guild "Commercial and Personal Service Providers", without the guild "Personal Coaching and Care Workers", without the guild "Health Care Professions", without "Biomass Heating Providers", and without "Members Not Categorized"])

These days, craftsmanship finds itself subject to more major changes than ever before.

Particularly over the past two generations, the globalisation of the procurement and sales markets, trends toward liberalisation and concentration, and the ongoing technologisation and standardisation of production processes have put traditional production methods and structures in the craftsmanship field under increasingly great pressure, in some cases crowding them out of the market entirely.

But even as times change, elements of traditional craftsmanship live on at trade businesses and are passed on from one generation to the next or within social groups such as families. And so far, efforts to portray these elements in concrete terms had been neither sufficient nor systematic.

1.2 Research Questions

The desire to obtain an overview of the culture of present-day Austrian craftsmanship as well as a deeper look at traditional craftsmanship in Austria gave rise to the following research questions:

- I Just what is “traditional craftsmanship” understood to be, and/or to what concrete parameters must “traditional craftsmanship” conform in order to be viewed as such today?

One emphasis of this empirical research project is on arriving at a qualitative portrayal of the concept of “traditional craftsmanship”.

- II What forms of traditional craftsmanship exist in Austria, and how great are the threats to their respective survival?

A comparison between the traditional crafts and trades practised in 1950 with those practised today seeks to shed light on the present state of traditional craftsmanship in Austria.

- III How is knowledge of traditional craftsmanship handed down from one generation to the next?

The present study aims to point out the possible routes of knowledge transmission in traditional craftsmanship on the level of formal vocational training as well as on the level of informal vocational training.

- IV What forms of traditional craftsmanship are significant at present and for the future in terms of cultural and social policy and the economy?

- V What actions need to be taken by policymakers and businesses in order to support and strengthen forms of traditional craftsmanship?

These two final questions, to be answered on the basis of the collected data and findings, aim to point out potential ways in which traditional craftsmanship as a whole can be supported and strengthened in Austria.

Altogether, this study makes a contribution to safeguarding the preservation of traditional craftsmanship in Austria in keeping with Article 13(c) of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage.



2 Notions of Craftsmanship, Tradition, and Culture

2.1 Tradition and Culture in the Context of Intangible Cultural Heritage

The underlying notion of culture to which this study refers is derived from the “Declaration of Mexico City” produced by the UNESCO World Conference on Cultural Policies in Mexico City in 1982, which states that:

“...in its widest sense, culture may now be said to be the whole complex of distinctive spiritual, material, intellectual and emotional features that characterise a society or social group. It includes not only the arts and letters, but also modes of life, the fundamental rights of the human being, value systems, traditions and beliefs.” — *UNESCO, 1982*

Furthermore, the present study makes use of a notion of tradition that corresponds with the views of the Austrian Commission for UNESCO as well as with Article 2, Para 1 of the Convention for the Safeguarding of the Intangible Cultural Heritage (see Appendix 8.4).

This notion of tradition, in keeping with the idea of “transmitted culture” (Barkow, et al., 1992, p. 209), refers specifically to transmission as a lively process—as one of passing on skills and knowledge while simultaneously examining them as to their current validity and future viability. Tradition therefore stands for a successful cultural principle of transforming, expanding upon, and transmitting knowledge and skills in a sustainable form over multiple generations. Dynamic traditions do not contradict modernity, but much rather always involve it. They are conscious of their historical roots and subject the “old” to processes of selection in order to renew themselves and thereby convey both proven and still functional aspects as well as innovative ones into the future. This notion of tradition therefore internalises the interplay between the dynamism and continuity that transmission involves (see Noseck, 2015).

Characteristic of traditional craftsmanship in Austria is its lively and dynamic quality—the way in which it simultaneously looks forward to possible change in the future and back upon the transformations and changes of an artisanal history that is typically centuries old.

This study does not adhere to an understanding in which tradition serves to uphold old, nostalgic, and possibly obsolete values, ways of working, cultural routines, or similar.

For this reason, it follows the approach that also applies in the “3-generation model”:

“The notion in which centuries of continuity are necessary in order to speak of traditional knowledge is contradicted by the fact that this is actually the case following significantly shorter periods. The element that is necessary in order to go from simply passing on to passing on a tradition is repetition: a person at the beginning of a chain of transmission passes on knowledge based on experiences from his or her life to a successor. This successor, in turn, passes on the knowledge received—after transforming it into experiential knowledge him- or herself via its application—to a third generation that intends to apply the knowledge thus gained. The transmission of experiential knowledge is not limited to the family sphere, here, nor is the search for an ‘authentic, original’ tradition of any significance. For if one’s interest centres on the dynamism and application of knowledge, any temptation to identify and seek to preserve ‘authentic’ and ‘unadulterated’ traditions is eliminated.” — *Noseck, 2015*

The constants of a given tradition are therefore embodied by the conditions to which it is subject—interpersonal transmission over multiple generations, needs-based processes of selection tied to these generations’ respective presents, sociocultural influences, and similar—and not by its actual content in terms of knowledge and skill, for these aspects undergo continual change when put into practice and taught. Craftsmanship that ceases to develop dies and takes on a museum-like character, at best. Traditional craftsmanship remains lively craftsmanship, on the other hand, when active transmission integrates the dynamism of change.

2.2 Existing Definitions of the Term “Craftsmanship”

Various scholarly disciplines research and observe the complex topic of “traditional craftsmanship” from various standpoints, including:

- Economics
- Law
- Sociology
- Ethnology
- Anthropology
- Cultural and social anthropology
- Philosophy and other disciplines

The plurality of scholarly notions of the term “traditional craftsmanship” is justified in light of the differing points of view that are in play. What’s more, the notion of craftsmanship as such is likewise ambiguous. “Craftsmanship” can refer to a legally defined form of independent trade business, it can mean an occupation, or it can denote a production method and hand-crafting technique. But it might also refer to the skill of the craftsperson and/or to conditions of production in a general sense.

2.2.1 Craftsmanship in its legal definition

The currently valid version of Austria’s Crafts, Trade and Industry Act (GewO) of 1994 does not define what craftsmanship is. Only in § 94 of the GewO are certain trades referred to as forms of craftsmanship.

2.2.2 The understanding of craftsmanship as a historical production technique and its products

In everyday parlance, “craftsmanship”—taken together with “tradition”—calls up associations above all with the artisanal output of bygone times, which is to say: time-honoured products that were hand-crafted using the tools and machines from the historical periods in question. Such hand-crafted products are viewed as being of above-average quality compared with those of the present day. But this (typically somewhat romanticised) view of traditional craftsmanship falls far short of reality, since it overlooks craftsmanship’s dynamic aspects.

In keeping with this more objective view, it is quite possible for traditional craftsmanship’s present-day output—such as a handed-down cake recipe at a pastry shop or the wood casement windows made in a carpenter’s shop—to be made with help from the most modern high-tech machines and simultaneously meet high standards of quality.

2.2.3 Craftsmanship defined in terms of production conditions

Pointing out the conditions under which craftsmanship takes place can serve to characterise deeper functional aspects of traditional craftsmanship:

- the unity of proprietorship and management
- flat hierarchies and a low degree of delegation in businesses’ management
- specialised products as output and a low degree of labour division in production

These criteria and factors derived therefrom characterise production conditions running from the initial work involved to the finished product at traditional trade businesses.

2.2.4 Craftsmanship defined as an occupation

Economic sociology’s perspective on traditional craftsmanship proves to be a central route of approach. Traditional craftsmanship was and still is defined above all by the involved occupations. And in traditional craftsmanship, “occupation” and “training” are inseparable.

Moreover, craftspeople themselves tend to self-identify as upholders of an occupation whose professional ethics are expressed via all of the behaviours and actions involved in their work (see Rössle 1964, p. 24).

2.2.5 Craftsmanship in terms of industrial classification

For analytical purposes, business sectors are classified here according to their output; this entails making distinctions in terms of goods produced and/or traded as well as services rendered. Traditional craftsmanship cannot be attributed in an exact way to just one particular industrial sector, and overlaps exist above all between goods and services.

The following approach to classifying economic activity provides a clear impression of the economic sectors occupied by traditional craftsmanship:

Figure 1: Output categories of traditional craftsmanship shaded in grey, after: Wöhe et al., 2014, p. 7

Microeconomies									
Consumer economy (households)		Producer economy (businesses)							
Private households	Public authorities	Goods Producers			Service providers				
		Raw materials extraction	Capital goods and consumer goods (anonymous products and specialised products)			Merchandising	Other services	Banking	Insurance
		Manufacturing	Product installation and start-up	Product maintenance and repair					

2.2.6 Craftsmanship’s definition according to “Rencontres de St. Gall 1949”

Due to craftsmanship’s heterogeneity, diversity, changeability, and dynamism, it is not possible to arrive at a generally valid definition of traditional craftsmanship based simply on the economic sectors that it inhabits. The present study therefore features a decidedly interdisciplinary approach informed above all by the definition provided by

the regularly recurring research conference *Rencontres de St. Gall* in 1949. This definition has already been referred to by numerous craftsmanship-related studies:

“Craftsmanship is a form of self-employment that involves working with and processing materials and aims to satisfy individual needs by way of outputs that are the result of the entrepreneurial craftsman’s personality, his or her comprehensive occupational training, and the typical employment of his personal means and energies.” — *Glasl et al., 2008, p. 8; Rössle, 1964, p. 25; Königswieser, 1959, p. 20; Pastler, 1952, pp. 29–30*

This definition bears within it many aspects to which the present study attributes a high degree of relevance:

- The head of the business is involved in the creative process of traditional craftsmanship.
- Economic independence represents the central form of occupational existence in traditional craftsmanship.
- The practice of traditional craftsmanship-related occupations requires considerable professional skill and experiential knowledge that can only be acquired via an extended learning process.
- The specific products and services provided are oriented toward customers’ individual needs and express the craftsman’s personality.
- The personality of the craftsman as an entrepreneur is expressed by his or her individual business leadership and business organisation.

2.2.7 Characterisation of traditional craftsmanship in the Swiss study of 2011

The Swiss study’s characterisation of “traditional craftsmanship” (see Haefeli et al., 2011, pp. 25–27) focuses above all on products and production conditions, defining craftsmanship as follows:

- specific specialised and experiential knowledge as well as characteristic skills
- production of material products in a way that is not bound to the land
- a tendency for businesses to be small
- output of a fairly low number of units
- at least partly manual processing of raw materials and other components

Further characteristics of traditional craftsmanship are viewed as being the local anchoring, longevity, reparability, and manual production of individual products.

2.3 Limitation of the Topic under Study

2.3.1 Transmission of knowledge from generation to generation

The transmission of knowledge and practical skills is viewed in light of both the definition of tradition and the three-generation model as discussed above. With regard to the period running from 1950 (i.e., about three generations back) to 2015, discussion is devoted here to possible ways of transmitting knowledge from generation to generation—i.e., from the older generation to the younger one. Formal as well as non-formal initial basic training are therefore objects of research in this study. Opportunities for adults to learn traditional trades and craftsmanship skills in the form of “second-chance education” were not researched.

2.3.2 Traditional trades and craftsmanship skills

In accordance with the approach taken by the Swiss study (see Haefeli et al., 2011, p. 26), forms of traditional craftsmanship are divided here into two groups according to the available types of training.

- The category of **traditional trades** encompasses those occupations for which formal programmes of basic training existed in 1950.
- The category of **traditional craftsmanship skills** encompasses those occupations whose skills were acquired by means of informal training but were then listed as business enterprises.

The design of the present study employs the findings of the Swiss study as a structural basis but also goes farther by virtue of its qualitative conception as empirical field research.

2.3.3 Economic relevance

A prerequisite for inclusion in the listing of traditional trades and craftsmanship skills is these occupations’ having been—at least in part—sufficiently remunerated to be considered gainful employment (in the sense of earning one’s living) in 1950. Traditional crafts engaged in as hobbies, traditional crafting skills based purely within families, and traditional crafts that had or have no significant economic function for those performing them are not accounted for in this listing.

2.3.4 The specialised products and services of traditional craftsmanship

In the present study, the “output of traditional craftsmanship” is defined as the production, installation, maintenance, care, and repair of products that are typically specialised and individually tailored to their customers’ requirements in combination with service components.

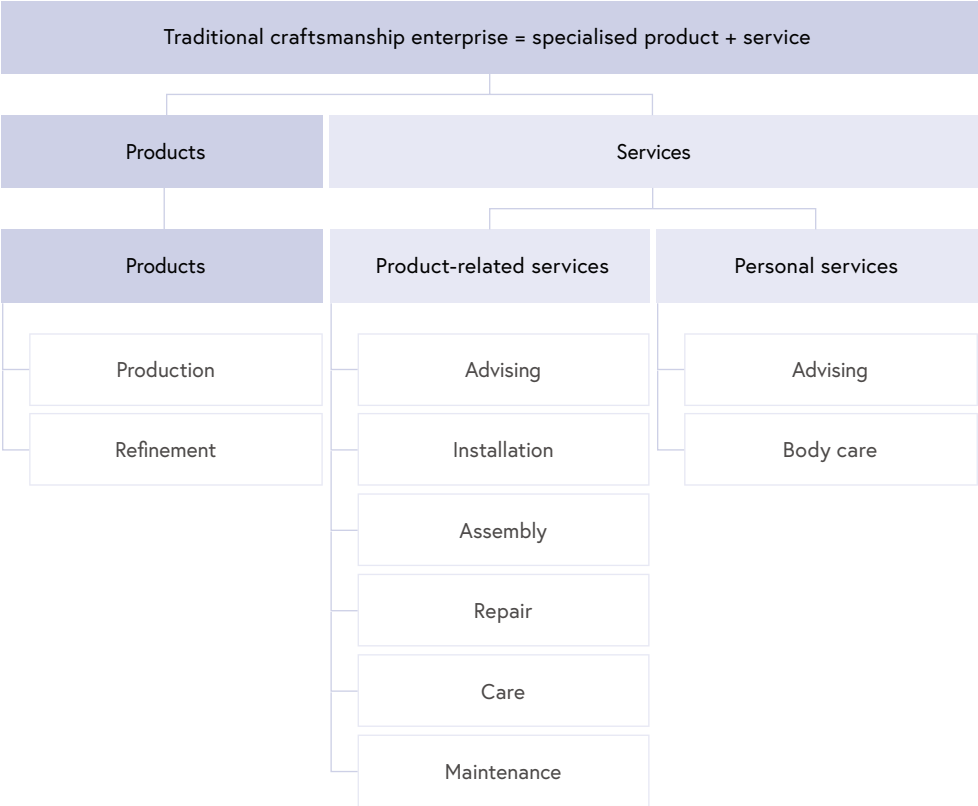


Figure 2: A detailed listing of traditional craftsmanship’s output in accordance with Marahrens, 1978, p. 15

The boundaries between traditional craftsmanship services and services of an industrial character as well as merchandising, food and drink, art, other service providers, and agriculture are somewhat blurry. In the present study, traditional craftsmanship arises only as the sum of business-related and identity-forming characteristics.



3 Study Design and Methods

Fundamentally, the present study has applied a mix of methods for data collection and analysis comprised of the following:

Qualitative primary data collection in the manner of an empirical field study:

- conception, conduct, and evaluation in accordance with “Das qualitative Interview” (see Froschauer et al., 2003)
- focus group workshops, in-depth narrative interviews with 67 experts (see Appendix 1)
- transcription of all recorded statements (ca. 30 hours of audio material amounting to an over 500-page transcription)
- evaluation of the results on the basis of this literal transcription

Quantitative secondary data collection:

- statistics and study of the literature
- archival research

Data collection proceeded in a generally cyclical manner, with the interleaving of collection and interpretation aimed at realising a research process that included periodic partial analysis and review in the interest of ongoing quality assurance with regard to both content and methodology (see Froschauer et al., 2003).

3.1 Collection of Qualitative Primary Data

The subjects of empirical enquiry were first and foremost the research questions pursued by this study. In order to research the thematic field of traditional craftsmanship, which is characterised by everyday practice and both implicit and explicit experiential knowledge, a qualitative approach to research was chosen that placed selected experts at the centre of the enquiry by way of focus group discussions and guided yet partially open in-depth interviews. The employed questions were oriented toward the individual protagonists' respective areas of expertise within the heterogeneous thematic field of traditional craftsmanship, thus adhering stringently to the content considered relevant by the protagonists themselves.

Discussion in focus groups along with deeper enquiry in the context of individual interviews served to portray those characteristics and parameters that have characterised traditional craftsmanship within this study's observation period (since around 1950), which comprises roughly three generations (on this, see Section 4.1).

Attention was paid to distinguishability, with a distinction drawn between criteria that apply only to individual fields of work (field-specific characteristics) and those that are better capable of describing traditional Austrian craftsmanship in and of itself (essential characteristics and/or traits). These derivations were then used to formulate a definition of traditional craftsmanship in Austria in this study's discussion of its findings that is portrayed in a way that omits "individual fates" and "field-specific characteristics".

The data generated as part of this process was recorded in audio form, and Legewie's method of Global Analysis (1994) was employed (see Bortz et al., 2006) to analyse all of these expert statements. It was thus possible to perform an analysis of dense, subject-oriented, case-driven, and literally transcribed material (see Froschauer et al., 2003).

3.1.1 In-depth analysis of seven fields of traditional craftsmanship in Austria

The qualitative primary enquiry was done with reference to seven concrete fields of traditional craftsmanship in Austria:

- Construction
- Ancillary Construction Trades
- Metal
- Garden Design and Floristry
- Carpentry and Woodworking
- Food Industry
- Textile Production and Processing

3.1.2 Selection of experts

The circle of individuals selected for interviewing included people inside the system (craftspeople) as well as people who exist in proximity to the system in order to cover all three types of expertise (see Froschauer et al., 2003, pp. 35–41):

- a. **System-internal hands-on expertise:** experts in their roles as craftspeople with predominately implicit hands-on expertise that was rendered more concrete and made accessible to analysis via moderation of the focus groups and conduct of the interviews;

- b. **Field-internal reflective expertise:** experts experienced in interfacing with other fields and/or with experience that goes beyond implicit hands-on knowledge or is otherwise more reflective and/or abstract, which was called upon for use in this study;
- c. **External expertise:** experts (researchers, cultural experts, trainers, and similar) whose theoretical knowledge contributed to this study.

Some of the experts were capable of providing more than one or even all three types of expertise. In such cases, the moderators and interviewers had to pay special attention to clarity with regard to the experts' respective roles.

Furthermore, it was decided to select individuals from the above-mentioned fields of work (construction, ancillary construction trades, carpentry and woodworking, the food industry, textile production and processing, garden design and florists, metal) who belonged to at least one of the following categories:

- individuals who lead and/or work in craftsmanship businesses that have existed for at least three generations and train apprentices on a continual basis.
- individuals who have gathered experience and in-depth knowledge about the development of these fields over the past 30 years.
- individuals who have gathered experience and in-depth knowledge about the systems of training in these fields over the past 30 years.

Attention was paid to ensuring sufficient heterogeneity among the experts in the respective focus groups—both in order to critically discern differing and common parameters, conditions, and factors relevant to the definition of traditional craftsmanship and its degree of endangerment, and in order to minimise the effects of any biases that might exist within individual fields.

3.1.3 Conduct of the focus group sessions

Focus groups with regional experts were formed in a total of four locations (St. Pölten, Salzburg, Graz, and Andelsbuch im Bregenzerwald) in order to account for regional differences within Austria.

The moderation of these focus group sessions, which each lasted a minimum of three hours, was done by the research team itself, with attention being given to a clear division of roles between pure moderation (from a neutral position) and establishment of the substantive focus by way of an input lecture. Each focus group session was begun with a brief and precise introduction of this study and the individuals conducting it. This was

followed by an interactive and openly led yet constantly moderated group process that consisted of three phases:

3.1.3.1 Phase 1: Input lecture

In order to sensitise the group participants to common present-day internal images, marketing worlds, and theoretical approaches relevant to the topic of traditional craftsmanship, every focus group session was begun with a brief input lecture plus distribution of a handout. These steps were also intended to ensure that all participants in the subsequent process received a uniform introduction to the research questions to be discussed. The catalogue of questions and themes used in these focus group sessions was based above all on the criteria discussed in Chapter 2, which were aimed at answering the research questions (Section 1.1).

3.1.3.2 Phase 2: Brainstorming as individuals and structuring outcomes as a group

All participants were asked to write down those descriptive characteristics and parameters that they view as being typical, representative, or determining factors of their own trade or craft and of traditional craftsmanship as such. In the group process that followed, all of the experts' moderation cards were collected and sorted into clusters in order to arrive at sensible superordinate categories.

3.1.3.3 Phase 3: Focus group discussion

The final part of the focus group sessions consisted in an openly led discussion process that addressed both the resulting categories and parameters and the thematic fields relevant to the study that had not yet been dealt with.

3.1.4 Conduct of the in-depth interviews

All of the parameters within which the focus group sessions took place were also ensured for the individual interviews. These parameters were: heterogeneity, conduct at locations spread across Austria, the general procedure, etc.

As mentioned above, a guided but partially open method of conducting in-depth interviews was selected for the individual talks with experts as a way of supplementing the focus group results. The focus group session results themselves served as the basis for the interview guidelines. In conducting their interviews, the interviewers made sure to adhere to the same standard building blocks that they had used with the focus groups: introduction of the study, input lecture, brainstorming, and discussion. This ensured that the empirical data from the focus groups and the in-depth interviews could be combined for analysis.

3.2 Collection of Quantitative Secondary Data

The collection of quantitative secondary data aimed to obtain a sufficient level of information about the traditional trades and craftsmanship skills that existed around 1950 and how they developed between then and the present day. This made it necessary to deal in greater depth with how knowledge of the various artisanal skills belonging to the individual trades and crafts has been handed down over the past 65 years. The quantitative part of this study is based on statistical data and archival material from the period between 1950 and 2015.

The statistical data was examined extensively as to its relevance and usefulness in answering the following research questions:

- What forms of traditional craftsmanship exist in Austria?
- How great are the threats to their respective continued existence?
- How is knowledge of traditional craftsmanship handed down from one generation to the next?

3.2.1 Analysis of the usability of the quantitative secondary data

One of the first collections of statistics to cover provinces and sectors around 1950 is the non-agricultural establishment census of 1 September 1954 that was compiled by the Austrian Central Office of Statistics (today's Statistik Austria). This, however, makes clear only tendencies in the individual sectors and the overall economy and does not allow any conclusions with regard to the types and overall number of individual lines of occupation in the craftsmanship field.

The more current study of output-related and structural data done by Statistik Austria in 2013 is also of only limited use in determining the types and number of businesses in the traditional craftsmanship field, since such businesses are not listed according to the involved occupations. They are instead split according to concrete activities, with mixed groups being formed. The example of basket weavers makes clear how using these statistics does not make sense, here:

The basket weavers as a whole are included in two mixed groups, those of "Production of Other Wood Products" and "Production of Wood Products Not Mentioned Otherwise", which include a combined total of 2,031 businesses. Using this data, it is not possible to deduce a definite number of businesses that still practise basket weaving.

Establishment censuses for the period under research done on the basis of Austrian Economic Chamber memberships are only available for entire occupational categories and can therefore only reveal tendencies in comparison to the present day. What's more, comparison of occupational groups over many years is permissible only in a limited manner, since the composition of these occupational categories has not remained constant over the course of the decades in question. Statistics on chamber memberships of active businesses exist for the period running from 1955 to 1994 (Appendix 2). The current number of individual craftsmanship businesses can be derived from the occupational group statistics of the WKO (see Section 4.2.1). The figures from the period of 1955 to 1994 can be compared with the current numbers from the WKO's occupational group statistics of 2015 in a limited manner.

Juxtaposition of the number of active businesses that were craftsmanship-related—in accordance with the understanding adhered to in the present study—in 1950 and in 2015 would permit a concrete statement to be made regarding the individual areas of craftsmanship and their development. However, there exist no collected statistics regarding craftsmanship businesses in 1950. Therefore, in order to compare figures in a meaningful and academically permissible manner, one would have to conduct historical research on each of the 312 trade occupations in all nine federal provinces.

Using the presently available data, it is impossible to make a final statement on whether a traditional craftsmanship-related occupation and/or skill is still practised or no longer practised today as gainful employment. An example here would be that of turners:

In 1954, there existed specialised categories of turner including horn, stone, and wood turners, as well as pipe makers and turners in general. But the in-depth classification of occupational groups from 2015 lists businesses only as "Turner" or as "Wood design businesses". Determining whether there are still pipe makers and horn or stone turners among this group would require deeper research on precisely this question.

The answers to further questions such as whether the skills of the "folding boat builders" listed in 1954 have since been integrated into the boatbuilders' trade, whether the 1954 trade of ship's carpenter is a specialisation of today's carpentry trade, whether what the "tile maker" did in 1954 is now done by today's ceramists, or whether textile-related trades such as "spinning of sheep's wool and flax" are now represented as part of businesses such as artisanal spinning mills are likewise things that cannot be determined.

The situations of individual traditional trades and skilled crafts can therefore only be portrayed following more detailed research on their respective individual fields.

3.2.2 Data used for the purpose of answering the research questions

Use was made of the trade occupation lists and/or apprentice statistics from 1954, 1960, 1970, 1980, 1990, 2002, 2010, and 2014 (see apprentice statistics of the Austrian Federal Chamber of Commerce from 1954, 1960, 1970, 1980, 1990, and <https://www.wko.at/ZahlenDatenFakten> for figures from 2002, 2010, and 2014).

Additionally, it proved possible to retrieve a comprehensive “Index of Austrian Professions” (*Österreichische Berufskartei*) set up during the period around 1950 that contains descriptions of every recognised craftsmanship occupation from between 1950 and 1965. The sources for this study’s descriptions of present-day trades and the content involved in training for them were the “Careers Lexicon” of the Public Employment Service Austria (AMS, www.berufslexikon.at, 2015) and the career guidance tool “Berufsinformation-Computer” of ibw Austria – Research & Development in VET (ibw, www.bic.at, 2015).

Analysis of the statistical data for the period running from 1954 to 2014 was done both in terms of the names used for craftsmanship-related trades and/or craftsmanship skills and in terms of the numbers of apprentices over a period of 65 years.

A prerequisite for admission to the list of traditional craftsmanship skills was such skills’ having been capable of providing at least a partial living during the period around 1950. Traditional crafts engaged in as hobbies, traditional crafting skills anchored within families, and traditional folk handicrafts with no significant economic benefit for those performing them are not accounted for in this listing.

For all six decades, the statistics include only those traditional craftsmanship skills that can or could be learned through at least some kind of formal basic training (see Section 4.3). There exist no statistical records from these six decades for the traditional craftsmanship skills taught via informal training systems.

Statistical data on craftsmanship skills refers exclusively to skilled trades and crafts that were taught directly at businesses or at state-run, non-business apprentice workshops.

Full-time vocational schools or other institutions of higher schooling that taught or still teach traditional skilled and/or apprenticeable trades and craftsmanship skills in the form of in-school programmes plus internships cannot be represented in terms of numbers (e.g., by the number of students per year or per collective graduating class)

in these lists. There exists no collected historical data in this depth with regard to the dynamics of continuous change in the individual schools' specialties. But to supplement the lists of craftsmanship-related apprenticeable trades, the numbers of vocational and other higher school programmes in Austria that convey similar content in an in-school setting are included.

In order to also list traditional craftsmanship-related occupations from ca. 1950 that cannot be gleaned from the apprenticeship statistics of 1954 due to informal modes of knowledge transfer, numerous literary sources on craftsmanship occupations were referred to:

Verschwundene Arbeit (see Palla, 2014), *Vergessene Künste* (see Seymour, 1984), *Vom alten Leben* (see Haid, 1986), *Berufs-Lexikon* (see Deeken, 1957), and others.

In order to combine the data from six decades, it was necessary to structure the content so as to shed light on changes in traditional craftsmanship-related occupations in a sensible manner. The individual traditional trades and skilled crafts were therefore ultimately divided into the following ten thematic groups:

1. Textiles, Fashion, and Leather
2. Wood, Clay, Glass, and Natural Materials
3. Construction, Home, and Garden
4. Electrical Technology and Electronics
5. Metal Technology and Machine Building
6. Chemistry and Synthetics
7. Paper, Photo, and Printing
8. Foodstuffs and Semi-luxury Products
9. Health and Body Care
10. Art and Music

As a rule, the present study examines the transmission of craftsmanship-related knowledge via first-chance education focused on young people of between 15 and 20 years of age. Training opportunities for adults and adult lateral entrants have not been taken into account in the statistical analyses, since there exists no collected data on these groups.

Current data on numbers of traditional craftsmanship-related businesses, the numbers of people employed by them, and their economic output is taken from the economic

output and structural data compiled in 2013 by Statistik Austria (Statistik Austria, 2015)
and statistical material from 2014/2015 compiled by the WKO (WKO, 2015).



4 Findings and Discussion

4.1 Characteristics of Traditional Craftsmanship in Austria

Preliminary Explanatory Remarks on **characteristics and parameters**:

- All findings introduced in Section 4.1 and its sub-sections are derived exclusively from the empirical data gathered in the focus group sessions and in-depth interviews. This data was gathered in accordance with the methodology described in Section 3.1, transcribed, and condensed into statements by all experts in a cyclical manner. In doing so, it proved possible to discern a distinctive structure exhibited by Austrian traditional craftsmanship's characteristics, which are described in the following and condensed in Section 4.1.7.
- The field represented by all of the recently existing and historical craftsmanship occupations is littered with exceptions and special cases. But even so, it is striking how the constellation of parameters ultimately worked out can be discerned in every sample (taken from the focus group sessions and in-depth interviews) at which one looks. A given statement's transferability across the various sectors, experts, and session and/or interview locations was used as a way of assessing its degree of universal validity. And this validity was to a great extent borne out.
- The resulting parameters, introduced individually below, are to be understood as interdependent variables that are meant to render visible the complexity of the research topic of "traditional craftsmanship" both individually and in the ways in which they interrelate.
- Neither the fulfilment of an individual parameter nor the fulfilment of a certain number of parameters automatically denotes an activity as traditional craftsmanship. Each such activity much rather needs to be assessed on its own, with the decision whether to include or exclude it based on its fulfilment of the qualitative defining criteria.

4.1.1 Inseparability of traditional skilled crafts and trades from their highly skilled or masterly practitioners

Traditional craftsmanship can only be understood via those craftspeople who are inseparably linked therewith due to the key function that they fulfil.

The practitioner's personality characterises, influences, and continually interacts with every other parameter and characteristic.

4.1.2 Employment of profound and/or masterly knowledge and skill

The craftsperson knows and provides the comprehensive product and service, commands knowledge of and skills for all processes (including interpersonal ones) involved in their business, and bears bundled responsibility for all of it. Traditional craftsmanship entails the personal application of knowledge and skills in their entire depth and development over time, none of which represent abstract or automatic processes but rather take place in connection with human beings and their competencies.

The employment of machines and state-of-the-art technology in craftsmanship has increased, resulting in greater efficiency and ease of work. Across the entire breadth of trades and skilled crafts, however, it remains the case that the core competencies cannot be delegated to machines. And those junctures at which a disproportionate amount of machine production leads to a reduction in craftsmanship skills are where experts perceive there to be a fluid transition between craftsmanship and non-craftsmanship.

Production, installation, maintenance, care, and repair of products are done in ways that are at least partly manual. And though the use of machines for support is not a reason for exclusion, the significance and focus of traditional trades' and crafts' ways of working lie in the component of human-performed work rather than machine-performed work.

The guiding figures of traditional craftsmanship stand on the front line and are available to their customers. They are at least partly involved in the working process, and they are capable of carrying out the value-creating steps in the process on their own.

“Craftsmanship” (*Handwerk*) or “hand workmanship” (*Hand-Werk*) are to be interpreted not literally, as mere references to manual tasks, but instead more broadly. On the one hand, using one's body means more than just working with one's hands. Physical strength is just as necessary as is the haptic and sensuous understanding of materials and climactic conditions. And on the other hand, high-quality traditional craftsmanship requires training along with mental, ideational, philosophical, artistic, ethical, and social competencies that are anchored in the personality, in the individual nature, in the character, and in the spirit of traditional craftsmanship's practitioners.

4.1.3 Orientation toward independence and financially successful entrepreneurship

An identifying characteristic of traditional craftsmanship is individuals' will to acquire full knowledge and skill (i.e., to achieve “full mastery”) as well as their urge to work for themselves and establish economically successful businesses. The top of the traditional craftsmanship pyramid is occupied by an individual who has learned his or her line of work from the bottom up. This entails that the management level is not decoupled from traditional craftsmanship-related knowledge and skill.

The practitioners of full-fledged traditional craftsmanship are entrepreneurial personalities—or, put differently: the personality of the craftsperson is characterised by an independent entrepreneurial spirit.

Traditional trades and crafts' survival and attractiveness have always been tied to successful business practices combined with the upholding or improvement of product quality—and thus also tied to the fulfilment of entrepreneurial obligations and the ability to meet entrepreneurial challenges.

4.1.4 Training and the transmission of experience and practical skills

The central foundation of traditional craftsmanship is embodied by transmission of the associated knowledge and skills, as the term “traditional” itself would suggest. In the absence of training for craftsmanship professions, there is no economically sustainable craftsmanship. The transmission of knowledge via the existing system of dual education is strongly characterised by ideals and strongly linked with individuals. And a core element of master craftspeople's professional ethos is feeling called to provide training and pass on knowledge.

Traditional craftsmanship in Austria is characterised by the country's system of dual education. This, along with theoretical training at vocational schools, ensures the personal and dynamic transmission of knowledge and skills at actual trade businesses.

This system of dual education in traditional craftsmanship was and continues to be characterised above all by the qualifications of the master craftspeople who, on the

basis of the comprehensive and practical competencies that they possess by virtue of their experience at their own enterprises, were and are capable of transmitting this knowledge as guiding figures.

“Tradition” in the context of craftsmanship means that one can point back over decades or even centuries to a given form of craftsmanship’s origins and existence, while it also implies the act of transmission [German: *Tradieren*] itself. Thanks to the mode via which knowledge is passed on, the continued existence of traditional craftsmanship is ensured across generations, businesses, national borders, and changeable overall conditions.

The objective of training is to cultivate individuals equipped with multiple competencies who have the ability to work in independent manner and run a business in every necessary respect later on. This ranges from craftsmanship skills and knowledge to the ability to deal with art history and cultural history in the context of specific workpieces, and from business skills (including the relevant aspects of management and marketing) to the reinforcement of any and all creative potential that can help to uphold a traditional occupation in a way that ensures its future under changing conditions.

4.1.5 Empathy and relationships in traditional craftsmanship

The structuring of relationships in traditional craftsmanship features interpersonal contact that is empathetic, direct, long-term, and continuous on all of the levels discussed in the following. The relationships in play are subject to fundamentally reciprocal processes and to the principle of mutually beneficial cooperation, and they are beholden much more strongly to traditional craftsmanship’s professional ethos than they are to purely market-oriented maxims.

4.1.5.1 Comprehensive expertise on raw materials as a determinant of personal relationships with suppliers

Traditional craftsmanship seeks out and makes use of opportunities to take a nuanced approach to raw materials, from which they start in order to produce distinctive final products whose quality is defined in part by these raw materials’ quality.

Knowledge and skills related to working materials and raw materials have taken on greater depth over the past few decades thanks to research findings as well as greater breadth thanks to new technological processes.

This has resulted in intense relationships with vendors that are based on mutual trust and the will to work together over the long term.

Price wars with vendors (that inevitably result in the use of lower-quality materials) are atypical and do not represent the essence of traditional craftsmanship, with any price wars that do occur being owed traditional craftsmanship's financial hardships.

If craftspeople desire to provide customer-specific individual services, they need vendors of raw materials and components who are capable of producing in small batches and/or flexible enough to accommodate special requirements in terms of the products they provide. It is for this reason that businesses with sales systems geared to quantity (with minimum order amounts) do not make ideal partners for artisans doing individual work. On the other hand, in situations where stable, long-standing relationships with vendors enable customers to play a role in defining the quality of the raw materials provided in the interest of producing outstanding products, top-notch artisanal output does indeed tend to be the result.

4.1.5.2 A close relationship with the product

Characteristic of traditional craftsmanship is an explicit relationship between craftspeople and their own output (the idea of their being “in love with their products”). If this level of traditional artisanal production truly is lived, the product bears the “handwriting” of that individual who conceives and produces it under the conditions that govern its ordering and production.

The person's skills lend the workpiece a commensurate form that, by virtue of its individuality and authenticity, raises the value of the piece beyond that of mass-produced products. The success of such a workpiece depends on the individuals who actually do the work. And the result, as a rule, conforms to the customer's requirements.

4.1.5.3 Personal communication between craftspeople and customers as a characteristic of traditional craftsmanship

The relationship between craftspeople and their customers is characterised by the provision of knowledgeable advice as well as by soft factors such as the ability to size up customers and obtain a good feel for what concerns them and what their possibilities are.

Of foremost importance here is the willingness of craftspeople to enter into relationships, for only when they practise and signal this can customers give themselves over to the typical artisanal process of working together in order to define a job. Ideally, the customer also acquires knowledge about and esteem for traditional craftsmanship parallel to his or her acquisition of the desired product.

Customers' awareness of craftsmanship's virtues forms the basis for their esteem and their willingness to buy.

There needs to be a critical mass of convinced customers in order to ensure that craftsmanship continues to be perceived as attractive by society. And as part of this, customers' esteem manifests itself in their perception and understanding of craftsmanship as well as in their telling others about it (i.e., word-of-mouth recommendations).

4.1.5.4 Close relationships with employees characterised by personal familiarity and loyalty

The proprietor of a business, traditionally a master craftsman, acts as a role model, a conveyor of knowledge and skill, and the person to whom employees can take "all" of their concerns. Due to the way in which trade businesses are structured, direct proximity and personal relationships between the master/boss and his or her employees are givens.

Heading a traditional craftsmanship-related business entails going beyond the usual management activities to engage in frequent, intense interpersonal contact and bear a high degree of social responsibility. Traditional craftsmanship pursues a strategy of long-term employment relationships that include the training and professional development of employees who live in the region. These relationships often extend from apprenticeship to retirement, a fact that gives rise to the necessary high degree of identification with the employing trade business as well as to this business's always-unmistakable handwriting. In traditional craftsmanship, mutual loyalty is not just a social principle, but also a guarantee of quality in production. "Hire-and-fire" policies are not typical—even in cases where business considerations would suggest the contrary.

Businesses that practise traditional craftsmanship have internalised the ideal of holding on to their employees even during economic crises and periods of weak sales, thereby protecting them from unemployment—because giving up employees means giving up

not only experiential knowledge and skill but also values that are immanent to craftsmanship itself (see Section 4.4).

The structures of such businesses therefore embody communities as defined by Article 2.1 of the UNESCO Convention.

4.1.6 Traditional craftsmanship’s professional ethos and its characteristics

The empirical results of the present study show how a great abundance and depth of ethical considerations runs throughout the various occupational fields and continues to characterise the culture of Austrian traditional craftsmanship today.

4.1.6.1 Passion

The head of the business is fond of taking on the task of producing high-quality products that provide meaning and fulfilment in and of themselves, putting forth an effort that cannot be wholly compensated by economic gain alone. Doing so requires specialised knowledge, experience, and a love of detail.

Strictly profit-oriented considerations are joined by a “craftsmanship ethos” that cannot be defined in material terms alone and can only be lived out in the long run if the necessary passion for working as a craftsperson is present.

In a certain way, artisanal passion can be classified as an immaterial substrate and fuel—including for the training of apprentices at businesses: only masters, who set a clear example of and truly exude this passion, will typically be capable of training highly qualified and motivated employees. The function of the master craftsperson as a role model has lasting effects on the subsequent generation of craftspeople on all manner of levels—economic, social, and ethical.

4.1.6.2 Creativity

Outstanding performance in the craftsmanship field requires talent, industriousness, knowledge, and skill. This by itself, however, could lead simply to the reproduction of products that are already established. In order to arrive at new forms and functions, a great deal of creativity is also required. Here is where countless examples show craftsmanship to be a sibling of art.

In what one might call a co-evolution of production and individual customer needs, creativity is present throughout the everyday life of traditional craftsmanship. The resulting need and willingness to take new and unconventional approaches to solutions requires constant improvisation and creativity. And the interfaces between functionality and creativity are where the potential for innovations lies.

4.1.6.3 Solution-orientedness and functionality

Craftsmanship is oriented toward solutions that meet individual needs and requirements, and it has always been oriented toward comprehensive provision of the populace with the products and related services that they need.

Hand-in-hand with the search for solutions goes a focus on functionality. The constantly changing needs of customers call for innovative concepts. Working according to artisanal tradition means recognising functionality within the context of one's times.

The business dynamics of an enterprise that practises traditional craftsmanship do not entail standing still or treading water; where this is the case, it may be owed to misunderstood nostalgia or arise from a lack of agency or of opportunities to be creative.

4.1.6.4 Reliability

Craftspeople personally represent their business both inwardly and outwardly. Every single one of them backs up what they do with their name. Reliability is a value that they put into real-life practice.

Craftspeople tie their personal reputations and economic fates to their own business and products. It follows that every instance of unreliability in their entrepreneurial doings is attributed to them personally. Reliability is thus necessary for survival not only in a business sense but also in a social sense.

4.1.6.5 Continuity and historical rootedness

A great number of traditional trade and craft businesses have existed for at least three generations, which is a defining criterion upon which this study is based. Quite a few such businesses even go back many more generations. In

their existence and their continuation, they represent value that exceeds the purely financial values of their businesses in 2015.

The continuity of these businesses over generations makes visible the rootedness of traditional craftsmanship in Austrian (regional) culture while offering a treasure trove of historically exceptional works, fates, anecdotes, and facts. Dealing with or studying traditional craftsmanship is closely interlinked with the analysis of aspects of cultural history (see also Article 2.1).

4.1.6.6 Small structures

The overwhelming majority of enterprises that practise traditional craftsmanship are small businesses whose flexibility is sufficient to adapt to individual customer requirements and changing market conditions on relatively short notice. The adoption of business policies geared exclusively toward increases in quantity is frequently viewed as turning away from craftsmanship as such.

Profits are more likely to be reinvested in product innovations, salaries, taking on additional employees (not least in order to lighten the administrative burden of the proprietors, who frequently have too much to do), and the modernisation of business locations than they are in expansion. Growth in size much rather tends to take place in concert with growth processes in the region—such as when new fields of business such as tourism, wellness, or similar open up.

Businesses that practise traditional craftsmanship do indeed sometimes make a name for themselves beyond their home regions, but predatory competition within a single industry is frequently taboo—above all in rural areas: businesses tend to respect their colleagues' territories and customers, intruding only with supplementary offerings, if at all.

4.1.6.7 Regionality and local markets

Traditional craftsmanship above all entails working on and working in a local network. Such businesses' public relations work frequently entails participation in regional events and sponsorship of regional activities. Traditional craftsmanship contributes to rural regions' quality of life in the form of jobs, is a motor of regional value-added chains, acts as a local supplier for the populace, and

sometimes also functions as an attractive feature in terms of tourism—this last being a further indicator of its cultural relevance (see Article 2.1). Craftsmanship is also regarded as a protective factor in terms of regional autonomy.

Whenever regional economic setbacks occur in relevant areas, craft and trade businesses are typically among those who suffer. On the other hand, flourishing craft and trade businesses represent a factor that enhances a location.

Their strength becomes evident in how they are able to react when and where customer requests arise, making the requested output available quickly.

While regionality typically runs throughout the ways in which craftsmanship works, some products and services can indeed become significant beyond their home regions or even internationally. In this sense, craftsmanship—as an ambassador of superlative regional achievements—can make a contribution to the international perception of Austrian culture. And in connection with buzzwords such as sustainability, fair trade, quality consciousness, and similar, regionality and thus also traditional craftsmanship—i.e., production within regional value added chains—are experiencing an upswing and are undeniably in vogue.

4.1.6.8 Sustainability

Sustainable business practices are an essential feature of traditional craftsmanship, since its tendency to hand down knowledge (and indeed businesses themselves) through the generations makes it co-responsible for the survival of its business environment (i.e., regional value-added chains)—and it is only with and within this business environment that it can only continue to develop positively (see also Article 2.1).

Sustainability in craftsmanship arises both via its products (e.g. furniture, wrought iron gates, etc.) and via the ways in which it deals with raw materials, regional vendors, production methods, recipes, longevity, reparability, and/or products' ideational value. In this, craftsmanship fulfils the basic human need for security and permanence—which has taken on a special status in light of the current short-cycled rhythm of modern life. This significantly strengthens the tendency for craftsmanship to provide meaning and uphold values. And everywhere where the trend towards sustainability is manifested, one also sees rising interest in high-quality, artisanal, and regional production.

4.1.6.9 Cultural value

The creation and maintenance of cultural assets of regional, national, European, and even international significance is closely connected linked with traditional craftsmanship. Traditional craftsmanship thus makes a significant contribution to the development of products and production methods that are capable of reflecting, varying, changing, and conveying regionally specific culture.

Traditional craftsmanship gives rise to cultural identity (see also Article 2.1).

Some artisanal production methods are of Austrian origin and represent sources of inspiration on the international level. And on the other hand, some artisanal production methods came to Austria from elsewhere and developed a characteristic Austrian “hand-writing” here. The country of origin, viewed alone, does not explain this culture- and identity-forming character, for craftsmanship has traditionally always been characterised by the international exchange of experience. But high levels of knowledge and skill, its good degree of organisation, and the esteem that is shown for customers does contribute to its national significance. In cases where this succeeds and the appropriate networking also takes place, Austrian traditional craftsmanship is received in a very positive manner on the international level (as it has been historically, as well). High-quality craftsmanship is a significant element of Austrian cultural exchange.

The cultural value of craftsmanship is quite closely tied to the artisanal value of the products and therefore to artisanal skill.

4.1.6.10 Economic value

Traditional craftsmanship is not a hobby but much rather serves to provide income for craftspeople and their employees. It therefore represents a significant pillar of the economy even in the present day.

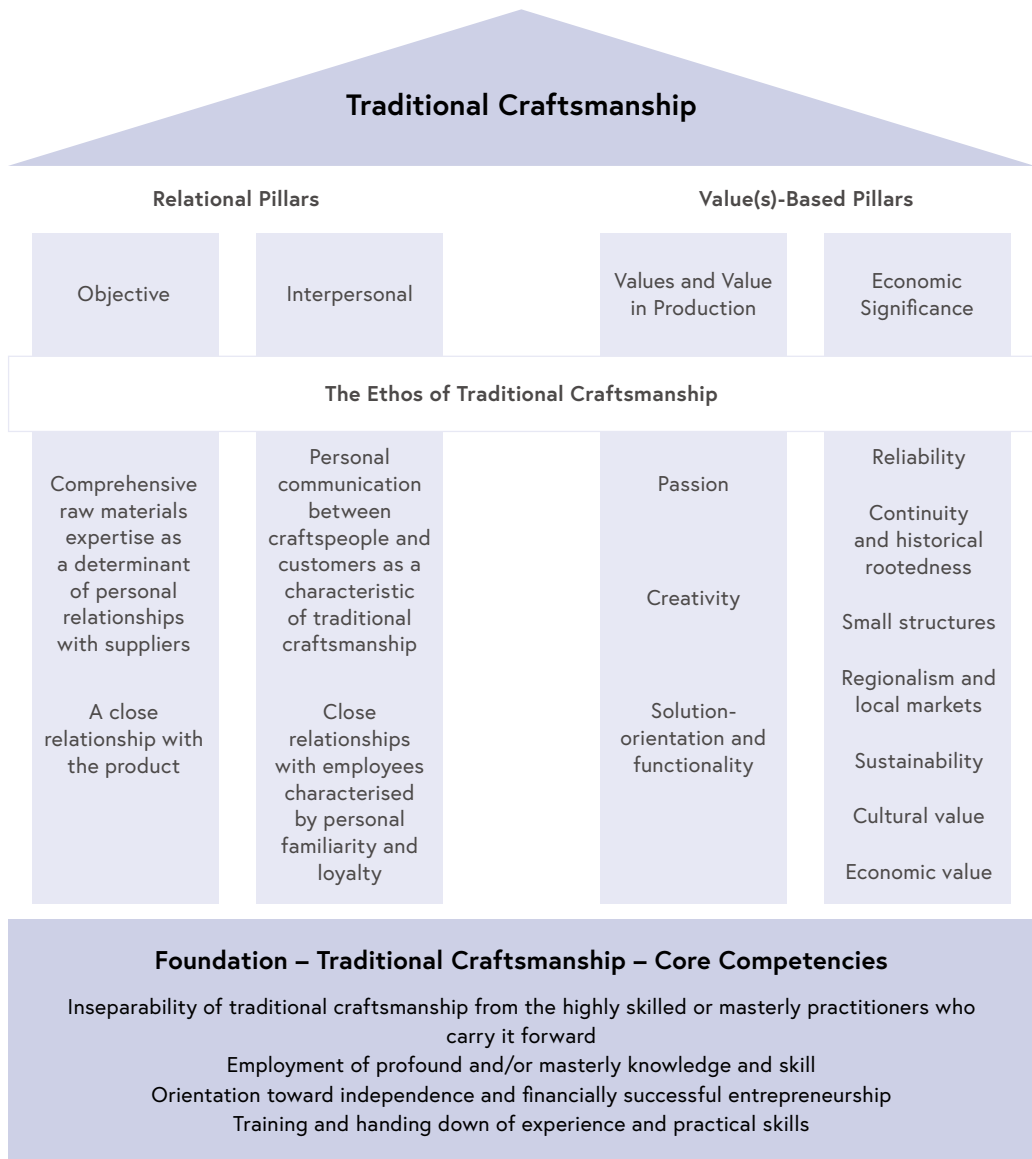
In sum, businesses that practise traditional craftsmanship continue to be a significant part of national value creation and employment.

4.1.7 Bringing together the parameters and characteristics

The characteristic parameters of traditional craftsmanship, dealt with in detail, serve to answer the first research question (Section 1.2) and can be visualised as a group in the following descriptive model:

This model for the description of the characteristics of traditional craftsmanship consists of two fundamental parts: a foundation and a group of four pillars standing on top, of which two have to do with relationships while the other two have to do with values.

Figure 3: Descriptive Model of the Characteristics of Traditional Craftsmanship



The parameters that form this graphic's "foundation" are in constant interplay with the elements that make up traditional craftsmanship's relational and value(s)-based pillars. These elements, in turn, are closely interrelated via mechanisms of causes and effects.

The Foundation

The foundation of this model consists of four essential core competencies or elements:

- Inseparability of traditional craftsmanship from the highly skilled or masterly practitioners who carry it forward
- Employment of profound and/or masterly knowledge and skill
- Orientation toward independence and financially successful entrepreneurship
- Training and the transmission of experience and practical skills

The first parameter necessarily entails that the other three elements be bundled in the entrepreneurial personality as a bearer of traditional craftsmanship.

In order to ensure traditional craftsmanship's medium- to long-term survival, it is necessary that all four of the parameters comprising the foundation be fulfilled. If even one of these parameters goes missing, it is no longer possible to speak of traditional craftsmanship in the strict sense. The essential defining parameters of traditional craftsmanship included in the foundation therefore represent indispensable core competencies, competencies without which traditional craftsmanship cannot successfully sustain itself and continue to develop.

The Pillars in This Model

Understanding the essence of traditional craftsmanship entails viewing the entrepreneurial personality and its core competencies as they relate to the following contexts:

- Objective
- Interpersonal
- Values and Value in Production
- Economic Significance

In contrast to the essential elements listed in the foundation, the degree to which the elements of the relational and value(s)-based pillars are necessary—and/or of the degree to which they are manifested—is flexible. This flexibility is due to the heterogeneous nature of the various fields of traditional craftsmanship with their differing outputs and/or services. In addition to production, these also encompass installation, maintenance and care of, and repairs to products combined with service-related components, all of

which are frequently rather specialised and/or customised. This means, for example, that the raw materials component (part of the objective relational pillar) may be of only secondary significance in the case of a trade business that concentrates on service, with the relationship with customers (part of the interpersonal relational pillar) coming more strongly into focus.

Therefore: not every single element of the relational and value(s)-based pillars need necessarily be present in order to speak of traditional craftsmanship. But on the other hand: the less pronounced the characteristics from the relational and value(s)-based pillars at a business are, the less present practically applied, intangible traditional craftsmanship values are at that business.

In order to qualify as traditional craftsmanship, the four core competencies of the foundation should be joined by at least one essential defining parameter from each of the relational and value(s)-based pillars that is included in the values brought to bear in a business's strategic and operative orientation.

4.1.8 Findings from the empirical field research as they relate to the relevant academic literature

The findings from the empirical field research done in order to arrive at a description of the characteristics of traditional craftsmanship are backed up by the relevant literature from various academic disciplines. The qualitative bottom-up approach to the characterisation of parameters that describe present-day traditional craftsmanship leads to findings that are similar to those produced by the top-down approach seen in the literature of various academic disciplines. The following summarises certain findings derived from the latter approach in order to make clear the parallels to the empirical findings of the present study:

- The inseparability of traditional craftsmanship from its bearers as skilled practitioners and/or masters was already discovered by Wilhelm Wernet, an economist and craftsmanship researcher, during the 1960s. It was as the inseparability of craftsmanship from its bearers and/or its eternal connection to them that he described this most fundamental characteristic of craftsmanship (Wernet, 1965, p. 15 ff).
- In the definition used by “Recontres de St. Gall 1949” (see Section 2.2.1), as well, craftsmanship is described as a form of economic activity borne by an individual—with self-employment being a significant form of occupational existence among craftspeople. Only in one's own independent business, they held, would the characteristics of traditional craftsmanship be fully realised. For the head of the business is comprehensively involved in the process of artisanal creation, and

the employment of their artisanal skills requires experiential knowledge that can only be acquired as part of an extended learning process.

- A Swiss study (see Haefeli et al., 2011) describes traditional craftsmanship as consisting in specific specialised and experiential knowledge as well as characteristic skills, with the processing of raw materials and other components being done at least in part manually.
- Sinz, in his book, describes craftsmanship's success story. He comes to the conclusion that craftspeople cannot be replaced by machines, with machines much rather easing their burdens and raising productivity. And with this, he writes, traditional craftspeople need to have mastered both proven and state-of-the-art production methods running from raw materials to components to the final product. The self-employed business owner, Sinz writes, is typically not only a certified master craftsman but also doubles as the business's proprietor and operative head. This person thus represents the backbone of their craft or trade business (see Sinz, 1977, p. 376).
- Vocational training, writes Sinz, is the most integral mission of traditional craftsmanship. For centuries, people working in these types of occupations have taken responsibility for training their own successors. Sinz characterises the results of such training as a crucial factor in the future development of craftsmanship and of society as a whole (see Sinz, 1977, p. 377 ff).
- In times of change during which numerous measures of value threaten to disappear, writes Sinz, craftsmanship—with its trade organisations—has remained a community with valid ordering principles (see Sinz, 1977, 352 ff).
- The abilities to create, improvise in a solution-oriented manner, adapt, deal creatively with the matter at hand, and take risks are characteristics that are generally attributed to craftsmanship and can only unfold within a context where market forces are in play. And the ability to adapt to dynamic processes of change speaks to craftsmanship's longevity (see Sinz, 1977, p. 368 ff).
- The question as to whether craftsmanship will be able to persist in its present form is less a technical and economic problem and more a political issue, writes Sinz by way of summing up craftsmanship's developmental potentials in 1977 (see Sinz, 1977, p. 387).
- Rössle (see Rössle, 1964, p. 24) likewise makes clear the association between "training" and "occupation" in traditional craftsmanship. Systematic training in the form of apprenticeships, he writes, is a significant characteristic of traditional craftsmanship (see Rössle, 1964, p. 25 ff and Axt, 1997, p. 35) and can be regarded as the basis for its further development.

- Traditional trade and craft occupations are oriented towards self-employment. This gives rise to a feeling of autonomy, independence, and freedom (see Rössle, 1964, p. 36 ff).
- It is above all the professional ethics brought to bear at businesses that practise traditional craftsmanship, Rössle writes, that are possessed of wide-ranging societal significance and influence. For in no other manifestation of economic life are the economic and social areas of responsibility as interconnected as they are in traditional craftsmanship (see Rössle, 1964, p. 67 ff).
- Axt holds that a characteristic of craftsmanship is craftspeople's principle of proprietorship: proprietorship and management are embodied by the same person, with craftspeople running their businesses for the purpose of ensuring their livelihoods (see Axt, 1997, p. 33).
- Craftsmanship businesses, ascertains Axt, quite naturally procure the lion's share of their raw materials within their own regions, if possible, and thus exhibit a fairly strong orientation toward their respective regions' ecological potentials. "Down-to-earthness" and "loyalty to one's location" as well as craftspeople's personal connection to their region and its culture are characteristic (see Axt, 1997, p. 27 ff).
- Sennett (see Sennett, 2008, p. 18 ff), in his comprehensive book *The Craftsman*, develops a notion of value that extends far beyond economic significance to cover the intangible and ideational, according craftsmanship a commensurate status in the context of cultural history. According to Sennett, craftsmanship is the human part of the economy. Artisanal work offers the desired connections between head and hand, a basis upon which we "can achieve a more human material life".
- Knowledge and skills are handed down from generation to generation. Head and hands interact via expression and understanding. This "knowledge capital", obtained via personal transmission, is viewed as the economic potential of the small trade business (see Sennett, 2008, p. 131 ff).
- Horchler writes that the culture of craftsmanship consists above all in a mental process—a process that deals with what makes our life what it is, that links the artisanal and technical with the cultural-ethical-religious realm, and that wrestles for the values of our culture. Craftsmanship requires creativity, improvisation, inventiveness, cooperation, and communication in daily doings (see Horchler, 1996, p. 12 ff).
- The culture of craftsmanship consciously practises its spiritual values. The unity, holisticness, and harmony of heart, head, and hands has made for craftsmanship that has given rise to masterpieces (see Horchler, 1996, p. 12 ff).
- In craftsmanship, more than anywhere else, the entire human being is called upon: head and hand, imagination and reliability, practice and theory, life experience and insights into human nature (see Horchler, 1996, p. 12 ff).

- According to Schachner, the personal unity of proprietor, manager, employer, and risk-bearer is what characterises traditional small and medium-sized enterprises. The entrepreneur's self-employment, he writes, always comes in connection with a dominant personality. And only by bundling the economic functions of "capital provider" and "manager" in a single person, in combination with tamed competition, did the performance of traditional craftsmanship's social and cultural functions become possible. Not profit maximisation and its distribution among stockholders in competition with other companies on the capital market is the prime directive, but rather the achievement of comprehensive societal significance for the person and/or the family in question. And at craft and trade businesses, personal independence as an integral way of life has to this day remained the guiding principle of entrepreneurship (see Schachner, 2004, p. 188 ff).

4.2 Forms of Traditional Craftsmanship in Austria

In 1954, Austria's longstanding system of dual education provided the opportunity to enrol in systematic vocational training for 249 traditional skilled crafts and trades plus 63 craftsmanship skills that were passed on informally (see Section 4.3).

At present, however, there exist just 180 craftsmanship-related professions that are passed on via systematic formal training. In some categories of trades and skilled crafts, professional training modules are offered that combine multiple earlier job descriptions either in their entirety or in part. This limits the meaningfulness of a numerical comparison between the present and 1954. The modularisation of apprenticeable trades that was introduced as part of the 2006 amendment to the Vocational Training Act makes it possible to more flexibly design one's training thanks to improved and increased opportunities to combine content. This can be viewed as a response to the changing needs and possibilities of businesses practising traditional craftsmanship and as a more clearly structured and flexible option for the training of young people (see Archan, 2006).

The number of traditional skilled crafts and trades on the basis of the apprenticeable trades that existed between 1954 and 2014

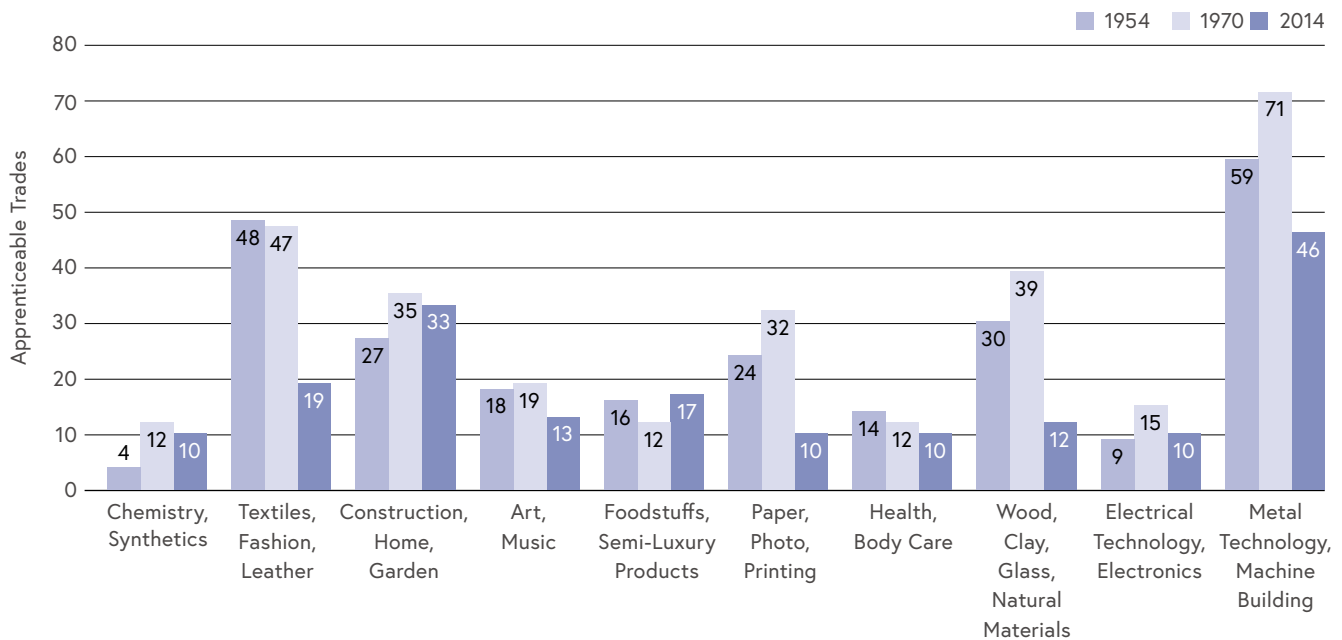


Figure 4: The number of traditional skilled crafts and trades on the basis of the apprenticeable trades that existed between 1954 and 2014

For as long as it has existed, traditional craftsmanship has had to grapple with the challenges of economic, technological, and social change. And by 1950, a great number of traditional crafts and trades (e. g., repair-related trades) had already become children of industrialisation.

Over the observation period of the present study (1950–2015), craftsmanship occupations have undergone constant change. There have been cases of repositioning via specialisation, discovery of economic niches, and link-ups with other occupations. And several occupations that were crowded out of the market and consequently went extinct can now be experienced only in a museum context.

The heterogeneity and large number of traditional trades and craftsmanship skills as well as various influencing factors of a technical, societal, and political nature entail that although one can point out general causes behind changes to and displacement of traditional craft and trade occupations, in-depth research pertaining to an individual occupation is always required in order to gain a concrete understanding of the specific developments that have taken place.

Around 1950, the general reasons for which craft and trade occupations changed or were even crowded out of the market were as follows:

Direct displacement

Technological progress that expresses itself in the form of new machines and different materials can occasion the direct displacement of traditional craftsmanship occupations (see Pastler, 1952, p. 171 ff).

Direct displacement occurs when new technology allows products to be produced industrially without significant losses of quality and marketed at a lower price than artisanal products.

Examples of occupations that were directly displaced on the labour market during the 1950s include needle makers, comb makers, candle makers, soap makers, and similar (see Pastler, 1952, p. 171 ff). The needle makers and comb makers have by now completely disappeared from the market, while candle makers and soap makers now occupy market niches thanks to special qualities and/or in connection with individualised service-related components (an example being made-to-order personalised candles). During the final decade of the period under study, one sees a similar development among the bakers. The development of new baking technologies has enabled the broad marketing of bread and other baked goods that are of high quality above all in terms of freshness. This has required bakers to develop special qualities of bread and similar baked goods in order to have their products stand out from fresh mass-market wares.

Indirect displacement

Forms of traditional craftsmanship can be indirectly eliminated if their goods and services are no longer needed by the market because the purposes served by them have become obsolete or irrelevant (see Pastler, 1952, p. 171 ff). The occupations of saddler and wainwright, for example, were transformed by mobility's shift from horse-drawn carriages to trains and automobiles. And the saddlers, despite the loss of their original purpose, did not die out: they much rather succeeded in regaining a foothold on the market by shifting and redefining their business model. Within saddlery, which by 1950 had concentrated on the upholstering of automobile interiors (see Pastler, 1952, p. 172 ff), there are also developed a very small business segment focused on the production of English saddles for an elite clientele.

Further reasons for changes and shifts in as well as the displacement of traditional occupations during this time period with a focus on 2015 will be discussed in Section 4.4.

Supplementary explanation of the choices of dates for this study's quantitative findings:

For the purpose of analysing the apprentice statistics of the Austrian Federal Chamber of Commerce (today's WKO), the years 1954, 1960, 1970, 1980, 1990, 2002, 2010, and

2014 were used in order to document the development of trades' and craftsmanship skills' systematic transmission. If an apprentice learned a double-occupation, for example baker and confectioner, that person was counted in both trades. The figures for the individual trades in the specified years encompass the apprentices who were in their first, second, or third year of learning the relevant traditional trades, for which reason they each represent snapshots of their respective years.

Apprentice statistics for 1954

Only since 1954 have statistics on apprentices been consolidated at the federal level, meaning that the 1954 figures represent the very first set of Austria-wide statistics on numbers of apprentices.

Apprentice statistics for 1970

1969 saw publication of the first legally anchored, unified list of apprenticeship trades. In this list—and, consequently, in the list used in 1970—numerous traditional craftsmanship-related apprenticeable trades were included that were no longer of any economic or social significance and thus hardly or not at all being systematically transmitted. For this reason, numerous apprenticeable trades were eliminated within a relatively short period of time (five years), being deleted with no replacement.

Apprentice statistics for 2002

For the period beginning in 2002, there exists an electronic statistical evaluation of the number of apprentices.

4.2.1 A listing of trades and craftsmanship skills, divided into thematic groups

This study's listing of individual traditional trades and skilled crafts is divided into the following thematic groups:

1. Textiles, Fashion, and Leather
2. Wood, Clay, Glass, and Natural Minerals
3. Construction, Home, and Garden
4. Electrical Technology and Electronics
5. Metal Technology and Machine Building
6. Chemistry and Synthetics
7. Paper, Photo, and Printing
8. Foodstuffs and Semi-Luxury Products
9. Health and Body Care
10. Art and Music

**Numbers of apprentices between 1954 and 2014,
divided into 10 thematic groups**

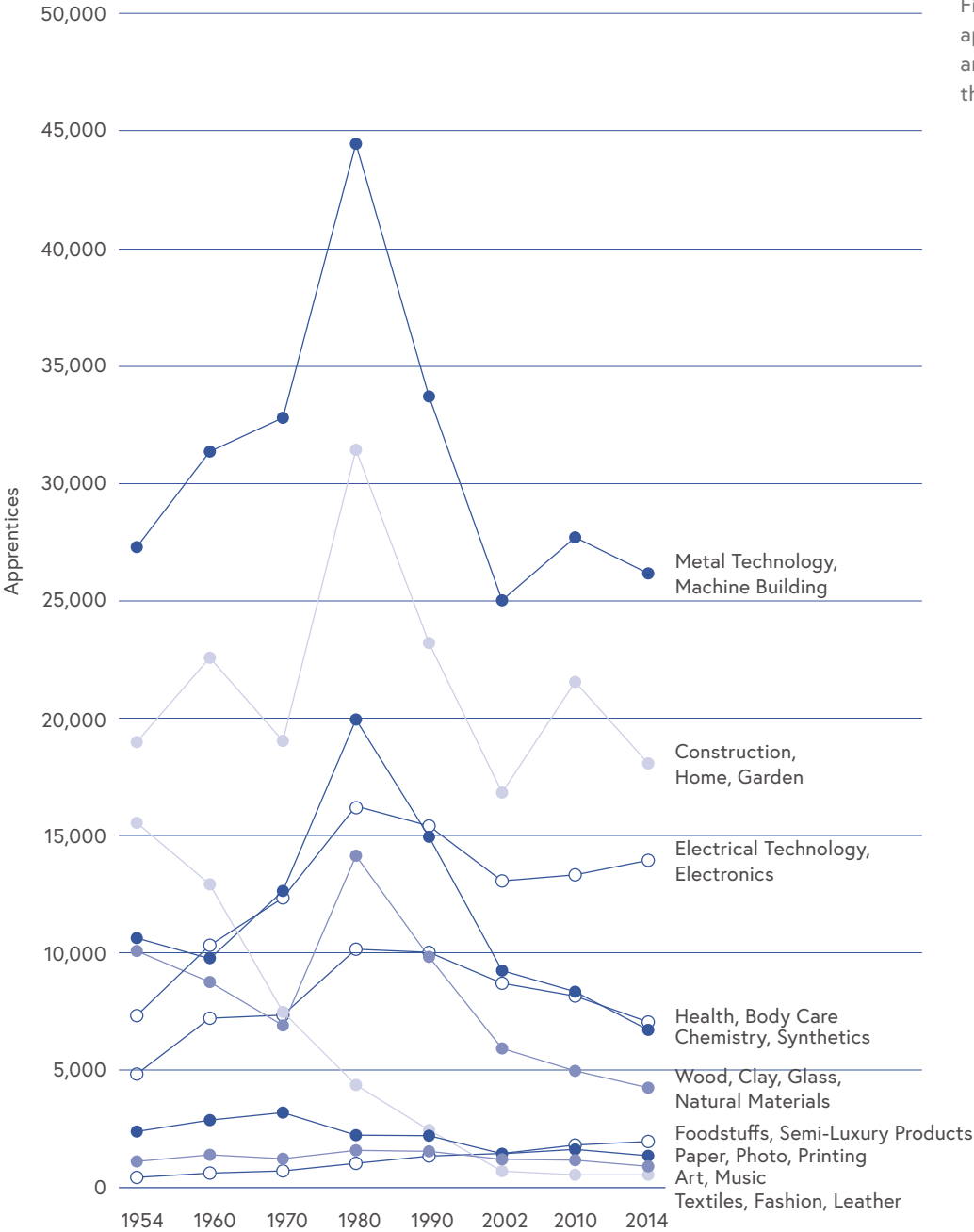


Figure 5: Numbers of apprentices between 1954 and 2014, divided into 10 thematic groups

Figure 6: Development of apprentice figures for all traditional craftsmanship-related trades between 1954 and 2014

Total number of apprentices in all traditional trades, 1954 to 2014

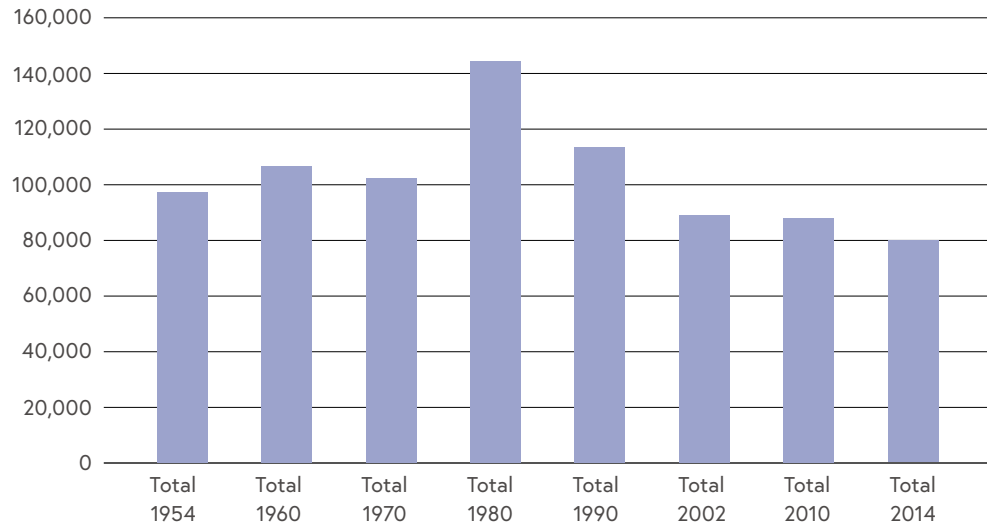


Figure 6 refers to the number of apprentices in the system of dual education. Double apprenticeships are distributed among the respective trades.

Despite fundamental technological and social changes, the overall number of apprentices in traditional craftsmanship-related trades has remained relatively stable over this 60-year period. A reduction of just under 20% over six decades would seem not to be all that large at first glance. But a deeper look at the individual traditional craftsmanship occupations provides a more nuanced impression (compare Figure 5 with Figure 6).

The rise in the number of craftsmanship apprentices in the late 1970s and early 1980s can be attributed to both the baby boom of the late 1950s and 1960s and to the trend toward less young people doing without formal training.

On the basis of this study's clustering of trades and skilled crafts as well as its evaluation of six decades of apprentice statistics for the individual trades, various more specific developments can also be observed. Since 1954, trades in the thematic group "Textiles, Fashion, and Leather" have been subject to pronounced shrinkage. The thematic trade groups "Paper, Photo, and Printing", "Art and Music", "Foodstuffs and Semi-Luxury Products", and "Wood, Clay, Glass, and Natural Materials" logged an increase in apprentices above all prior to 1980, but over the entire comparison period of 1954 to 2014, a clear overall reduction in the number of apprentices can still be made out.

The occupations from the groups "Construction, Home, and Garden" and "Metal Technology and Machine Building" also suffered slight overall decreases during the 1954–2014 period,

though these groups contain numerous outliers that exhibited either rising numbers of apprentices or severe overall decreases in the number of people learning these trades.

Only the three trade groups “Health and Body Care”, “Electrical Technology and Electronics”, and “Chemistry and Synthetics” had more apprentices in 2014 than they did in 1954.

Supplementary information on the tables for the ten thematic groups:

Tables A1–A10 sketch out the development of the individual craftsmanship-related trades from 1954 to the present. Grey-shaded cells indicate that the trade to their left is no longer systematically transmitted under exactly the same name and in exactly the same definition. In order to present a clearer and more comprehensible impression of this development, similar trades are portrayed in blocks. Overlaps between these blocks with respect to content are unavoidable.

* Number of vocational school locations: the next-to-last column from the right—“Vocational School Locations”—indicates the number of vocational school locations Austria-wide where it is possible to learn the respective trade (see *Berufslexikon des AMS*, 2015).

** Number of fully in-school vocational training locations: the column farthest to the right—“Fully in-school training locations”—indicates the number of vocational schools Austria-wide that offer full-time in-school training that is at least partly similar to the respective apprenticeships in the dual system (see *Berufslexikon des AMS*, 2015).

Tables B1–B10 list all officially existing trades and craftsmanship skills in 1954. The columns labelled with the years 1954 and 2014 provide information on how these were and are transmitted:

- A formal course of basic training is indicated by “x”.
- Informal training is indicated by “y”.

This results in the following possible combinations when comparing 1954 and 2015:

1954	2015	Possible combinations of x and y
x	x	transmission via a systematic, formal course of basic training in both years
x	y	1954: systematic, formal course of basic training; 2015: informal transmission
y	x	1954: informal transmission; 2015: systematic, formal course of basic training
y	y	informal transmission in both years

On the basis of the available statistics and in light of the dynamic development of the individual trades within the 60-year period in question, it cannot always be clearly ascertained whether the craftsmanship trades of 1954 have been matched exactly with the trades of 2014 following their renaming, division, combination, and/or modularisation.

Tables C1–C10 list the number of businesses in the respective thematic areas of craftsmanship according to the WKO’s 2015 list of occupational groups.

Table A1 – Textiles, Fashion, and Leather

4.2.1.1 Textiles, Fashion, and Leather

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
			Hand embroiderer	1								
			Embroiderer	3								
Embroidery designer			Embroidery designer	5	9	8	Embroidery designer					
			Industrial machine embroiderer	2	1	1	Industrial machine embroiderer	3	1			
Machine embroiderer (incl. gold, silver, and pearl embroiderer in 1954)	118	42	Machine embroiderer	3	10	0	Machine embroiderer – Textile design specialising in embroidery	2	1	2	1	1
Gold, silver, and pearl embroiderer		7	Gold, silver, and pearl embroiderer	10	7	2	Gold, silver, and pearl embroiderer	1	1	0	1	5
Warp, circular, flat knitter	102	1	Warp, circular, flat knitter	4	12							
Circular knitter, Raschel knitter		10										
Knitter	691	681	Knitting machine setter and operator	256	204	80	Knitwear producer – Textile design specialising in knitwear	6	4	4	1	
Woollen fabric maker		9										
Ribbon weaver		18	Ribbon weaver, ribbon maker, and border maker	1								
Bobbinet weaver		5										
Figured linen weaver		1	Figured linen weaver	1								
Silk piece weaver, silk piece dyer		9										
Spinner	11		Spinner	2								
Weaver	259	82	Weaver	15	0	11	Weaver – Textile design specialising in weaving	1	6	2	1	2

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Draughtsman for textile printing	10	3	Draughtsman for embroidery, draughtsman for textile printing, textile pattern draughtsman	7	6	3						
			Designer for textile printing	8	7	11						
Yarn dyer, finisher, cloth finisher, cloth printer	66	8	Yarn dyer	1								
		1	Finisher (cotton, wool, silk finisher)	4								
			Textile mechanics incl. weaving	1	76	104	Textile mechanics	50	19	6		
							Textile technology – machine technology; Textile technology – weaving technology	43	41	54	2	3
Wallpaper printer	3	1										
Invisible mender	16	10	Invisible mender	1								
			Red tanner	3	5	4	Red tanner – tanning, red tanning	11				
			Tawer and oil tanner	4	12	3	Tanning – tawing and oil tanning	2				
Tanner	144	28	Tanner	2		0	Tanning	0	1	2	1	1
Fur and leather finisher	13		Fur and leather finisher and dyer	1	7	0	Fur and leather finisher	0	0	0	1	1
Taxidermist – specialisation in vertebrates, beetles, and butterflies; fluid preparation	3	3	Taxidermist	4	18	20	Taxidermist	8	3	5	1	
Leatherwear stitcher and quilter, bag maker	113	3										
Bag maker – specialisations as cutter, table worker, sample maker (suitcases, bags, photography bags, travel items, tool bags)		32	Bag maker	15								
Leather accessory producer and bag maker.	161	149	Leather accessory producer and bag maker	29	65	27	Leather accessory producer and bag maker	1	2			
Vehicle upholsterer (vehicle saddler)			Vehicle upholsterer (vehicle saddler)	30	38	23	Vehicle upholsterer (vehicle saddler)	13	7			
Saddler, harness maker	533	283	Saddler and harness maker	42	19	16	Saddler and harness maker	7				

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
							Saddlery specialising in vehicle saddlery	5	6		1	2
							Saddlery specialising in riding saddlery	1	5		1	2
							Saddlery specialising in bag-making	2	2		1	2
Cord and rope maker, passementerie maker	54	29										
Gold and silver passe- menterie maker	1	1										
Passementerie maker		3	Passementerie maker	3	9	10	Passementerie maker – Textile design specialising in passementerie	1	0	0	1	6
			Vehicle upholsterer	4								
Upholsterer, vehicle upholsterer	69	73	Upholsterer	19	77	63	Upholsterer	36	23	18	6	
Umbrella maker (produc- tion of umbrella frames, sun umbrellas)	47	29	Umbrella maker	5								
Glover	53	20	Glover	8	3		Glover	0	0	0	1	0
Shoemaker – special- isations as a custom shoemaker for hiking boots and athletic shoes, fashion shoes, theatre and dance shoes	1,807	657	Shoemaker	140	124	102	Shoemaker	23	25	27	5	0
			Button maker									
Tie maker	18	10										
Shapewear maker	154	91	Shapewear maker	11	2	1	Shapewear maker	2	0	0	1	5
Bag maker, leather cloth- ing producer – businesses specialising in <i>Tracht</i> clothing made of leather, leather sportswear	29	10	Bag maker (leather clothing producer)	24		6						
Milliner (hat maker)	264	159	Milliner	80	33	18	Milliner	3	2			
Fur hat maker, hat producer	43	14										
Hat maker, ladies hat maker, and straw hat maker	68	31	Hat maker, hat producer, ladies' felt hat maker, and straw hat producer	22	9	5	Hat maker					
Cap maker	1	2	Cap maker		1							
Furrier	246	118	Furrier	125	173	39	Furrier	5	2			

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Ladies' clothing maker and ladies' tailor – specialisations in dresses, ladies suits, coats, sample garments, theatre tailoring	5,252	5,348	Ladies' clothing maker	3,897	2,046	1,166	Ladies' clothing maker	194	127			
Men's clothing maker and men's tailor – specialisations in large garments (clothing with sleeves), small garments (vests, trousers), leather garments, uniforms	3,645	3,381	Men's clothing maker	2,157	1,012	427	Men's clothing maker	49	30			
Clothes producer, clothes cutter (trousers and work clothes, children's clothes made from all materials, blouses, etc.)	1,121	1,115	Clothes producer, clothes cutter	264	145	70	Clothes producer	31	30			
Clothes cutter, clothes sewer – specialisations in children's, ladies', and men's clothing, bedlinens, nightgowns, work clothes, and simple children's and women's clothes	156	182	Clothes sewer	96	88	70						
							Clothing design	25	38	223	5	22
Artificial flower maker; fashion flower maker and feather maker	35	18	Artificial flower maker and feather maker	1								
Window display, exhibition, and trade show designer – specialisations in specific business areas	2	2	Window display decorator	1								
Lauderer, ironer	107	109	Lauderer, ironer	26	0	0	Textile cleaner	29	47	25	2	2

Textiles, Fashion, and Leather –

Trades and skills: systematic basic training (x); informal transmission (y)

	In 1954	In 2015
Ribbon weaver	x	y
Bobbinet weaver	x	y
Ladies' felt hat maker and straw hat maker	x	y
Ladies' clothing maker and ladies' tailor – specialising in dresses, ladies' suits, coats, sample garments, theatre tailoring	x	x
Vehicle upholsterer (vehicle saddler)	x	x
Dyer	y	y

Table B1 – Textiles, Fashion, and Leather

Textiles, Fashion, and Leather – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Felter	y	y
Felt slipper maker	y	y
Flax processing	y	y
Rag rug maker	y	y
Yarn dyer, dresser, cloth finisher, cloth printer	x	y
Tanner	x	x
Gold and silver passementerie maker	x	y
Gold, silver, and pearl embroiderer	x	x
Industrial machine embroiderer	x	x
Fur hat maker, hat producer	x	y
Glover	x	x
Hand embroiderer	y	y
Men's clothing maker and men's tailor – specialising in large garments (clothing with sleeves), small garments (vests, trousers), leather garments, uniforms	x	x
Hat maker, ladies hat maker, and straw hat maker	x	x
Cap maker	x	x
Rug and textile seamer	y	y
Bobbin lace and needle lace maker	y	y
Button maker (for <i>Tracht</i> jackets)	y	y
Tie maker	X	y
Artificial flower maker, fashion flower maker, and feather maker	x	y
Invisible mender	x	y
Furrier	x	x
Cloth lampshade maker	y	y
Leather accessory producer and bag maker	x	x
Leatherwear quilter, bag maker	x	x
Figured linen weaver	x	y
Loden weaver	x	y
Machine embroiderer	x	x
Shapewear maker	x	x
Milliner (hat maker)	x	x
Draughtsman for textile printing	x	y
Pleater	y	y
Upholsterer, vehicle upholsterer	x	x
Passementerie maker	x	x
Taxidermist – specialisations in vertebrates, beetles, and butterflies; fluid preparation	x	x
Puppet maker and puppeteer	y	y
Fur and leather finisher	x	x
Circular knitter, Raschel knitter	x	y
Bag maker (leather clothing producer) – businesses specialising in <i>Tracht</i> clothing made of leather, leather sportswear	x	x
Saddler, harness maker	x	x
Window display, exhibition, and trade show designer – specialising in specific business areas	x	y

Textiles, Fashion, and Leather – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Umbrella maker (production of umbrella frames, sun umbrellas)	x	y
Shoemaker – specialisations as a custom shoemaker for hiking boots and athletic shoes, fashion shoes, theatre and dance shoes	x	x
Sailmaker	y	y
Silk piece weaver, silk piece dyer	x	y
Silk weaver	y	y
Cord and rope maker, passementerie maker	x	y
Spinning of sheep's wool and flax	y	y
Spinner	x	x
Quilter	y	y
Embroiderer	x	y
Embroidery designer	x	x
Cloth button producer	y	y
Knitter	x	x
Stocking knitter	y	y
Wallpaper printer	x	y
Bag maker – specialisations as cutter, table worker, pattern maker (suitcases, bags, photography bags, travel items, tool bags)	x	x
Carpet maker and knotted carpet maker	y	y
Cloth maker (woollen cloth weaver)	y	y
Lauderer and ironer	x	y
Clothes producer, clothes cutter (trousers and work clothes, children's clothes made from all materials, blouses, etc.)	x	x
Clothes cutter, clothes sewer (children's, ladies', and men's clothing, bedlinens, nightgowns, work clothes, and simple children's and women's clothes)	x	x
Weaver	x	x
Warp, circular, flat knitter	x	y
Woollen fabric maker	x	y
Tentmaker	y	y

Textiles, Fashion, and Leather – Active Business Licences, 2015	Total
0105-Furriers	82
0105-Shoemakers	171
0110-Cap makers and fur and leather dyers	8
0115-Footwear producers	3
0115-Taxidermists	91
0125-Producers of slippers and felt shoes	17
0125-Glovers	7
0130-Leather clothing producers (bag makers)	37
0135-Tanners and leather dyers	28
0140-Shoe repair	269
0150-Other licences related to furriery and glove making	3

Table C1 – Textiles, Fashion, and Leather

Textiles, Fashion, and Leather – Active Business Licences, 2015	Total
0205-Tailors	1,356
0210-Down cleaners	8
0215-Bedding producers	17
0215-Pattern makers	1
0220-Producers of graphic clothing designs	186
0225-Clothing and costume rental	47
0225-Sewing and mounting of curtains	15
0230-Alteration tailoring	843
0230-Sailmakers	15
0235-Clothes producers	96
0235-Tentmakers	8
0240-Tie makers	2
0245-Hat makers	28
0250-Milliners	46
0255-Saddlers including vehicle upholsterers and harness makers	110
0265-Production of products using quill embroidery technique	7
0265-Umbrella makers	3
0270-Leather accessory producers and bag makers	111
0275-Leather goods producers	3
0275-Other licences related to the clothing trade	256
0280-Belt and strap production as well as repair of leather goods and bags	13
0300-Embroiderers, knitters, weavers, passementerie makers, and cordmakers	40
0303-Embroiderers	144
0306-Knitters	76
0321-Pattern draughtspeople	3
0324-Machine embroiderers	53
0327-Gold, silver, and pearl embroiderers	10
0330-Hand embroiderers	22
0333-Printing of woven and knitted wares	145
0342-Machine knitters, hand knitters	153
0345-Warp, circular, flat knitters	17
0348-Weavers (cloth makers)	50
0351-Rag rug weavers	12
0354-Ribbon weavers	1
0357-Knotted carpet makers	7
0360-Carpet repair	24
0363-Passementerie makers	16
0381-Cord and ropemakers	19
0384-Artisanal spinning mill proprietors	5
0387-Invisible menders	10
0393-Pleaters	2
0396-Cloth button producers	3
0398-Cloth lampshade producers	16

Textiles, Fashion, and Leather – Active Business Licences, 2015	Total
0399-Other licences relating to embroidery and knitting	116
0404-Drycleaners	284
0408-Dyers	8
0412-Carpet cleaning and storage	26
0416-Cleaning of upholstered furniture and non-installed carpets	26
0444-Laundrerers	92
0448-Ironers	67
0484-Coin laundromat operators	7
0488-Deep cleaning of mattresses	3
0492-Other licences in the drycleaning and laundering trade	24

The artisan textile, fashion, and leather business represents a group of trades with one of the longest-running histories of organisation, dating back into the 12th and 13th centuries when shoemakers, tanners, dyers, clothing tailors, weavers, wool preparers, flax merchants, cloth makers, and similar were first mentioned in guild documents.

In the field of textiles, it becomes obvious how not just technisation, automation, and changes in materials, but also massive locational disadvantages occasioned the continual outsourcing of entire branches of production to foreign countries over the decades. Ultimately, all of Europe lost its large-scale mass-produced textiles and leather industry. Artisanal businesses in Austria that enjoy continued success have discovered market niches where the objective is to continually provide and further develop superlative quality in connection with individual service components.

Across the entire artisanal textiles and leather business, the number of enterprises has decreased along with the number of apprentices. While there were still nearly 40,000 such enterprises in the traditional trades in 1955 (see Appendix 2), today only around 5,000 of them continue to hold their own on the market.

The data concerning the number of businesses in the individual traditional trades in Austria from the period around 1950 is quite spotty. It is known, for example, that the number of employees in the custom tailoring business was 26,120 in 1948. But precisely custom tailoring was a business that included numerous one-person operations that are not accounted for in this figure (see Pastler, 1952, p. 190).

It can be assumed that the shrinkage of the artisanal textiles and leather industry is still ongoing. The lion's share of the businesses that exist in 2015 serve market niches where individuality, creativity, and the highest-quality materials and workmanship are required.

Today, systematic transmission of practical experiential knowledge takes place in 19 recognised trades; in 1954, there were 48 such trades. In more than half of the traditional trades in which training is offered today, there are only a few spots open to learners—and/or only few young people can be trained. In some trades, this was already the case in 1954—an example being taxidermy, which was chosen that year by three apprentices. 2014 saw five apprentices learning this trade via the system of dual education.

To draw the conclusion that 29 traditional trades were no longer passed on and thus went extinct would be premature, however, since some of today's 19 trades are “modular occupations” that combine several old trades.

An example that nicely demonstrates the difficulty of evaluating whether a traditional trade is still being transmitted in its entirety, being transmitted only in part, or indeed now extinct is tailoring:

Of the 383 apprentices counted in the apprentice statistics of 2014, 222 are learning the classic tailor's trade, which is now called “Clothing Design”. This modular occupation combines numerous other old trades from 1954 such as ladies' clothing maker, men's clothing maker, hat maker, cap maker, furrier, milliner, bag maker (leather clothing producer), and clothes producer. It is therefore difficult to make a well-founded statement on the extent to which experiential knowledge in the aforementioned trades has been entirely or partially lost. Further study of the individual trades in greater depth would provide clarity in this regard.

The full-time vocational school training system, with 54 vocational and other school programmes at the intermediate and upper levels that train young people in the field of textiles, fashion, and leather, seems to be in good shape. But further specific research is needed here, as well, in order to make concrete statements on the extent and depth of the respective traditional trades' actual representation in school training and the depth in which the practical skills of the respective trades are taught and acquired.

It is also evident that new forms of knowledge transfer are developing alongside the established system of training. The training centre Bildungszentrum Haslach, founded in 2012, views itself as an interface between vocational training (for weaving, dyeing, and similar), museum, and a place of production and art in the field of textile production and design with a focus on natural materials. It also functions as a point of contact and networking centre for specialists in order to preserve textile-related experiential knowledge and cultural assets (see www.textiles-zentrum-haslach.at, 2015).

Example: the traditional trade of saddlery.

Thirty years ago, such an old and tradition-steeped trade as saddlery was threatened with near-extinction. In 1937, Austria was home to 3,471 harness makers and saddlers; in 1955 there were still 2,432, and by 1994 there were only 274—of whom 249 were active. At the end of 2013, there were still 110 saddlers in Austria, including vehicle saddlers and harness makers. The number of leather accessory producers and bag makers totalled 64. Motorisation had eliminated the basis for this age-old trade's existence. Between 1950 and 1970, the number of horses in Austria decreased to one tenth of what it had been. The demand for saddles and horse harnesses thus almost completely dried up. During the 1950s, there was still some optimism: the gradual decline of harness production and the loss of the huge market for military equipment in connection with the course of historical events would, it was thought, be compensated for by new production opportunities in the area of vehicle manufacturing and sports. Reality, however, failed to fulfil these expectations. Those saddlers who stayed in business ended up being used only for repairs, while others moved on to become wallpaper hangers, upholsterers, and interior designers. The old knowledge was in danger of disappearing.

In the three decades since 1980, however, the number of horses in Austria has tripled. And with the revival of horses' use in hobbies and sports, saddlery has likewise experienced a renaissance. Even so, the decrease in the number of saddlers has not been stopped. Between 1990 and 2013, their number once again fell by half. And too much valuable traditional know-how had already been lost. Sewing by hand is what makes the highest demands on saddlers' manual dexterity and stamina. In no other trade is the number of stitches so high, nor is as much strength required in the hands and the arms. One source of competition is large international conglomerates. The international market leader in the quality saddle segment is a Taiwanese company. And fashionable international labels profit from referring to their old traditions of craftsmanship. On the other hand, domestic saddlers also have to compete against producers in low-wage countries, of which the well-known international brands also make use.

The only selling point that Austrian saddlers have is innovation. Sattlerei Niedersüß in Rohrbach in the Upper Mühlviertel region, for example, has existed for over 300 years. This enterprise was run for over 30 years by Karl Niedersüß, who built up a modern operation together with his 25 employees—of whom 19 are women and six are men. Every year, this saddlery produces around 1,000 saddles as well as matching accessories. 90 percent of their output is exported. Products by Sattlerei Niedersüß have already been represented multiple times at the Olympic Games. The business Achenbach-Sattlerei HAMA in Lochen on the other hand, was founded as a one-man operation by

Hans Maislinger in 1981. It now has a Western shop and an English shop as well as a separate sales area for motorsports. And in 2006/09, his son Markus Maislinger took over this comparatively young but successful business. These are two examples in which tradition has been preserved or even newly created thanks to innovation. And in each case, the background was solid training in the trade combined with innovations and commensurately smart marketing.

The example of saddlers makes clear how important it is for a trade's knowledge to be continually transmitted as well as further developed in the context of actual practice in order for a business to perform superlatively in niche markets now and in the future.

4.2.1.2 Construction, Home, and Garden

Table A2 – Construction, Home, and Garden

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
			Construction draughtsman		306	468	Construction draughtsperson	302	361	322	8	11
			Concrete worker	5	137	1						
Concrete artisan, concrete finisher	31	26	Concrete artisan	2	19	11	Concrete finisher – concrete products production	20	11			
							Concrete finisher – concrete building block production	3	1			
							Concrete production engineer		37	42	2	7
							Ready-mix concrete technician		15	14	1	6
Brick maker	2											
Bricklayer	6,324	7,304	Bricklayer	5,518	7,370	4,609	Bricklayer	3,322	3,859	3,259	11	10
			Formwork construction			96	Formwork construction	286	676	679	9	11
							Prefabricated housing construction expert	71	104	166	5	5
Carpenter	2,212	1,158	Carpenter	950	2,586	2,018	Carpentry technology – Carpentry	1,917	1,953	1,789	5	4
Roofer	250	204	Roofer	240	767	696	Roofer	923	923	778	8	1
Thin sheet metal worker, tinsmith	236	300	Thin sheet metal worker	111								

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Tinsmith – rural: 80% building tinsmith, urban: ornamental tinsmithing, packaging tinsmithing (production of tin vessels), occasionally artistic tinsmithing	2,010	2,296	Tinsmith	1,522	2,382	1,332	Tinsmith	1,555	1,627	1,319	4	3
Insulation fitter	8	6	Insulation fitter (thermal insulation, soundproofing)	10	73	57	Insulation fitter	51	70	40	2	2
			Stove setter	20								
Potter (pottery maker and stove setter)	307	538	Potter	527	495	576	Potter	381	306	244	9	2
Stuccoer – specialisations in the production of scagliola and imitation marble	49	37	Plasterer	10	51	27	Plasterer and drywaller	145	177	142	5	1
Paper hanger – specialisations in wallpaper, interior decorating, vehicle upholstery, furniture upholstery, mattresses, quilted blankets, straw mattresses	1,079	927	Paper hanger and producer of mattresses and pillows	763	951	519	Paper hanger and decorator	369	315	239	7	
Well builder	35	29	Well maker	12	22	8	Construction of wells and foundations	5	10	7	1	1
Chimney sweep	439	369	Chimney sweep	450	536	333	Chimney sweep	273	321	325	5	
			Lightning protection engineer	2								
Indoor and exterior building cleaner	4	4	Indoor and exterior building cleaner	5		10	Cleaner of monuments, façades, and buildings	84	165	124	2	5
Gardener	35	29	Gardener	15								
Garden and park designer		1	Landscape gardener (garden and park designer)	2	47	56	Landscape gardener, garden and park designer	252				
							Garden and park design specialising in greenkeeping		6	12	4	4
							Garden and park design specialising in landscape gardening		534	526	4	4
			Cemetery, ornamental, and market gardener	9	42	61	Cemetery and ornamental gardener	30	48	23	2	2

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Painter for industrial products	16	12	Painter for industrial products	10								
			Wallpaper hanger	1								
Painter (interior and house painter)	2,927	4,046	House painter	2,851	3,335	2,106	House painter	2,599	2,697	155		
			Painter and coating technician specialising in decoration painting technique							50		
			Painter and coating technician specialising in functional coatings								1,752	12
			Painter and coating technician specialising in historic painting technique								17	11
			Painter and coating technician specialising in corrosion protection								6	11
Gas fitter and plumber	2,474	3,933	Gas fitter and plumber	3,756	5,007	4,023						
			Plumber	358	2,420	1,269	Plumber	154				
			Gas fitter		18	5						
Pipe fitter (assembler of central heating and air conditioning systems)	86	85	Pipe fitter, pipe layer	23	54	29	Pipe and duct assembler	32	8			
Central heating installer		414	Central heating assembler	1,028	3,649	3,888						
			Plumbing and air-conditioning technology (gas and water, heating fitting, ventilation systems, environmentally friendly energy installations)					4,932	1,228			
			Installations and building technology						4,111	4,447	11	3
Paver – specialisations in large-element, small-element, and wooden paving, kerb shifting	60	62	Paver	10	34	60	Paver	35	60	60	2	
Artificial stone maker	58	64	Artificial stone maker	26	38	11						
Terrazzo maker – specialisations in special surfaces (e.g., antico)	25	45	Terrazzo maker	8	3							

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Screed layer	17	8	Screed layer		3	2						
Stone sculptor, stonemason – specialisations in cut stone, monuments, gravestones, construction		266	Stonemason	175	383	216	Stonemason	176	150	117	2	2
Paver and tile setter – specialisations in mosaics and stove setting	181	299	Paver and tile setter	497	624	457	Paver and tile setter	558	692	575	8	1
Installer of plastic and rubber flooring	1	6	Flooring installer			153	Floor layer	232	339	309	5	1
							Solar insulation technician	40	52	54	1	1
							Underground construction worker	74	231	260		
							Surveying technician	182	175	147	3	3

Construction, Home, and Garden –

Trades and skills: systematic basic training (x); informal transmission (y)

	In 1954	In 2015
Concrete artisan, concrete finisher	x	x
Well builder	x	x
Roofer	x	x
Thin sheet metalworker, tinsmith	x	x
Garden and park designer	x	x
Gardener	x	x
Gas fitter and plumber	x	x
Potter (potter and stove setter)	x	x
Insulation fitter	x	x
Artificial stone maker	x	y
Painter (interior and house painter)	x	x
Painter for industrial products	x	x
Bricklayer	x	x
Paver – specialisations in large-element, small-element, and wooden paving, kerb shifting	x	x
Paver and tile setter – specialisations in mosaics and stove setting	x	x
Chimney sweep	x	x
Pipe fitter (assembler of central heating and air conditioning systems)	x	x
Formwork construction	x	x
Wallpaper hanger	x	y

Table B2 – Construction, Home, and Garden

Construction, Home, and Garden – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Tinsmith – rural: 80 % building tinsmith, urban: ornamental tinsmithing, packaging tinsmithing (production of tin vessels), occasionally artistic tinsmithing	x	x
Stone sculptor, stonemason – specialisations in cut stone, monuments, gravestones, construction	x	x
Screed layer	x	y
Stuccoer – specialisations in the production of scagliola and imitation marble	x	x
Paper hanger – specialisation in wallpaper, interior decoration, vehicle upholstery, furniture upholstery, mattresses, quilted blankets, straw mattresses	x	x
Terrazzo maker – specialisations in special surfaces (antico, etc.)	x	y
Installer of plastic and rubber flooring	x	x
Central heating technician	x	x
Brick maker	x	y
Indoor and exterior building cleaner	x	x
Carpenter	x	x

Construction, Home, and Garden – Active Business Licences, 2015	Total
0100-Master builders	5,429
0100-Master well builders	119
0100-Roofers	1,044
0100-Gas and sanitary engineering	4,361
0100-Landscape gardeners (garden and park designers)	1,568
0100-Chimney sweeps	636
0100-Potters	4
0105-Master builders specialised in planning, calculation, and site management	528
0105-Gas technicians	63
0105-House painters	3,221
0105-Roof thatchers	3
0110-Construction contractors, limited to carrying out assigned tasks	1,657
0110-Wood shingle roofers	42
0110-Industrial painters	5
0110-Sanitary engineers	263
0115-Construction contractors, limited to other areas	1,093
0115-Other roofing-related licences	3
0130-Gas installation for vehicles and mobile equipment	7
0160-Line painters	32
0165-Other painting-related licences	408
0200-Undertakers	547
0200-Cemetery gardeners	140
0200-Potters (stove setters)	654
0200-Master bricklayers	60
0200-Paper hangers and decorators	730
0205-Heating technicians	4,281
0205-Paper hangers	230

Table C2 – Construction, Home, and Garden

Construction, Home, and Garden – Active Business Licences, 2015	Total
0210-Water heating systems	2
0215-Descaling of water heating systems	13
0220-Construction of alternative energy systems (solar systems, heat pumps)	6
0225-Service, maintenance, and inspection of oil and gas burners	15
0240-Producers of sun protection elements (Venetian blinds, roller blinds, awnings)	10
0245-Installation of sun protection elements of all kinds	43
0250-Installation of Venetian blinds	16
0285-Floor layers	14
0290-Other paper hanging-related licences	113
0300-Earthmovers (ditching and trenching)	3,183
0305-Ventilation and air conditioning technology	1,077
0350-Tinsmiths	1,853
0315-Other tinsmithing-related licences	14
0400-Earthworks	1,486
0400-Pavers and tile setters	1,266
0400-Other sanitary, heating, and ventilation and air conditioning technicians	119
0500-Cement drilling and cutting (limited qualification certificate)	107
0500-Garden maintenance and/or limited gardening-related licences	1,133
0500-Other licences for potters, pavers, tile-setters, ceramists	28
0600-Thermal, acoustic, and fire insulation	533
0605-Thermal, acoustic, fire insulators, limited to external thermal insulation	143
0700-Asphalting businesses	206
0800-Masonry waterproofers	1,497
0805-Wall drying (electronic)	107
0810-Black-top pavers	629
0900-Plasterers and drywallers	947
0905-Plasterers limited to machine plastering	121
0910-Drywalling	239
0915-Drywall spackling	2,536
1000-Plaster businesses	24
1100-Concrete artisans	276
1105-Ready-mix concrete businesses	103
1200-Producers of building materials of all kinds and garden decorations	86
1600-Pavers	378
1700-Floor layers (encompassing floor layers, flooring installers, etc.)	832
1700-Monument, façade, and building cleaners	1,782
1705-Screed producers	149
1710-Flooring installers – installation except for bracing	226
1720-Installation of plastic surfaces on all kinds of building components	15
1800-Setup and installation of stud partition walls and mobile dividers	968
1900-Casting, joining, etc. of concrete elements	45
2000-Other licences in ancillary construction trades	1,837
5000-Master stonemasons incl. artificial stone and terrazzo making	573

Construction, Home, and Garden – Active Business Licences, 2015	Total
5005-Stonemasonry contractors – limited (to certain tasks)	125
5100-Master stonemasons	1
5200-Artificial stone makers	24
5300-Terrazzo makers	22
5400-Gravestone producers	1
0120-Installers of lightning protection systems	99
0140-Installers of photovoltaic systems	89
0145-Installers of fire and smoke alarm systems	1

The thematic group covering the area of Construction, Home, and Garden would at first glance seem to be a relatively stable field of traditional craftsmanship in the context of systematic dual education. It numbered altogether 29 apprenticeable trades in 1954, and that figure had risen to 36 by 1970. Today, there are a total of 33 apprenticeable trades that are currently being learned in connection with actual practice by over 17,500 young apprentices as part of the system of dual education.

In the construction industry and in homebuilding, it is above all the materials and machines that have changed fundamentally over the decades, in turn changing the way in which construction is done.

In new buildings, the use of new materials and the techniques that they make necessary (formwork construction, prefabricated building construction, and similar) are a logical consequence of dynamic change. Traditional craftsmanship has adapted in a great number of areas, continuing to develop with innovative ideas. With the new materials in combination with new technologies and machines, a transformation has taken place in the construction industry that becomes evident in the high degree of specialisation that now exists. In the 1970s and '80s, bricklayers' craftsmanship skills ranged from constructing foundations to building arched walls and from plastering to chimney construction. But the technological changes undergone by both materials and machines entail that today's construction sites require mostly specialists who do their daily work in clearly defined areas—such as only formwork, only bar bending, only machine-plastering, or only concrete placement.

In this pronounced specialisation, a transition from traditional craftsmanship to non-craftsmanship across large parts of the construction industry becomes visible.

Due to the increased orientation toward new building materials and modern construction machines and techniques, the sufficient transmission of numerous (and in some cases regionally transmitted) construction techniques with time-honoured materials (e.g. the application of clay plaster) in businesses' actual practice is no longer ensured. This development is countered by the Construction Academies (*Bauakademien*) present in every federal province, which offer training courses on all sorts of construction-related topics.

For the restoration of old buildings and especially for the preservation of listed structures, it is necessary to use time-honoured materials and the appropriate techniques.

In order to bundle practical experience-based knowledge and facilitate the transmission of knowledge on an interpersonal level, the Zentrum für historische Handwerkstechniken [Centre for Historical Craftsmanship Techniques] at the former Carthusian Monastery in Mauerbach was converted into the Restoration Workshops of the Austrian Federal Office for the Care of Monuments. In this way, experiential knowledge of many artisanal techniques involved in caring for old buildings such as bricklaying, stonemasonry, metal smithing, metalwork, tinsmithing and (metal) belt making, joinery, pottery, carpentry work, etc. is preserved in a way that is closely linked with theory and the necessary practice (see Bundesdenkmalamt, 2015).

Table A3 – Chemistry and Synthetics

4.2.1.3 Chemistry and Synthetics

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Chemical laboratory technician	153	316	Chemical laboratory technician	446	604	767	Laboratory engineering specialised in chemistry	494	599	611	7	12
			Mould maker for plastics and rubber processing	2								
			Maker and liner of apparatuses made of synthetic materials	1								
			Plastics processors	5	137	228	Plastics technology – specialising in plastics moulding, plastics processing	468	709	789	1	2
							Chemical processes engineering	218	298	363	4	5
Rubber stamp maker	6	7	Rubber stamp maker, flexographer	2	5	2	Rubber stamp maker and flexographer				3	1
Vulcaniser – specialising in the repair of tyres or rubber products	107	123	Vulcaniser	67	30	8	Vulcanisation	28	30	29	1	0
Wax chandler	2	6	Wax chandler (producer of wax products)	9								
			Wax chandler and gingerbread maker	2	7	2	Gingerbread maker and wax chandler	1	1	0	3	0
			Physics laboratory technician	3	1	42	Physics laboratory technician	38	50	49	2	7
			Ski manufacturer	5	33	27	Ski manufacturer	10	6	11	1	1
			Pest control specialist			0	Pest control specialist	1	7	3	1	3
			Cloth printer	2		3						
			Textile printer	1	15	25	Textile printer	10	5	1		
			Textile finisher		37	79	Textile chemist – Textile chemistry	60	48	48	2	3

Table B3 – Chemistry and Synthetics

Chemistry and Synthetics – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Chemical laboratory technician	x	x
Mould maker for synthetics and rubber processing	y	y
Maker and liner of apparatuses made of synthetic materials	y	y
Plastics processor	y	x
Physics laboratory technician	y	x
Pest control specialist	y	x

Chemistry and Synthetics – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Ski manufacturer	y	x
Rubber stamp maker	x	x
Textile printer	y	x
Cloth printer	y	x
Fabric finisher	y	x
Vulcaniser – specialising in the repair of tyres or rubber products	x	x
Wax chandler	x	x

Chemistry and Synthetics – Active Business Licences, 2015	Total
Producers of paints and varnishes, synthetic materials, and adhesives	74
Plastics processors	664
Vulcanisers	113
Printing of woven and knitted wares	145
Ski and sled producers	38
Producers of leather preservatives, shoe polishes, etc.	166
Rubber stamp makers	27
Flexographers	2
Pesticide and fertiliser producers	4
Household chemical producers	10
Pharmaceutical drug producers	148
Wax product producers	17
Processors of petroleum products	3
Producers of detergents and textile auxiliaries	7
Pharmaceutical product producers	294
Chemical laboratories	270
Pest control specialists including bird and pigeon defence	186
Dry distillation (of wood)	1
Medical product producers	12

Table C3 – Chemistry and Synthetics

Apprenticeable trades of an artisanal nature in the field of chemistry and synthetics clearly reflect the changes that have occurred in terms of the materials used in our economy and society. While the 1950s saw one million tonnes of plastic produced, the rate of plastic production in 2002 was estimated to have exceeded 200 million tonnes annually (www.plastic-planet.at, 2015).

In 1954 there were just four artisanal trades in this area, while the 1970s saw the addition of eight further trades that have since established themselves on the market.

The trade of textile printing, in existence since the 14th century, can now be learned as part of regular basic training in the apprenticeable trade of textile chemistry. The current

trainee figures and the number of businesses that exist today signal that the traditional trades of the 1950s and 1970s now primarily occupy market niches of a high-quality, individual, and/or region-specific orientation.

4.2.1.4 Electrical Technology and Electronics

Table A4 – Electrical Technology and Electronics

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
			Electrical engineer – plant engineering			95	Electrical engineering – plant engineering	213	182			
			Systems installer			538	Systems installer	221				
Electrical engineer – industrial engineering	531	642	Electrical engineer – industrial engineering	833	1,700	1,865	Electrical engineer – industrial engineering	468				
Electrical engineer – motor vehicles	256	563	Electrical engineer – motor vehicles	770	578	829	Electrical engineer – motor vehicles	1436	934			
Electrician, high voltage electrician	4,166	6,178	Electrician	6,724	9,015	7,635	Electrical installations engineer – Electrical installations engineering specialising in process engineering	6,947	4,925	6		
Electrical mechanic	1,138	1,254	Electrical mechanic	1,121								
			Electrical mechanic for low-voltage current	87	429	719	Electrical mechanic for low-voltage current	102				
			Electrical mechanic for high-voltage current	6	398	328	Electrical mechanic for high-voltage current	51				
		196	High voltage electrical fitter	241	701	518	High voltage electrical fitter	29				
							Power engineering	422	437			
							Electrical engineer		2,323	9,442	19	5
Electrical machine builder	136	269	Electrical machine builder	250	938	833	Electrical mechanic and electrical machine builder	260				
							Mechatronics – Electrical machine engineering (main module)	308	429	197	4	11
							Microengineering	15				
							Electronic engineering specialising in applied electronics; Electronic engineering specialising in microengineering	394	546	1,007	8	12
Telecommunications technician	492	396	Telecommunications construction technician and telecommunications technician	1,085	766	505						

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
			Communications engineer		457	524	Communications engineering – audio and video electronics, office communication, IT and telecommunications, communication electronics	893	824	13		
							IT engineering	1,520				
							IT systems engineering		92	109	3	7
							Information technology – specialising in informatics, technology; Electronic engineering specialising in information and telecommunications technology	263	1,633	1,577	8	15
							Mechatronics	524	1,650	2,025	10	8
Power plant worker	241	224	Power plant worker	67								
Coil winder	10	8	Coil winder	2								
Radio mechanic – specialisations in electronic technical devices (control devices, therapeutic medical devices, antenna construction, installation and repair of vehicle radios, measuring device production, installation of loudspeaker systems)	209	454	Radio mechanic	1,023	1,146	894						
							Event technology	47	163	127	1	

Electrical Technology and Electronics –

Trades and skills: systematic basic training (x); informal transmission (y)

	In 1954	In 2015
Electrical engineer – plant engineering	y	x
Systems installer	y	x
Electrical engineer – industrial engineering	x	x
Electrician, high voltage electrician	x	x
Electrical machine builder	x	x
Electrical mechanic	x	x
Power plant worker	x	y
Coil winder	x	y
Telecommunications technician	x	x
Electrical engineer – motor vehicles	x	x

Table B4 – Electrical Technology and Electronics

Electrical Technology and Electronics – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Communications engineer	y	x
Radio mechanic	x	y

Table C4 – Electrical
Technology and Electronics

Electrical Technology and Electronics – Active Business Licences, 2015	Total
0100-Electrical engineering	2,625
0100-Mechatronics – electrical machinery and manufacturing engineering	2,237
0105-Electrical engineers	4,187
0110-Electrical engineers, limited to 42 V or 100 W	109
0110-Motorbike and bicycle mechanics, bicycle technicians	291
0115-Installers of alarm systems, security systems	1,438
0115-Sewing machine technicians	25
0125-Producers of electrical batteries	1
0130-Installation of high-voltage and low-voltage systems	40
0135-Aircraft engineers	121
0135-Layers of low-voltage power lines up to 42 V and 100 W	64
0155-Telecommunication system installers	74
0160-Electrical, audio, video, and alarm system technicians	275
0200-Mechatronics engineers for electrical machinery construction and automation	1,890
0205-Mechatronics engineers	1
0205-Radio and television mechanics	141
0210-Electronic engineers for audio and video	30
0210-Electrical machine builders	169
0215-Light and sound installation, rental, and support service	1,601
0220-Electronic engineers for communications	1,046
0300-Mechatronics engineers for electronic, office, and IT systems technology	1,308
0305-IT engineers	1
0301-Electronic engineers	17
0315-IT systems engineers	1
0302-Office communications engineers	32
0400-Mechatronics engineers for medical device technology	179
0500-Cooling and climate control technology, such as refrigeration engineers	722
0165-Other mechatronics-related licences	46

In its nascence during the 17th century, electrical technology was linked closely to findings from scientific disciplines (above all physics), and it has remained so to this day.

Having developed from initial uses of weak electrochemical power sources (above all in telegraphy) to the high-voltage, direct current, and alternating current technology with which electroplating, electric motors, lighting systems, and electric trams ultimately managed to establish themselves from the 1880s onward, the electronics landscape in 1900 was already exceptionally diverse. Around 1920/1930, the first electrical appliances

began entering private households in large numbers—occasioning a rise in the demand for craftspeople such as electricians and electrical and radio mechanics.

Continual improvements and new developments since 1950 in the field of electrical technology, electronics, and microelectronics have produced technologies used by the general populace and businesses to this day, technologies that have left their mark on every aspect of people’s private and working lives. Currently, digital technology is further accelerating the already-present tendencies towards change.

Around 1900, the now-traditional trades in the fields of electrical technology and electronics were still quite rare or non-existent. And present-day trades that were already in existence around 1950 have since come to use entirely different technologies. So within the context of traditional craftsmanship, the category of Electrical Technology and Electronics is particularly subject to rapid transformation due to technological developments and changes, hence being permanently faced with the challenge of continually adapting to the dynamics of technological development in an innovative manner.

4.2.1.5 Metal Technology and Machine Building

Table A5 – Metal Technology and Machine Building

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
			Engineering draughtsman	533	1,196	895	Engineering draughtsperson	675	590	440	11	
Blacksmith (wheelwright, wainwright)	17	3	Vehicle blacksmith (coach blacksmith)	428	200	264						
			Wainwright	40	12	2	Wainwright	0	0	0	1	3
			Panel beater	327								
Wainwright, vehicle body constructor – specialisations in hand carts, transport dollies, sporting goods (skis, sleds, gymnastics equipment)	578	268	Vehicle body constructor	629	1,985	1,763	Vehicle body construction	1,684	1,869	1,623	9	3
							Vehicle producer – Metal technology specialising in vehicle construction engineering	256	367	3		
Shipbuilder	27	5	Shipbuilder	3	21	22	Shipbuilder	0	0	0	1	
Millwright	29	7	Millwright	10								

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Agricultural machine builder, agricultural machine mechanic	866	1,446	Agricultural machine builder	2,326	2,449	1,546	Agricultural machinery mechanic, engineer	1,002	1,094	1,092	9	3
			Weighing machine manufacturer	5	36	18	Weighing machine manufacturer	4	1	2	2	2
Surgical mechanic, producer of surgical instruments	38	34	Surgical mechanic	7	20	13	Surgical instruments maker	3	4	2	2	5
Sporting goods producer		1	Sporting goods producer	4								
							Sporting goods assembler	14				
			Machine builder	8								
							Construction plants and equipment engineering	94	276	267	2	2
							Technical designer spe- cialising in installations and building technology		22	12	3	
							Technical designer specialising in electrical installations engineering		11	12	3	
							Technical designer specialising in mechanical engineering technology		157	179	5	
							Technical designer – specialising in metal engineering, steel engineering		78	73	5	
							Technical designer specialising in toolmaking technology		66	59	5	
							Production technician	639	1,126	1,033	9	4
Pattern builder	35	28	Pattern builder (metal)	20	24	5	Pattern builder	21	16	14	1	4
Brazier		1										
			Whitesmith			1	Whitesmith	1				
			Metal and iron caster	6	3							
Founder and caster – moulds and casts of all kinds	535	208	Founder and caster, sand moulder	77	83	29	Founder and caster (metal and iron)	20	18			
							Foundry mechanic	13	20			
Caster (metal caster, brazier, and tin caster)	81	27					Foundry technology – specialising in iron and steel casting, specialising in non-iron metal casting		12	48	2	11
							Metal founder		12	10	1	9

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Diamond draw plate maker	2											
Wire rope worker		14										
Wiredrawer, tube, beam, and rod drawer	13	7										
Cord and ropemaker, gold and silver wire-drawer	11		Cord and ropemaker	2								
			Metal drawer									
							Cable car technology		111	116	1	
File and rasp maker	40	5	File and rasp maker	5								
Maker of wire products and chain links	28	6	Maker of wire products and chain links	6								
Blacksmith – mould foundry	60	82	Mould smith	7	44	12						
			Hammersmith	13								
Blacksmith – boiler smithing	47	21	Boiler smith									
Blacksmith – precision smithing, knifsmithing	46	86	Cutler	13	13	5						
Blacksmith – toolsmithing	64	86	Toolsmith	37								
Blacksmith – Farriery and coach-building	2,066	1,622	Blacksmith	551	620	245	Blacksmith	155				
Smith – Coppersmith	169	105	Coppersmith	21	63	44	Coppersmith	18	12	7	4	2
			Farrier (hoof and claw shoeing)	2		0	Farrier		11	14	2	8
Metal fabric maker		2										
Galvaniser	28	5	Galvaniser	2	9	3						
			Enameller	1		5						
Metal and steel polisher, galvaniser	250	241	Metal polisher, steel polisher, galvaniser	29	46	38						
							Surface engineering – specialising in enamelling, hot-dip galvanising, electroplating, mechanical surface engineering, powder coating	73	112	130	5	2
Varnisher	144	253	Varnisher	367	777	639	Coatings technology	442	262	217	5	3
Sign painter	157	148	Sign painter, sign maker	100	178	199	Sign and luminous adver- tisement manufacture	124	126	98	6	3
Steel engraver, flat engraver	21	18	Steel, flat engraver	5								

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Belt maker, maker of bronze wares, chaser (fittings for room doors, windows, furniture, book covers, housewares, cans, utensil handles, irons, flag- pole tapers, knobs; tasks: casting, spinning, pressing, embossing, engraving, repousséing, punching)	97	102	Belt maker	19	31	20	Belt maker	12				
			Chaser	19	6	2						
			Maker of bronze wares									
							Metal design specialising in belt making	5	8	7	1	3
Metal spinner, universal spinner	74	31	Metal spinner	13	14	13	Metal design specialising in metal spinning	3	3	5	1	3
							Metal design specialising in engraving	4	11	4	1	3
Fusion welder – special- isations in construction steelwork, fusion jointing, boiler welding	43	36	Fusion welder and welder	56	252	116	Universal welder	101	226			
Machine builder and ma- chinist – specialisations in vehicle bodies, bicycles, weighing machines	3,243	3,447	Machine builder and machinist	3,569	6,224	4,825	Machine builder and machinist	1,491				
							Mechanical engineer	2,461	4,817	6		
Universal hardener	28	17	Universal hardener	35	19	5	Universal hardener	2				
							Heat treatment technology	2	5			
							Materials technology		108	169	4	1
			Sailplane builder		5	0						
		1	Aircraft mechanic	3	15	1	Aircraft engineer, light aircraft builder, aircraft mechanic; Aircraft engi- neering specialising in air- craft with piston engines, specialising in aircraft with turbine engines	18	49	36	6	1
Mechanic – specialisations in bicycles, sewing ma- chines, and office machines	1,859	2,123										
			Office machine mechanic	402	331	233						
		9	Bicycle mechanic	34								

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
			Sewing machine mechanic	14								
Motor vehicle mechanic	4,019	7,404	Motor vehicle mechanic	13,002	15,892	11,695	Motor vehicle mechanic, motor vehicle engineering	9,278	8,248	7,733	16	4
Refrigeration mechanic	36	90	Refrigeration mechanic	99	161	205	Refrigeration engineer – Refrigeration installa- tions technology	238	313	290	4	2
			Measurement and regulation mechanic	14	122	331						
Actioneer	4	6										
Barrel maker		1										
Stocker	1	1	Stocker									
Gunsmith	67	94	Gunsmith	114	69	26	Gunsmith	8	4	6	1	2
			Weapons mechanic	4	11	4	Weapons mechanic		5	5	1	2
							Rail track construction technology			237	1	10
							Grinding technology for precision tools	15	13			
Rotogravure cylinder producer		14	Rotogravure cylinder producer	16	9	5						
			Producer of image car- riers, printing block and print substrate producer	20	74	363						
Steel mould maker		20	Steel mould maker	10								
Mould forms builder, patternmaker	76	64	Mouldmaker	6	39	32	Mouldmaker	7				
Toolmaker, sawfiler	1,143	1,206	Toolmaker, sawmaker	1,325	2,142	2,040						
			Tool machinist, tool mechanic		91	860						
							Toolmaker, tool machinist, tool mechanic	1,200	379	18		
							Toolmaking technology	832	1,130	3		
Construction fitter, sheet metal worker	359	125	Construction fitter	50	561	316	Construction fitter	448				
Shop fitter	1,559	1,389	Shop fitter	1,160	2,285	1,607	Shop fitter	456				
		193	Sheet metal worker	57	92	60	Sheet metal worker	101				
							Machine production technology	364	624	1		
Motor vehicle fitter	659	1,295	Motor vehicle fitter	440								

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Metalworker – specialisations in ornamentation, stoves, metalsmithing, tools, small metal hardware, repairs, bicycle repairs, chain links, wire products, apparatuses, machine building, motor vehicle fitting, automobile trailer construction	6,252	6,511	Metalworker	4,022	4,602	3,059	Metalworker	2,885				
(Steel) construction fitter	420	538	Steel construction fitter	458	1,273	646	Steel construction fitter	414				
Precision mechanic	263	257	Precision mechanic	290	250	190	Precision mechanic	48				
							Machine mechanics	266	315			
Mechanic	433	403	Mechanic	898	1,082	862	Mechanic	297				
Universal cutter	36	34	Universal cutter	17								
Universal planer	8	2	Universal planer									
Precision grinder		63										
Turner	1,125	1,057	Turner	941	924	366	Turner	72	51	9		
Roll-turner	4	7	Roll-turner	3								
			Cutter and planer; planer (8)	25	67	0						
							Machining	505	1,453	8		
							Metal technology – forging, metal processing, sheet metal engineering, steel engineering		5,034	12,283	27	17

Table B5 – Metal Technology and Machine Building

Metal Technology and Machine Building – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Construction fitter, sheet metal worker	x	x
Shop fitter	x	x
Gunsmith	x	x
Surgical mechanic, producer of surgical instruments	x	x
Diamond draw plate maker	x	y
Wire rope worker	x	y
Wiredrawer; tube, beam, and rod drawer	x	y
Turner	x	x
File and rasp maker	x	y
Precision mechanic	x	x
Precision grinder	x	y

Metal Technology and Machine Building –
Trades and skills: systematic basic training (x); informal transmission (y)

	In 1954	In 2015
Thimble maker	y	y
Mould forms builder, patternmaker	x	x
Founder – moulds and casts of all kinds	x	x
Galvaniser	x	x
Brazier	x	x
Foundryman (metal caster, brazier, and tin caster)	x	x
Bell founder	y	y
Belt maker, maker of bronze wares, chaser (fittings for room doors, windows, furniture, book covers, housewares, cans, utensil handles, irons, flagpole tapers, knobs; tasks: casting, spinning, embossing, pressing, engraving, repousséing, punching)	x	x
Hook and pickaxe smith	y	y
Production of hatpins, cap pins, tie pins	y	y
Motor vehicle mechanic	x	x
Motor vehicle fitter	x	x
Refrigeration mechanic	x	x
Varnisher	x	x
Agricultural machine builder, agricultural machine mechanic	x	x
Barrel maker (firearms)	x	y
Machine builder and machinist – specialisations in vehicle bodies, bicycles, weighing machines	x	x
Mechanic	x	x
Mechanic – specialisations in bicycles, sewing machines, office machines	x	y
Knife maker	y	y
Knife and scissor sharpener	y	y
Brass and basin beater	y	y
Metal and steel polisher, galvaniser	x	x
Metal spinner, universal spinner	x	x
Metal fabric maker	x	y
Pattern builder (metal)	x	x
Millwright	x	y
Tinker, kettle mender, and wire binder	y	y
Stocker	x	y
Bellsmith	y	y
Shipbuilder	x	x
Sign painter	x	x
Metalworker – specialisations in ornamentation, stoves, metalsmithing, tools, small metal hardware, repairs, bicycle repairs, chain links, wire products, apparatuses, machine building, motor vehicle fitting, automobile trailer construction	x	x
Fusion welder – specialisations in construction steelwork, fusion jointing, and boiler welding	x	x
Blacksmith – wheelwright, wainwright	x	x
Blacksmith – precision smithing, knifsmithing	x	y
Blacksmith – mould foundry	x	y
Blacksmith – boiler smithing	x	y
Blacksmith – coppersmith	x	x

Metal Technology and Machine Building – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Blacksmith – toolsmithing	x	y
Blacksmith – farriery and wagon making	x	x
Cord and ropemaker, gold and silver wire-drawer	x	y
Maker of wire products and chain links	x	x
Sporting goods producer	x	y
Steel, flat engraver	x	x
Steel construction fitter or construction fitter	x	x
Steel mould maker	x	x
Actioneer	x	y
Universal cutter	x	x
Universal hardener	x	x
Universal planer	x	x
Wainwright, vehicle body builder; specialisations in hand carts, transport dollies, sporting goods (skis, sleds, gymnastics equipment)	x	x
Roll-turner	x	x
Toolmaker, sawfiler	x	y
Chaser, belt maker	x	x

Table C5 – Metal Technology and Machine Building

Metal Technology and Machine Building – Active Business Licences, 2015	Total
0100-Motor vehicle engineering	6,079
0100-Metal technology specialising in metal engineering and mechanical engineering	5,533
0110-Metal engineers, metal furniture fitters, wire products producers	173
0115-Vehicle electricians	26
0115-Painters, varnishers, and sign painters	5
0120-Locksmithing (key service), cashbox locks, tamper-proof locks	342
0125-Steel engineers (façade construction)	1
0130-Mechanical engineers	44
0135-Lift builders, producers of lifts and cable cars	16
0135-Installation of vehicle radios, telephones, and alarm systems	21
0135-Sandblasting	31
0140-Turners, welders	72
0140-Varnishers	105
0140-Servicing, maintenance, and repair of motorcycles	14
0145-Sign makers	254
0145-Steel engineering specialists	116
0150-Oven and stove fitters, steam boiler producers, piping constructors	12
0155-Sheet metal engineering	2
0160-Toolmakers, tool machinists	15
0165-Fittings producers	2
0175-Producers of Venetian blinds and roller blinds	69
0180-Maintenance and inspection of handheld fire extinguishers	198
0410-Surgical instrument makers	2

Metal Technology and Machine Building – Active Business Licences, 2015	Total
0200-Metal technology for forging and vehicle construction engineering	462
0210-Vehicle construction engineers, vehicle smiths	15
0220-Farriers, hoof and claw shoeing, toolsmithing	334
0225-Cutlers, sharpeners of cutting implements	146
0300-Vehicle body construction specialists, varnishers, and wainwrights	3
0300-Metal technology specialising in agricultural and construction machines	972
0305-Vehicle body and vehicle construction engineers	73
0310-Vehicle body constructors including panel beaters and varnishers	877
0310-Coppersmiths	31
0315-Vehicle body constructors	99
0320-Panel beaters and/or varnishers	25
0321-Automobile panel beaters	7
0325-Auto glass mechanics	113
0330-Car beauticians	65
0335-Dent repairers	4
0340-Wainwrights	75
0400-Firearms trade (gunsmiths) including production, work on existing items, etc.	171
0505-Metal designers	89
0510-Belt makers	16
0550-Metal spinners, metal pressers	19
0605-Metal cutters and galvanisers	71
0610-Enamellers	3
0615-Surface engineers	30
0620-Polishing and grinding wheel makers	2
0625-Mechanical surface engineering	29
0630-Hot dip galvanising	3
0705-Whitesmiths	2
0710-Metal and iron casters	38
0800-Other licences relating to metal technology	579

The roots of metalworking extend back to prehistory—more specifically, to the Neolithic (ca. 11,000 years ago). Back then, metals began appearing alongside—and in many cases began replacing—wood and stone, particularly in toolmaking and weapons production. The following eras all the way up to the beginning of protohistory bear names that refer to progress in metalworking and (later on) production (Copper Age, Bronze Age, Iron Age), which indicates how closely this thematic area is linked with human development.

Today, traditional craftsmanship techniques are brought to bear in the production of prototypes, in moulding tools for mechanised production, and above all in the production of unique metal objects associated with art. Industrial production complements artisanal

production in a quantitative sense—as indicated, for example, by the increase in the number of vehicle body constructors between 1954 and 1980, which went hand in hand with the increase in the number of automobiles.

The trade of motor vehicle mechanic is an example that demonstrates how a trade’s job description can be rapidly transformed. Motor vehicle mechanic is a relatively young trade that arose as automobiles began to be mass-produced at the beginning of the 20th century; it encompasses motor vehicle maintenance, servicing, and repairs as a specialised in-kind service. The job descriptions and needs associated with motorised vehicles have changed from decade to decade, doing so with increasing rapidity in recent years. Mechanical control components are increasingly being replaced by digital ones. It is thus that, in 2000, the trade of “motor vehicle engineer” was born out of the original motor vehicle mechanic’s trade.

The dynamism exhibited by technical and digital developments in the automotive industry entails that the basic artisanal qualifications of motor vehicle technicians still play a significant role in the area of repairs, but only in combination with skills in dealing with complex generator sets, diagnosing problems, and exchanging entire components.

As one can deduce from the table above, the job descriptions in the area of Metal Technology and Machine Building, which were once quite broad, have in part been modularised in concert with the rapid technological development that has taken place.

The blacksmiths’ craft from 1950 was able to survive and re-establish itself only in special niches such as farriery.

4.2.1.6 Paper, Photo, and Printing

Table A6 – Paper, Photo, and Printing

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Paper maker	85	68	Paper maker	60	45	94						
							Paper technician – Paper technology	93	122	116	2	0
Line draughtsman	3	1										
			Bookbinder and line draughtsman	1								
Bookbinder	174	192	Bookbinder	114	225	157	Bookbinder	96	91	61	5	0
Map draughtsman	1		Map draughtsman, map lithographer	29	21	11	Cartographer – Geo-information technician	2		2	4	2
Case maker and cardboard box maker	22	44	Cardboard box maker	15	10	4	Cardboard box maker	6	5	4	3	0
			Fan maker									
			Case maker (Case and box maker)	2								
			Packaging mechanic	11	60	93	Packaging mechanic – Packaging technology	76	123	149	1	0
			Photogravure draughtsman	7	17	24						
Halftone photographer	1											
			Photo lab technician	7	70	32						
Photographer – specialisations in portrait, fashion, theatre, art, industrial, landscape photography	302	382	Photographer	517	445	358	Photographer	146	175			
							Professional photographer			112	3	3
							Media expert specialising in design, specialising in media technology	525	569	399	7	7
Photogravure printer		3	Photogravure printer	2								
							Prepress engineer	284	123	122	7	2
							Reprography	12	13	5	2	4
Film copier	1	4	Film copier	4								
Duplicator	1	1										
Book printer	509	640	Book printer	208								
Copperplate printer		6	Copperplate printer	4	2	2						
Lithographer and offset printer, collytyper, copperplate printer, intaglio printer	101											

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
			Offset printer	2								
			Letterpress printer	188	247							
			Film printer	1								
Planographic printer, copier	19	145	Planographic printer	253	313	417						
			Screen printer	14	33	49	Screen printer	54				
			Printer	212	3	247	Printer, Printing engineer – specialising in sheet flat-bed printing, flat-bed printing, copperplate printing	263	308	205	7	2
Letter and punch cutter												
Typefounder, stereotyper, and galvaniser	32	13	Typefounder and stereotyper	5								
Typesetter, setter	707	904	Typesetter, setter	941	329							
			Retoucher (colourisation, photomontage)	60		229						
Reproduction photographer, retoucher – specialisations in multicolour, raster, line, halftone images	57		Reproduction photographer	138	116	1						
Process engraver, xylographer, plate etcher	93	197	Process engraver	54								
Stereotyper and electroplater		26	Stereotyper and electroplater	14								
Lithographer, map lithographer, music engraver	98	85	Lithographer	128	136							
			Typographer			333						
Music engraver		3	Music engraver	2								
Plate engraver	14		Plate engraver									
Steel roll engraver	9	2										
			Ink photo engraver	44	0							

Table B6 – Paper, Photo, and Printing

Paper, Photo, and Printing – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Bookbinder	x	x
Book printer	x	y
Process engraver, xylographer, plate etcher	x	y
Printer	x	x
Hand-held fan maker	x	y

Paper, Photo, and Printing – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Film copier	x	y
Film printer	x	y
Planographic printer, copier	x	x
Plate engraver	x	y
Photogravure draughtsman	x	y
Photo lab technician	x	y
Ink photo engraver	x	y
Case maker and cardboard box maker	x	x
Letterpress printer	x	y
Copperplate printer	x	x
Map draughtsman	x	x
Photogravure printer	x	y
Line draughtsman	x	y
Lithographer, map lithographer, music engraver	x	y
Music engraver	x	y
Offset printer	x	y
Paper maker	x	x
Photographer – specialisations in portrait, fashion, theatre, art, industrial, landscape photography	x	x
Halftone photographer	x	y
Reproduction photographer, retoucher – specialisations in multicolour, raster, line, halftone images	x	y
Letter (and punch) cutter	x	y
Typefounder, stereotyper, and electroplater	x	y
Typesetter, setter	x	y
Screen printer	y	x
Playing card maker	y	y
Steel roll engraver	x	y
Lithographer and offset printer, collotyper, copperplate printer, intaglio printer	x	y
Stereotyper and electroplater	x	y
Packaging mechanic	y	x
Duplicator	x	y

Paper, Photo, and Printing – Active Business Licences, 2015	Total
0100-Printers	678
0100-Photographers	4,960
0100-Film production incl. multimedia products	3,243
0105-Photographers – partial licences	84
0200-Printers using simple processes (reproducers)	164
0200-Press photographers and photo designers	1,488
0200-Production, duplication, pressing of audio and video media	108
0300-Prepress (incl. type founders and foundry type producers)	96
0300-Producers of passport photos using permanently mounted instant cameras	15

Table C6 – Paper, Photo, and Printing

Paper, Photo, and Printing – Active Business Licences, 2015	Total
0400-Bookbinders, cardboard box makers, and case makers	2
0400-Microfilmmers	2
0405-Bookbinders	107
0410-Cardboard box makers	19
0415-Paper product makers	32
0420-Passe-partout makers	1
0430-Case and box makers	2
0500-Photo copiers and blue printers (reprographers)	214
0500-Other graphic services	171
1000-Photo developers	2

Today's printing and photographic technologies are fundamentally different from those used in the 1950s. Back then, over 25 highly skilled trades were necessary in order to develop and produce printed matter. Today, printing and reproduction require a media designer, a prepress engineer, and a printing engineer.

The entirely different technology in use today explains the reduction in the number of apprenticeable trades from 31 in 1970 to today's 12.

Table A7 – Wood, Clay, Glass, and Natural Materials

4.2.1.7 Wood, Clay, Glass, and Natural Materials

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Construction carpenter and carpenter for machines / athletic equipment, wooden aeroplane constructor		4	Construction carpenter and carpenter for machines / athletic equipment	14								
Chair maker		1	Chair maker	7		0						
			Wood mould maker for glass production									
			Pipe maker (smoking accessories producer)									
			Wood turner									
Wood turner, wood sculptor, pipe maker	160	78	Wood turner	11	48	26	Wood turner	11	6	3	2	4
Wood sculptor		8	Wood and stone sculptor	12	19	6	Wood and stone sculptor – Sculpture		5	7	1	6

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Joiner – specialisations in soft- and hardwood furniture, kitchen, office, and seating furniture, bil- liard tables, swivel chairs, chests, boxes, coffins, ladders, Venetian blinds, frames, fancy accessories, tools, skis	8,528	7,455	Joiner	6,126	12,845	9,001	Joinery	5,177	3,702	2,888	12	3
							Joinery technology specialising in planning, specialising in production		570	701	8	2
Sawyer and sawmill worker – business specialisations in logs, gang sawing, saw filing, kiln drying, and protective treatment	437	282	Sawyer and sawmill worker	183	321	139	Wood processing and sawing technology	144	63	2		
							Timber technology		115	193	1	4
			Folding boat builder									
Ship's carpenter	3		Ship's carpenter									
Boatbuilder	6	13	Boatbuilder	15	11	10	Boatbuilder	9	13	16	1	0
Brush and paintbrush maker, fine animal-hair brush maker, technical brush maker	57	33	Brush and paintbrush maker	3	1							
Fine animal-hair brush maker		1										
Bristle dresser		1										
Basket weaver and wicker- worker (furniture)	53	40	Basket weaver and wickerworker (furniture)	9	3	0	Basket weaver and wickerworker (furniture)					
Toymaker (specialisations in wooden, metal, plastic, or paper toys)	33	42	Toymaker	8								
Scientific glassblower	6	4	Scientific glassblower	2								
			Glass producer									
Glass engraver and imita- tion gemstone finisher	2	2	Glass engraver and imitation gemstone finisher	2	14	2						
Stained-glass artist		11	Stained-glass artist	2	7	10						
Plate glass cutting and polishing and glass-fac- ing work	45	44	Plate glass cutting and polishing and glass-fac- ing work	5	6	1						
Glass etcher, glass grinder, and sandblaster												

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Concave glass precision cutter and polisher	17	11	Concave glass precision cutter and polisher	15	25	6						
			Concave glass cutter and polisher – large surfaces									
			Concave glass maker									
			Plate glass cutter and polisher									
Producer of Gablonz-style items	8	11	Gablonzware producer	6								
Glassblower and glass instrument maker	22	8	Glassblower and glass instrument maker	2	10	4	Glassblower and glass instrument maker	1	3	2	1	1
Glazier	467	473	Glazier	286	607	390	Glazier – Glassmak- ing, Glass building technology	451	333	275	4	1
Concave glass finisher		18	Concave glass finisher	15		0	Concave glass finisher (engraving, precision cutting) specialising in glass painting	2	1	0	1	2
Plaster figure maker		5										
			Tile maker									
Figurative ceramist, table- ware ceramist, technical ceramist, ceramics caster, free-form ceramist	72	32	Figurative ceramicist	1								
			Ceramist (tableware and medical ceramist)	1								
			Ceramic mould caster	3	3	5						
Stoneware caster	1	1	Stoneware caster									
			Porcelain painter	4	1	15						
			Ceramic modeller	0	0	0	Ceramic modeller					
			Porcelain caster	0	0	1	Porcelain caster					
			Ceramist, potter	7	37	55	Ceramist specialising in utility ceramics, specialising in industrial ceramics, specialising in architectural ceramics	26	8	8	3	3
Ceramics painter	24	31	Ceramics painter	20	52	18	Ceramics painter	4	2	2	1	2

Wood, Clay, Glass, and Natural Materials –
Trades and skills: systematic basic training (x); informal transmission (y)

	In 1954	In 2015
Construction carpenter and carpenter for machines / athletic equipment, wooden aeroplane constructor	x	y
Broom-maker	y	y
Picture framer, framer	y	y
Bowyer (now sports and hunting bow maker)	y	y
Boatbuilder	x	x
Bristle dresser	x	y
Brush and paintbrush maker; fine animal-hair brush maker, technical brush maker	x	y
Wood turner, wood sculptor, pipe maker	x	x
Producer of Gablonz-style items	x	y
Folding boat builder	x	y
Fine animal-hair brush maker	x	y
Figurative ceramist, tableware ceramist, technical ceramist, ceramics caster	x	y
Plate glass cutter and polisher	x	y
Plaster figure maker	x	y
Scientific glassblower	x	y
Glass etcher, glass grinder, and sandblaster	x	y
Glassblower and glass instrument maker	x	x
Glazier	x	x
Glass engraver and imitation gemstone finisher	x	y
Stained-glass artist	x	y
Plate glass cutting and polishing and glass-facing work	x	y
Hook and eye maker	y	y
Hayrack maker	y	y
Concave glass precision cutter and polisher	x	x
Concave glass cutter and polisher – large surfaces	x	y
Concave glass maker	x	x
Concave glass finisher	x	x
Wood sculptor	x	x
Wood turner	x	x
Wood mould maker for glass production	x	y
Woodcarver (religious figure, crucifix, nativity scene carver; mask carver; root wood carver)	y	y
Clog maker	y	y
Horn turner, horn carver	y	y
Horn button maker; Dorset button maker	y	y
Tile maker	x	y
Caulker	y	y
Ceramics painter	x	x
Ceramic mould caster	x	y
Collier	y	y
Basket weaver and wickerworker (furniture)	x	y
Natural stone cutter	x	y
Pipe maker (transverse fife maker, waterpipe maker, clay pipe maker)	y	y

Table B7 – Wood, Clay, Glass, and Natural Materials

Wood, Clay, Glass, and Natural Materials – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Pipe maker (smoking accessories producer)	x	y
Porcelain painter	x	y
Rake and wooden pitchfork maker	y	y
Sled maker	y	y
Saw maker and sawfiler	x	y
Sawyer and sawmill worker – mill-specific specialisations including logs, gang saw operator, saw filing, kiln drying, and protective treatment	x	x
Ship's carpenter	x	y
Shingle maker	y	y
Chair caner	y	y
Toymaker – specialisation in wooden, metal, plastic, or paper toys	x	y
Stone turner	y	y
Stonecutter	y	y
Stoneware caster	x	y
Chair maker	x	y
Technical ceramist	x	y
Joiner – specialisations in soft- and hardwood furniture, kitchen, office, and seating furniture, billiard tables, swivel chairs, chests, boxes, coffins, ladders, Venetian blinds, frames, fancy accessories, tools, skis	x	x
Xylographer (woodcutter)	y	y

Table C7 – Wood, Clay,
Glass, and Natural Materials

Wood, Clay, Glass, and Natural Materials – Active Business Licences, 2015	Total
0100-Master woodbuilders	1,353
0100-Potters	4
0105-Wood construction trade professionals, limited to carrying out assigned tasks	476
0105-Joiners	7,326
0110-Wood construction trade professionals, limited to certain types of work	133
0110-Parquet floorers	173
0115-Boatbuilders	83
0115-Wood shingle makers	30
0120-Model makers	46
0125-Planing mills	14
0130-Clog makers	5
0130-Furniture kit assemblers	847
0200-Wood fashioning businesses	251
0200-Sawmilling operations	1,084
0205-Glaziers, glass facing workers, and plate glass cutters and polishers	777
0210-Coopers	48
0215-Brush and paintbrush makers	20
0215-Concave glass cutters and polishers and hollow glass finishers	60
0220-Turners	79

Wood, Clay, Glass, and Natural Materials – Active Business Licences, 2015	Total
0220-Glassblowers and glass instrument makers	19
0225-Production and servicing of sporting goods	14
0225-Glass producers	1
0230-Producers of toys of all kinds	155
0235-Producers of ornamental objects and household items	4
0240-Basket weavers and wickerworkers (furniture)	14
0245-Root wood carvers	19
0250-Glass engravers	3
0255-Other glazery-related licences	107
0300-Ceramists	115
0345-Ski and sled producers	38
0350-Tool handle, pitchfork, and rake makers	13

A noteworthy example here is that of the basket weavers, who formed wealthy guilds during the Middle Ages and were divided into black and white basket weavers, depending on whether they used willow with or without its bark (see Sinz, 1977, p. 155).

In 1955, this field included business and individual specialities in basket baby carriages, flower baskets, raffia bottle baskets, fine basketry, wicker furniture suites, and commercial basketry. The products of this artisanal work included not only large utilitarian containers for agricultural transport (feed, fruit, hay, harvest, and vineyard baskets) and various trades (bakers' baskets, laundry baskets, and baskets for fruit and vegetable sellers), protective glassware coverings (for bottles, acid containers), shopping baskets, etc., but also more finely made products for boxes, sewing baskets, gift baskets for sweets (New Year's baskets), baby carriages, flower baskets, paper baskets, etc. Wicker furniture and woven wicker furniture inserts (for chair backs and seats) were also produced (see *Österreichische Berufskartei, der/die KorbflechterIn*, 1955).

For decades, the experiential knowledge of basket weavers and wickerworkers has no longer been transmitted in the form of systematic basic education. It has also been decades since it was last possible to earn a certificate as a master basket weaver. When systematic transmission of artisanal skills via basic education is eliminated, the systematic qualitative further development of a skilled craft or trade is no longer ensured beyond what might take place at individual businesses.

In 2015, the occupational group statistics of the WKO listed a total of 14 basket weaving and wickerworking businesses. This information does not serve to indicate the depth and breadth in which the skills of basket and furniture weaving at businesses are still practised to an extent that would allow conclusions to be drawn as to the transmission

of experiential knowledge to the next generation or the general development of skills within this time period.

Table A8 – Art and Music

4.2.1.8 Art and Music

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Instrument maker and musical instrument maker	97											
Maker of bowed, stringed, and percussion instruments		7										
			Percussion instrument maker									
			Bowed and stringed instrument maker	4	3	2	String instruments manufacture specialising in string instruments	0	1	2	3	1
Wind instrument maker		30	Wind instrument maker	7								
Metal wind instrument maker		10	Metal wind instrument maker	3								
			Brass instrument maker	3	21	24	Brass instrument manufacturer	9	8	6	1	
			Woodwind instrument maker		1	3	Manufacturer of woodwind instruments	4	7	8	1	1
Piano builder, piano maker		20	Piano maker	25	40	28	Piano maker – Piano and harpsichord manufacture	24	9	10	1	
Organ builder		27	Organ builder	17	30	31	Organ builder – Organ building	13	15	12	1	
Harmonica and concertina maker		2	Harmonica and concertina maker	4	8	7	Harmonica and concertina manufacturer	1	0	2	1	
Flower arranger	218	315	(Natural) flower arranger and retailer (florist)	211	709	907	Flower arranger and retailer, florist	865	828	632	6	2
Diamond cutter	2	1										
Lapidary	4	7	Lapidary	3		2						
Natural stone cutter							Crystal grinding	18	17	0	1	
Jewellers, gold- and silversmiths, diamond setters	267	439	Gold- and silversmith, goldsmith	449	329	248	Gold- and silversmith and jeweller	36	51	22	2	2
		11	Large clockmaker	1								
Watch and clockmaker	304	273	Watch and clockmaker	254	171	60	Watchmaker and clockmaker – time measurement technician	52	43	29	2	1
			Guillocheur									

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Embosser, roll embosser		6										
Gold, silver, and metal beater	3	2	Gold, silver, and metal beater	0	1	0	Gold, silver, and metal beater					
Engraver, guillocheur, enamellist	35	37	Engraver	58	49	35	Engraver	8				
							Metal design technician specialising in engraving	4	11	4	1	4
Stone sculptor (plaster sculptor, modeller, moulder, caster)		5										
		8	Wood and stone sculptor	13	19	6	Wood and stone sculptor – Sculpture		5	7	1	6
Moulding gilder	8	2										
Gilder and faux painter – specialisations in the gilding of mouldings and frames, restorations, and gilding in churches	12	30	Gilder and faux painter	15	43	29	Gilder and faux painter	21	11	5	1	1
			Ivory carver, ivory turner									

Art and Music –

Trades and skills: systematic basic training (x); informal transmission (y)

	In 1954	In 2015
Alphorn maker	y	y
Wind instrument maker	x	x
Flower arranger	x	x
Diamond cutter	x	x
Lapidary	x	x
Maker of bowed, stringed, and percussion instruments	x	x
Quill embroiderer	y	y
Gold, silver, and metal beater	x	y
Engraver, guillocheur, enamellist	x	x
Harmonica and concertina maker	x	x
Reverse glass painting	y	y
Instrument maker and musical instrument maker	x	x
Jewellers, gold- and silversmiths, diamond setters	x	x
Piano builder, piano maker	x	x
Moulding gilder	x	x
Jew's harp maker	y	y
Metal wind instrument maker	x	x

Table B8 – Art and Music

Art and Music – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Organ builder	x	x
Embosser, roll embosser	x	x
Sundial painter	y	y
Maker of other musical instruments	y	y
Stone sculptor (plaster sculptor, modeller, moulder, caster)	x	x
Drum maker, percussion instrument maker	x	y
Watch and clockmaker	x	x
Gilders and faux painter – specialisations in the gilding of mouldings and frames, restorations, and gilding in churches	x	x

Table C8 – Art and Music

Art and Music – Active Business Licences, 2015	Total
0110-Gold- and silversmiths	582
0115-Gold and metal beaters	6
0125-Lapidaries	4
0125-Reverse glass painters	1
0135-Other licences related to gold- and silversmithing	5
0155-Gilders and faux painters	80
0200-Watch and clockmakers	455
0205-Sculptors	77
0300-Florists (flower arrangers and flower retailers)	1,431
0300-Musical instrument makers	126
0305-Organ builders	26
0310-Piano makers	40
0320-Bowed and stringed instrument makers	92
0325-Percussion instrument makers	19
0330-Woodwind instrument makers	23
0335-Brass instrument makers	50
0340-Harmonica and concertina manufacturers	19
0350-Makers of other musical instruments	6
0370-Other licences related to musical instrument making	18
0425-Embossers	5
0600-Producers of Gablonz-style items	123
0700-Producers of arts and crafts items and producers of costume jewellery	3,303
5500-Stone sculptors	12
0515-Engravers	119

This group includes above all traditional trades that are associated with the collective term “arts and crafts”. These traditional trades and artisanal skills more strongly feature craftsmanship’s artistic aspects, which are manifested above all in cultural assets that can be characterised as belonging to the niche of luxury and high-quality goods.

In these categories of craftsmanship, the transition to work typically associated with art (see 2.3 on p. 22) is fluid. But compared to art, traditional (arts and) crafts emphasise an interest in the artisanal and technical, with materiality, processing, and design playing an important role.

In this study, one finds further occupations that can also belong to the category of arts and crafts listed in other thematic groups; these include the stained-glass artists and glassblowers, engravers, carvers, wood turners, potters, quill embroiderers, etc.

Traditional crafts that are visibly manifested in cultural assets are above all vehicles of Austrian culture's identity and image.

4.2.1.9 Health and Body Care

Table A9 – Health and Body Care

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Comb maker and hair accessory maker	9	2	Comb maker and hair accessory maker									
Soap maker	7	1	Soap maker									
Producer of cosmetic products	1											
Beautician		93	Beautician	219	434	467	Beautician	656	721	725	8	0
Hairdresser and wigmaker	4,221	6,242	Hairdresser and wigmaker	6,106	7,972	7,535	Hairdresser and wigmaker (stylist)	5,921	5,269	4,258	15	0
Pedicurist and corn cutter	5	44	Pedicurist and corn cutter	125	336	438	Pedicurist	596	673	726	8	0
Dental technician	118	229	Dental technician	371	523	582	Dental technology	604	494	401	2	0
Orthopaedic mechanic	59	69	Orthopaedic mechanic	27	83	130						
			Orthopaedic shoemaker		75	70	Orthopaedic shoemaker	84	107	99	3	0
Surgical truss maker	55	60	Surgical truss maker	25	67	72	Surgical truss maker	55				
							Orthopaedic mechanic – Orthopaedic technology specialising in orthoses, prostheses, rehabilitation	73	84	87	2	0
Optician	208	315	Optician	291	486	577	Optician, ophthalmic optics	564	569	507	1	1
			Precision optician	37	40	12	Precision optics	16	10	16	0	1
Maker of horn spectacle frames		11										
Maker of metal spectacle frames		2										
							Hearing aid audiologist	57	80	79	1	1

Table B9 – Health and Body Care

Health and Body Care – Trades and skills: systematic basic training (x); informal transmission (y)	In 1954	In 2015
Surgical truss maker	x	x
Producer of cosmetic products	y	y
Hairdresser and wigmaker	x	x
Pedicurist and corn cutter	x	x
Maker of horn spectacle frames	x	y
Comb maker and hair accessory maker	x	y
Maker of metal spectacle frames	x	y
Optician	x	x
Orthopaedic mechanic	x	x
Orthopaedic shoemaker (listed with the shoemakers in 1954)	x	x
Beautician	x	x
Soap maker	x	y
Dental technician	x	x

Table C9 – Health and Body Care

Health and Body Care – Active Business Licences, 2015	Total
0100-Hairdressers	7,853
0100-Beauticians	3,611
0120-Producers of orthopaedic shoes	238
0200-Manicurists	1
0200-Wigmakers, hair extension technicians (hair extension weaving for length and fullness)	8
0205-Ophthalmic opticians	713
0210-Contact lens opticians	874
0215-Orthopaedic technicians	127
0220-Surgical truss makers	121
0225-Hearing aid audiologists	242
0230-Shapewear makers	5
0235-Glass artificial eye producers	4
0300-Theatrical makeup artists	79
0300-Soap makers, excepting the production of cosmetic items	27
0300-Dental technicians	639
0400-Decorative cosmetics	2
0400-Pedicurists	3,665
0500-Modelling of fingernails (nail studio – limited qualification certificate)	1,981
0700-Piercers	152
0800-Tattoo artists	477
0900-Makeup artists	187
1200-Permanent makeup	213
2100-Producers of cosmetic items	315

Traditional trades in the healthcare field, which are characterised by a high standard of individual service in combination with the provision of services-in-kind on an individual basis, have established themselves in a forward-looking manner in connection with developments in the cultures of health, wellness, and beauty in recent decades.

The artisanal production of combs, on the other hand, is now extinct. According to the occupational group statistics of June 2015, there no longer exist any Austrian businesses that produce combs and similar items in an artisanal manner. In 1954, there still existed around 52 comb makers with around 100 employees collectively (*Österreichische Berufskartei, der/die KammacherIn, 1954*). The artisanal heyday of Austrian comb makers ran until the end of the 19th century. Theirs was an important trade at the time, encompassing the artisanal production of women’s hair combs and combs for removing dust, for curling hair, for grooming horses and dogs, and for use with weavers’ and furriers’ machines. They also made shoe horns, spoons for use in pharmacies and with poisons, weighing dishes, baker’s spatulas, and beer combs, as well as knife handles, tongue spatulas, manicure tools, and the like.

However, the process of technologisation and the advent of materials such as plastics, Galalith, cellulose acetate, Plexiglas, and similar made it possible to produce an increasing number of machine-made mass-market products in good quality as early as 1950. A similar fate was suffered by the soap makers, though product optimisation has enabled small numbers of soap makers to survive in a niche market.

4.2.1.10 Foodstuffs and Semi-Luxury Products

Table A10 – Foodstuffs and Semi-Luxury Products

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Confectionary maker		12										
Sweets and confectionary maker, chocolate maker	21	2	Sweets and confectionary maker	1	6	1	Sweets and confectionary maker	1	6	6	1	
Gingerbread baker		6	Gingerbread baker	2	7	2	Gingerbread baker and wax chandler	1	1		3	
Cake and pastry baker	1,085	1,027	Cake and pastry baker	1,440	2,193	1,994	Cake and pastry baker	1,195	1,205	1,177		
Baker	4,243	3,227	Baker	2,808	3,037	2,009	Baker	1,367	1,184	937	11	5

Apprenticeable trade, 1954/60	Number of apprentices in 1954	Number of apprentices in 1960	Apprenticeable trade, 1970/1980/1990	Number of apprentices in 1970	Number of apprentices in 1980	Number of apprentices in 1990	Apprenticeable trade, 2002/2010/2014	Number of apprentices in 2002	Number of apprentices in 2010	Number of apprentices in 2014	Number of vocational school locations*	Number of fully in-school training locations**
Horsemeat curer and horse butcher	49	24	Horse butcher	1								
Butcher and meat curer	3,486	2,713	Butcher	2,363	2,343	930	Butcher – Meat processing	439	443	322	8	1
Grain miller	635	258	Grain miller (miller)	119	65	30	Grain miller	16				
							Process engineering for grain processing special- ising in baking agents manufacturing		3	3	3	1
							Process engineering for grain processing specialising in animal feed manufacturing		7	6	3	1
							Process engineering for grain processing special- ising in milling		36	29	3	1
							Food technician – Food technology		83	145	1	4
Dairy product and cheese maker	56	76	Dairy product and cheese maker	67	170	77	Dairy products expert	91	87	91	1	
Fish processor	3											
Fruit and vegetable preserver		1	Foodstuffs and semi-luxury products trade; fruit and vegeta- ble preserver	2		3	Fruit and vegetable preserver	5	2	1	2	1
Soda water producer	9	7										
Brewer and maltster	144	102	Brewer and maltster	46	21	80	Brewer and maltster – Brewing and beverage technology	24	49	39	1	0
Spiritous beverage producer	3	1										
Distiller	9	14	Distiller	2	8	6	Distiller	3	5	4	1	3
Cook	751	2,140	Cook	5,654	11,978	9,687	Cook	7,819	5,274	4,044	13	7
							Skilled agricultural worker for viticulture and vinification, winemaker		15	17	1	2
							Skilled worker for apiculture		7	4	1	0
							Skilled worker for the dairy and cheese industry		12	14	1	0

Foodstuffs and Semi-Luxury Products –
Trades and skills: systematic basic training (x); informal transmission (y)

	In 1954	In 2015
Baker	x	x
Sweets and confectionary maker, chocolate maker	x	x
Brewer and maltster	x	x
Distiller	x	x
Fish processor	x	y
Butcher and meat curer	x	x
Grain miller	x	x
Cook	x	x
Confectionary maker	x	x
Skilled agricultural worker for viticulture and vinification, winegrower, winemaker	x	x
Skilled agricultural worker for farm-based vegetable and fruit processing and preservation (e.g.: marmalades; vegetable and fruit preserves)	y	x
Skilled agricultural worker for home slaughtering and production of meat and sausage products	y	x
Skilled agricultural worker for apiculture, beekeeper	y	x
Skilled agricultural worker for the dairy and cheese industry, Alpine cheesemaker	y	x
Gingerbread baker	x	x
Dairy product and cheese maker	x	x
Fruit and vegetable preserver	x	x
Horsemeat curer and horse butcher	x	y
Soda water producer	x	y
Spiritous beverage producer	x	y
Cake and pastry baker	x	x

Table B10 – Foodstuffs and Semi-Luxury Products

Foodstuffs and Semi-Luxury Products – Active Business Licences, 2015

	Total
0105-Bakers	1,535
0120-Brown bread producers	20
0200-Butchers	1,291
0205-Butchers (slaughtering, boning/slicing, processing)	19
0300-Cake and pastry bakers	1,181
0310-Production of gingerbread and candied and dipped fruits	15
0315-Ice cream production	38
0400-Breweries	127
0405-Millers	138
0401-Animal feed producers	152
0715-Oil mills	73
0500-Other food-related licences	469
0505-Treatment, processing, packaging, bottling of foodstuffs	165
0510-Production of non-alcoholic beverages including mineral water and table water products	141
0515-Processors of fruits and vegetables including fruit and vegetable preservers	254
0520-Producers of sparkling wine and spirits including vinegar, essences	378
0525-Pasta producers	64

Table C10 – Foodstuffs and Semi-Luxury Products

Foodstuffs and Semi-Luxury Products – Active Business Licences, 2015	Total
0530-Producers of fish and specialty foods	39
0535-Dairies and cheese dairies, other processors of milk	74

Foodstuffs and Semi-Luxury Products – Total Number of Businesses in 2015 (Statistics from the Agricultural Sector)	Total
Professional beekeepers with over 150 bee colonies (bmlfuw, 21 Apr. 2015)	ca. 250
Winemakers – Winegrowing businesses (Statistik Austria, 2010)	20,181
Alpine meadows with cheese production (Groier, 2009)	ca. 850

In a structural sense, the area of foodstuffs—and in particular food production—has changed fundamentally. An originally decentralised foods industry that was strongly anchored in the country’s various regions became subject to a process of concentration and centralisation in both production and distribution that is still going on today.

Since centralised retail chains have increasingly assumed the functions of the bakers and butchers, a development observed above all during the past 15 years, the village bakery and the butcher’s shop around the corner have nearly ceased to exist. The raw materials used here, such as flour and meat, have not changed. But the technologies used to process and preserve foods, eating habits, and society’s shopping behaviour have changed fundamentally, as have the technologies employed in meat and grain processing and thus the types of jobs involved. The grinding of grain, for example, now takes place in modern mills that use entirely different technology than those used in mills 60 years ago. The process of technological change has reduced the formerly large number of people who worked in the milling trade (2,732 millers in 1955) to a small group of millers in Austria (290 millers in 2015) who, despite the small number of milling enterprises, continue to supply the Austrian market with sufficient amounts of flour and milling by-products. The group of millers has been further decimated by the prevailing economic conditions since Austria’s accession to the EU.

Despite technological developments and the employment of machines (some of which are fully automatic), the knowledge and artisanal skill involved in the miller’s occupation have not grown less but much rather increased greatly due to changed and more nuanced market demands, as comparison of the job descriptions for this occupation from 1961 and 2015 makes clear (see Section 4.2.2 and Appendix 3).

Furthermore, mills’ addition of animal feed to the range of products they produce represents a new area that hardly existed yet in 1955. What’s more, fundamental changes in farming—such as the decoupling of animal husbandry from cultivation of the land—have

given rise to the occupation of animal feed miller. 152 businesses have since specialised in animal feed production, while a current 138 businesses work as classic grain millers.

4.2.2 Skills belonging to trades in 1950 compared with those of the present using three trades as examples

In order to not simply provide a quantitative listing of occupational groups and the number of traditional trades (as done in Section 4.2.1) but also provide a qualitative portrayal of the changes in the skills required for the various trades, it makes sense to compare individual job descriptions from 1950/1965 with those of 2015.

Each individual trade's job characteristics, responsibilities, and work as well as physical and mental/psychological requirements, knowledge, and skills, plus schooling prerequisites and courses of training are explained in detail both in the Index of Austrian Professions of 1950/1965 and in the descriptions from the AMS Careers Lexicon and/or the career guidance tool BerufsinformationsComputer of 2015.

The trade of the miller was selected for an exemplary comparison because technical developments have caused the miller's job to change so greatly. It is important to ascertain just how these changes have actually affected the currently required knowledge and skills as well as the associated formal training.

In the following, the 1961 description of the miller's trade from the Index of Austrian Professions is juxtaposed with the 2015 descriptions from the AMS Careers Lexicon and the BerufsinformationsComputer in a condensed form. Appendix 3 contains the original descriptions. This appendix also provides similar descriptions for the trades of joinery and men's tailoring. The job descriptions of all traditional trades in existence in 1950/1965 were provided to the commissioner of this study in a separate folder that may be useful in the context of further research projects.

Table 11: The Miller's Trade – The Miller's Trade – 1961 and 2015
1961 and 2015

		The Miller	
Trade Name and Year	Miller	Process Engineer for the Grain Industry	
	In 1961 (condensed description based on the Index of Austrian Professions, 1950–1965)	In 2015 (condensed description based on the AMS Careers Lexicon)	
Requirements	The milling process, which involves a variety of mechanical equipment, requires technical know-how and good spatial visualisation abilities in order to determine the proper settings of the machines for the milling product to be produced and to be able to make corrections during the milling process. The mechanical systems used in a mill, which are distributed among several rooms, require alert mobility, good hearing, and a great deal of conscientiousness with regard both to monitoring these systems and to the quality of the grist. The entire working environment of the mill, with its cool room temperature, flour dust, and repeatedly necessary manual tasks, requires a willingness to do hard physical work. Cleanliness and conscientious neatness out of responsibility for the foodstuffs being produced are just as essential as a reliable character.	Manual dexterity: for adjusting roller mills and carrying out minor machine repairs Good sense of sight and smell: for assessing grain quality Good hearing: for recognising anomalies in the operation of milling machines and conveyors Technical know-how: for operating machines Ability to react quickly: for recognising and correcting problems in the production process Autonomy: for overseeing the mill	
	The work of the trained miller encompasses all activities from purchasing and/or receiving and inspecting the grain to storage, pre-treatment, cleaning, and grinding to intermediate storage and transport of the ground products. In non-automated mills, which include mostly the small ones, conveyance of the grain and the intermediate products requires considerable physical exertion. In partly and fully automated mills, physical labour is largely eased by the use of machines. The workspace in a mill is mostly cool and dry. Smoking is absolutely forbidden because of the threat of explosion if the amount of flour dust in the air reaches a critical level (for a more detailed description, see Appendix 3).	Production in the grain industry today is for the most part carried out in large automated facilities. Process engineers for the grain industry control and monitor the production process. They assess the quality of the raw and auxiliary materials (especially various types of grain such as wheat, rye, maize, barley, oats, and durum), prepare them for the production process (e.g., clean and weigh them), adjust the production machines, and monitor the various steps in the production process including packaging, weighing, and packing the final products. They are responsible for maintaining the equipment by regularly cleaning and servicing the machines and making minor repairs when necessary. Process engineers for the grain industry therefore need to have not only comprehensive knowledge of raw materials (awareness of quality standards) and of the various formulations and mixtures required for the final products but also of how all the machines involved in production function.	
Job Description	Wheat: semolina, various types of flour, middlings for animal feed, bran. Rye: bread flour, middlings for animal feed, bran. Barley: rolled barley, feed groats. Oats: oat flakes, groats for animal consumption. Millet: millet gruel, chicken feed. Rice: husked and polished rice, rice flour. Maize: semolina, flour, middlings for animal feed, bran.	Various types of flour (e.g., cake flour or coarse-grained flour and wholemeal flour made from the entire cereal grain), semolina, coarse meal, bran, wheat germ, rolled oats, compound feed for farm animals and pets, and flour treatment agents. Hulling mills remove the husks from various types of cereal grain and legumes and make groats, meal, and flakes. Spice mills process, grind, and package spices of all kinds.	
	3-year apprenticeship in an artisanal or industrial mill, vocational school, journeyman's or trade proficiency examination; master's examination may be taken following 3 years of work as a journeyman.	3-year apprenticeship; journeyman's examination; process engineers for the grain industry specialising in "Milling" (prerequisite: master's certificate) can become self-employed (as business owners, leaseholders, or managers). Credit is applied toward the requirements for the master's certificate upon successful completion of the Master School for Millers (duration: 1 year; location: Wels, Upper Austria).	
Products			
Training			

On the basis of the comparison between the job descriptions from 1950/65 and from 2015, it becomes clear that traditional trades' sets of job requirements have remained quite similar in quality and quantity, in parallel with technological developments. However, the job requirements for the lion's share of craftsmanship-related trades have, as a rule, gained depth in terms of quality and breadth in terms of quantity over the past three generations.



4.3 Handing Down Knowledge of Traditional Craftsmanship from One Generation to the Next in Austria

For traditional trades and traditional skilled crafts in Austria, the following systems of training can be described:

- System 1 stands for traditional trades, the practice of which typically requires specific knowledge and skills that are imparted via regulated programmes of formal basic training.
- System 2 stands for traditional skilled crafts that are practised on the basis of specific knowledge and skills that are acquired in a free manner, which is to say: outside of any regulated systems of formal training.

The regulated system of formal basic training encompasses several routes via which craftsmanship skills can be acquired:

- Transmission of a trade’s craftsmanship skills at a trade enterprise that is certified to do so in combination with vocational school attendance (also referred to as the “system of dual education”).
- Transmission of a trade’s craftsmanship skills at a full-time vocational school or at schools and colleges for intermediate and higher vocational education with practical coursework.

For trade skills for which no systematic form of knowledge transmission is available, the following training opportunities exist:

- Transmission of craftsmanship skills via training and further training courses of various types
- Transmission intergenerationally and/or within one’s family
- Self-study using written and digital sources (books and the Internet—e.g. “do-it-yourself” instructions on YouTube, etc.)
- Learning on the job

4.3.1 The system of dual education: trade enterprise – apprenticeship

Among the opportunities offered by the above-mentioned two systems of basic training in combination with their potential ways of acquiring practical craftsmanship skills, the system of dual education plays an extremely important role in Austria’s educational landscape: the systematic training of apprentices itself embodies a significant characteristic of traditional

craftsmanship (see Rössle, 1964, p. 32 ff), and as an educational policy, apprentice training has been of great overall economic importance to Austria for over a century.

In 2013, over 80% of 15-year-olds pursued vocationally oriented school training, with half of them beginning programmes of dual education (i.e., apprenticeships) and the other half beginning training at schools and colleges for intermediate and higher vocational education (see Dornmayr et al., 2014, p. 84 ff). Half of all apprentices are situated in the area of crafts and trades. In 2013, 18,666 businesses from the area of crafts and trades (representing 55.6% of the total number of training businesses) trained 52,019 apprentices (see Dornmayr et al., 2014, p. 17 ff). And altogether, Austria was home to 149 vocational school locations with ca. 131,000 vocational school students in 2013 (see Bundesministerium für Bildung und Frauen, 2015, p. 22).

It can thus be said that apprentice-training craft and trade businesses have embodied “Austria’s largest school” for over 100 years. And the system of dual education in traditional craftsmanship—as a system of systematic vocational training upheld by the trade associations and by businesses headed by masters, as well as due to its over 100 years of successful existence—can be regarded as a quintessential piece of intangible Austrian heritage. But without knowledge of the history of traditional craftsmanship, it would be impossible to explain the functional essence of this dual education system and the way in which it is supported today.

In terms of economic history, the roots of apprentice training in German-speaking countries go back to the mediaeval guilds, which already knew the path from apprentice to master craftsman. But with the economic liberalisations introduced in 1859, this model of training—which was present all over Europe—came to an end.

Since the close of the 19th century, however, Austria, Germany, Switzerland, and Denmark have witnessed the rise of systematically organised vocational education for trade professions that is modelled after the original system and referred to as the system of dual education.

The legal basis of Austria’s system of dual education was originally the Advanced Education Act of 1918 (which was superseded later on by the Vocational Training Act [BAG]). The original act stipulated that practical training be supplemented by specialised theoretical education in a school setting, which was further expanded over the following decades. Since then, unified curricula have been defined for each such occupation, including formal final apprenticeship examinations that guarantee uniform quality. Thanks

to this system's close links with actual practice, the teaching content for such trades is regularly revised, updated, and adapted, ensuring a good match between the training system and the labour market (see Ebner, p. 202 ff and Tritscher-Archan, 2014, p. 22 ff).

The system of dual education is distinguished by the fact that it encompasses two learning environments, enabling it to provide practical on-the-job experience at a business alongside theoretical and abstract knowledge at a vocational school.

The training business—as a teaching operation that, in traditional craftsmanship, is always run by a master—bears responsibility for training the apprentice at its own expense. A trade business of this sort must be set up and managed in such a way that the apprentice can be taught all of the skills and knowledge necessary for the practice of the apprenticeable trade in question. If this is not possible, a training alliance is agreed upon that makes it possible for those skills and that knowledge that cannot be taught at a specific apprentice-training business to be learned at a partner business or in suitable courses (see Gittenberger, 2015, p. 2 ff).

The vocational schools are responsible for the provision of specialised instruction in order to convey fundamental theoretical knowledge, to support and supplement the apprentices' training at their businesses, and to broaden the apprentices' general education (see Gittenberger, 2015, p. 2; Schermaier, 1981, p. 3 ff).

Once a period of apprenticeship (which, depending on the vocational training in question, lasts an average of three years) has ended and the final apprenticeship examination has been passed, the apprentice is “declared free” and receives his or her journeyman's certificate (see Königswieser, 1959, p. 81; Gittenberger, 2015, p. 3 ff; BMBF, 2015, p. 20).

The dual system is characterised by the core element of conveying knowledge of traditional craftsmanship, which is based on the personal transmission of experiential knowledge by older craftspeople (who generally possess a higher level thereof) to younger ones.

The system of dual education thus does justice to current findings from educational science and psychology that indicate how practical skills can only be learned via the acquisition of hands-on experience and the knowledge in which this results (see Preisel, 2015, p. 40 ff).

“Experiential knowledge encompasses that content in the human mind which arises through vocational education or in other contexts and enables individuals to act in a manner that is professionally correct. Experiential knowledge is that store of knowledge which distinguishes a profession’s experts from its novices. It arises only following a sufficient period of activity in which one has engaged in order to gain experience.” (*Lexikon der Psychologie und Pädagogik*, 2015)

Margrit Stamm, a professor of educational science at the University of Freiburg (Switzerland), describes practical skills as “practical intelligence” that is nurtured and built up in the context of the dual vocational education. Practical intelligence entails the ability to apply specialised knowledge (see Strahm, 2014, p. 20 ff). Practical intelligence encompasses artisanal skill, spatial visualisation ability, and adroitness in dealing with materials as well as personal qualities such as reliability, the willingness to accept responsibility, social competence, participative ability, teamworking skills, emotional intelligence, and intuition.

“Those who are or were involved in actual practice know what practical intelligence means in a way that is intuitive and based on experience.” (see Strahm, 2014, p. 21)

The systematic personal transmission of experiential knowledge from generation to generation thus represents the crucial element of the organised trades’ system of dual education. This was and still is the economic foundation and strength of traditional craftsmanship (see Strahm, 2014, p. 18 ff; Glasl et al., 2008, p. 26 ff; Rössle, 1964, p. 32 ff).

4.3.2 The vocational school system

The teaching of professional craftsmanship knowledge and skills at specialised vocational schools and/or schools and colleges for intermediate and higher vocational education with practical coursework has developed dynamically along with changes in the various trades’ job descriptions during the observation period running from 1950 to the present.

Around 1960, Austria was home to 33 places of training in technical fields and the trades plus several schools for commercial women’s occupations that had a total of 75 specialised departments (see Königswieser, 1959, p. 81 f). Today, the specialised vocational schools and the schools and colleges for intermediate and higher vocational education number 144 locations that feature technical/trade and arts-and-crafts emphases, including industrial master colleges and 17 fashion schools; these schools were attended by a total of 66,943 students in the 2013 academic year (see BMBF, 2015, p. 25, 31).

Alongside the system of dual education, the vocational schools assume an important role in imparting the knowledge required for various occupations. Nearly 40% of all young people chose this educational path in 2014 (see Dornmayr et al., 2014, p. 84 ff).

Full-time vocational training is, by its very nature, of a purely scholastic character with the inclusion of practical coursework; at the vocational schools, such training typically lasts three years—while at the schools and colleges for intermediate and higher vocational education, it lasts either four or five years.

In many cases, the graduation certificate replaces the entire apprenticeship period as well as the journeyman's examination. And in some cases, two years of practical experience as a journeyman are also credited (see Königswieser, 1959, p. 81).

“They lead to occupational qualifications that enable the bearers to directly engage in relevant occupational activities and also open up access to regulated occupations.”
(BMBF, 2015, p. 24)

Looking back over six decades, it can be ascertained that the preference among those to be trained is for the system of full-time school education. While the teaching of practical and theoretical knowledge was still done via the system of dual education for ca. 90% of this group in 1957, with only 10% of them being taught wholly at institutions of technical and trade instruction (see Königswieser, 1959, p. 81 ff), the ratio in 2014 was around 50:50 (see Dornmayr et al., 2014, p. 84 ff).

4.3.3 Informal training options

The oldest model of knowledge transfer is the transmission of experiential knowledge from one generation to the next within a family or between socially cooperating partners. Group size and the social order determine the degree to which cooperation and knowledge transfer need to be institutionalised and systematised in order to ensure mutual benefit in the sense of reciprocity.

The models of “learning on the job” or “on-the-job training” are not all that well represented in Austria. In countries like England, Spain, France, Italy, and the USA, on the other hand, these are common paths of vocational training alongside full-time training in schools.

A further type of informal knowledge transfer that has been observed internationally in recent years is embodied by the “do-it-yourself” (DIY) movement. The practice of producing, repairing, or reusing objects and products as an amateur and with one's own

hands is as old as human history itself. In rural and/or agrarian settings, doing things oneself has consistently remained a matter of quite some importance, while cities and growing urban agglomerations witnessed a fluid transition from informal to formal and, later on, structural knowledge transfer. As time went by, societies began to feature greater division of labour, with the occupations that arose becoming more professional and structures increasingly centralised and anonymous. Parallel to this development, the artisanal competency of each individual declined, with practical skills being lost by broad swaths of the population and dependence upon professional providers growing greater. During the 20th century, this fact plus the high cost of artisanal products and services touched off a movement rooted in anglophone counterculture that can be subsumed under the motto “do-it-yourself”. With the continual spread of digital technologies and the social media boom, the DIY ideal is likewise spreading more and more—and becoming increasingly important in a commercial sense for providers of DIY courses and materials.

4.3.4 The significance of systematic transmission for the safeguarding and further development of forms of traditional craftsmanship

When traditional trades face being crowded out of the market due to the most varied influencing factors, experience has shown that continuous and systematic further development of artisanal qualities to a superlative level of achievement can salvage at least a market niche. But should the systematic transfer of knowledge in a specific trade or skilled craft cease to function, the entire occupation’s extinction becomes a medium-term threat, since the entire body of practical experiential knowledge will be lost over the course of time.

Italy can serve as an example of a country where, within a relatively short period of time, craftsmanship-related experiential knowledge ceased to be transmitted and was largely lost. During the 1950s and '60s, trade businesses in Italy were typically handed down from a father or mother to their son or daughter. But the trend toward more widespread university attendance over the past four decades entailed that the daughters and sons of these craftspeople no longer trained at their families’ businesses, instead pursuing higher education. As a consequence, these trades fell victim to attrition. Italy neglected to react swiftly enough to the structural changes that were underway, instead proceeding as if the informal, family-based systems of training still functioned as they had during the 1950s (see Strahm, 2014, p. 49 ff). And now, with the exception of the autonomous region of South Tyrol, Italy has been left with an almost exclusively in-school system of vocational training. The rest of the country no longer has any form of regulated apprenticeship that would provide state-recognised certification.

The systematic and dynamic further development of practical skills in traditional craftsmanship represents a significant basis for its continued survival.

It is certain that knowledge pertaining to traditional craftsmanship is also being successfully transmitted in informal contexts—such as external course offerings or within families—where it can develop special qualities; in the latter case, however, this knowledge typically remains within the families in question. If a generation then fails to participate and if transmission via regulated systems of training is not possible, this experiential knowledge of a specific trade is lost. Additionally, businesses that define themselves in terms of craftsmanship skills (see Section 2.3) are particularly often one-person enterprises that create hardly any additional jobs (though knowledge transmission would take place here via learning on the job) and are usually not permitted to train apprentices (examples being rake makers, felters, quill embroiderers, basket weavers and wickerworkers, etc.). It is thus that in fields of traditional craftsmanship that do not generate their experiential knowledge via regulated programmes of basic training, transmission of practice-derived experiential knowledge and its further development—if it takes place at all—only involves family members or employees who are close to the family.

4.3.4.1 The Triad of Apprentice – Journeyman/Journeywoman – Master

In an economy oriented toward profit maximisation, “in-house knowledge and skills” fundamentally entail “power and prominence”. But traditional craftsmanship, in contrast to this paradigm, is characterised by the willingness to pass on in-house knowledge to trainees in a structured manner. What’s more, this transmission in the context of dual education is institutionalised, representing a breach of economic “egoism”.

In order for traditional craftsmanship to be understood, there must first exist a deepened understanding of the bonds between its characteristic, hierarchically rising categories of involved individuals (apprentice – journeyman/journeywoman – master).

The close connection between these three levels, with the master’s qualifications at the top, represents traditional craftsmanship’s undeclared corporate identity. The union of apprentice – journeyman/journeywomen – master is a matter of self-understanding at businesses that practise traditional craftsmanship, and society perceives it as something authentic.

The high degree of self-organisation in traditional craftsmanship, upheld mainly by dedicated master craftspeople and their guilds, associations, vocational schools and

the like, joins with the continual qualitative development of the respective trades up to the present to underline the interlinked quality of this triad.

This willingness to train young people makes it possible to further develop the quality of competitive trade occupations before the backdrop of fundamental changes in technology, economic structure, and society. This is borne out by facts including how Austrian trade apprentices typically occupy the top places in international competitions such as Euroskills or WorldSkills. Since 1961, Austria has been taking part in the competitions organised by WorldSkills International and has been ranked “Best Nation” (Lyon 1995, St. Gallen 1997, Montreal 1999), been among the top three nations worldwide (Seoul 2001, St. Gallen 2003, Leipzig 2013), and been “Best of Europe” (London 2011, Leipzig 2013, Sao Paulo 2015) (see www.skillsaustria.at, 2015).

Dedication and a sense of obligation with regard to transmitting craftsmanship skills as well as willing and dedicated efforts to hand down the relevant practice-derived experiential knowledge to the next generation are specific to traditional craftsmanship and can only be understood on the basis of the fundamental traits possessed by those many individuals who carry traditional craftsmanship forward. And the traits and characteristics that describe present-day traditional craftsmanship, for their part, represent a guarantee for the successful continuation of well-founded knowledge transmission in the future, as well.



4.4 Traditional Craftsmanship's Cultural, Socio-Political, and Economic Significance in Austria

The complexity and interaction of cultural, social, and economic components characterise the essence of traditional trade businesses (see Figure 3, p. 46). Their networks of relationships that serve above all to promote business success are owed in large part to their basic social attitude and help to shape regional culture. The parameters represented by Figure 3's value(s)-based pillars and its foundation consisting of core competencies, which constantly interact with one another, are of central importance to product quality. Visible achievements of traditional craftsmanship embody signs and expressions of a society's cultural identity— for artisanal products manifest the knowledge, skills, and cultural understanding of their respective generations of craftspeople, who act or acted at customers' behest and in accordance with customers' needs.

Reciprocity between traditional craftspeople and those who supply them is typically characterised by long-term supplier relationships. And the principle of reciprocity can often even achieve highly developed forms that reach back many generations. When suppliers can trust in repeat business and long-term cooperation, they become able to adapt and react in a deeper way to the demands that traditional craftsmanship makes in terms of materials. The results of this include mutual definition of the quality of raw materials, intensified knowledge exchange, and ultimately fair and long-term cooperative relationships.

The long-term employment as well as basic and further training of people from the region that is so typical of traditional trade businesses gives rise to patterns of cooperation that are “familial” in nature. In practice, this entails a higher level of investment by those who lead businesses both in their employees as well as in young future employees. And in turn, employees' identification with and loyalty to their trade businesses and their products is strengthened. The resulting internal culture at businesses that practise traditional craftsmanship thus encourages solidarity with one's fellows and product quality that is consistent.

All of this shows how businesses practising traditional trades and skilled crafts, on the basis of their role in the economy, perform a multitude of functions that are sustainable, economic, social, and cultural in nature. Businesses practising traditional trades and skilled crafts make contributions relating to:

- jobs and apprentice positions in their respective regions,
- supplying the local and regional populace with goods and services,

- the availability of products and services that convey a regional and/or national culture and identity,
- social commitment on location and in their surroundings,
- regional anchoring and networking,
- regional value-added chains,
- tax revenues on the municipal, provincial, and national levels, and
- crisis-resistance and autonomy.

Above and beyond the findings of the empirical field research, the cultural, social, and economic significance of traditional craftsmanship is also documented by the relevant literature and statistics:

- The cohesion of human social groups, including in the working world, is governed by the principle of reciprocity—i.e., by social interrelationships of a mutual nature on the physical, mental, material, and intangible levels. The larger the group (and the farther it extends beyond a circle or circles defined by kinship), the more importance is accorded to mutual benefit. The degree of continuous reciprocity correlates with the stability of interpersonal cooperation, the authenticity of such cooperation’s cultural scope, and the significance of social systems to the present and future (see Barkow et al., 1992, p. 163 ff). And in this way, it is in particular the relational pillars of traditional craftsmanship (see Section 4.1.7) that represent the key to understanding its weighty contribution to culture and society.
- In crises over the past 65 years, traditional craftsmanship has shown itself to be a guarantor of stability. During periods when business is weak, trade businesses are hesitant to let employees go. The ability of traditional craftsmanship to create additional jobs with relatively modest means and retain employees for as long as possible during periods of crisis is of wide-ranging value in terms of economic policy (see Rössle, 1964, p. 36 ff). As early as 1964, Rössle described craftsmanship as a mediator between capital and labour: the economic and social areas of responsibility here are closely connected (see Rössle, 1964, p. 36 ff).
- Today, as well, Dr. Bornett (see Bornett, *KMU-Forschung Austria*, 2015) states that despite difficult economic and political conditions in recent years, the small businesses in industry and trade have exhibited stable development based on their own innovative strength: “The more heterogenous the economic landscape, the more stable and crisis-resistant an economy is.”

- Austria is home to a total of 151,558 active trade group members (source: 2015 WKO annual statistics for its Crafts and Trades Division, active trade group memberships by trade group), businesses which represent the traditional trade and skilled craft occupations in the present study (see Section 4.2; peripheral areas of craftsmanship from food and catering, industry, and agriculture that also conform to the definition of traditional craftsmanship—such as “cook” or “alpine cheese maker”—are not accounted for in this figure).
- Each year, such businesses train half of all apprentices. 55.6% of all training businesses are ones that work in trades and skilled crafts (see Dornmayr et al., 2014, p. 17 ff). Hence, it is above all such businesses that offer many youth the opportunity to gain a foothold in the labour market, including those for whom higher schooling or higher education is not an option.
- This is shown by international comparisons of youth unemployment, in which Austria—at 10.9%—has the fourth-lowest unemployment among young people under 25 in the EU-28 ranking of countries (March 2016). In comparison, the highest youth unemployment is seen in Spain at 45.5% and in Greece at over 51.9% (see www.sozialministerium.at, 2016).
- Every third employing business in Austria is one that provides craftsmanship services as defined in the present study. Expressed in concrete figures: among the 147,539 active members of the guilds in the Crafts and Trades Division that are employing businesses, 47,643 practise trades and skilled crafts that can be characterised as traditional craftsmanship (source: WKO, employees in 2015 according to trade group).
- Of altogether 2,264,934 employees in businesses represented by the WKO, 537,418 are employed by businesses that can be categorised as involved in traditional trades and skilled crafts (source: WKO, employees in 2015 according to division and trade group).

The assessment of the cultural, socio-political, and economic significance of individual traditional trades and craftsmanship skills can only be undertaken on the basis of additional research done in greater depth.



4.5 Traditional Trades' and Skilled Crafts' Degree of Endangerment in Austria

It is possible, on the basis of the previously discussed data availability and the empirical findings, to describe the fundamental factors that influence the characteristics of traditional craftsmanship and can lead to its endangerment.

The characteristics and parameters that comprehensively characterise traditional craftsmanship form the concrete basis for evaluating endangerment factors in terms of degree. Immediate and longer-term effects are things that need to be assessed in each individual case, though the principal that is portrayed as a finding of this study in Figure 3 must still be heeded.

However, the data availability situation as described in Sections 3.2.1 and 4.2 entails that it is not possible in the case of each individual traditional trade and/or traditional crafting skill to make a statement regarding the degree of endangerment to which it is subject.

Therefore, the following question shall be discussed:

What causes and mechanisms of action endanger the characteristics of traditional craftsmanship?

The tangible and intangible characteristics and parameters of traditional craftsmanship are in constant interplay with overall economic and societal change.

The globalisation of the procurement and sales markets, processes of liberalisation and concentration, the transformation of society, and the ongoing technologisation and standardisation of production processes represent influencing factors that have a continual effect on the structures and production methods involved in traditional craftsmanship.

The following “endangerment matrix” aims to make clear how individual causes affect the constituent parameters and characteristics of traditional craftsmanship.

The parameters of endangerment specified in this matrix represent a consolidated and generalised collection of the causes of endangerment mentioned in this study's qualitative data gathering.

Table 12: Endangerment matrix pertaining to the core competencies of traditional craftsmanship**

Endangerment Matrix

Characteristics of Traditional Craftsmanship Measured Parameters – Causes	Inseparability of traditional craftsmanship from the highly skilled or masterly practitioners who carry it forward	Employment of profound and/or masterly knowledge and skill	Orientation toward independence and financially successful entrepreneurship	Training and handing down of experience and practical skills
Measured Parameters	Decreasing number of entrepreneurs that identify with craftsmanship	Decreasing number of individuals who work with craftsmanship skills and/or desire to pursue related further training	Decreasing number of founders and successors	Decreasing number of trainers and places of training and/or trainees
Possible causes of endangerment				
Decreasing attractiveness and social status	x	x	x	x
Decreasing opportunities to earn money and be successful; rising costs	x	x	x	x
Increasing commonness of on-the-job training, practice, and/or training of partial skills for the overall occupation	x	x	x	x
Increasing strenuousness of heading a business / being a trainer (bureaucracy, excessive inspections, heteronomy, loss of autonomy)	x	x	x	x
Increasing (already-high) personal workload	x	x	x	x
Decreasing available capital			x	x
Increasing (already-high) economic risk and uncertainty			x	x
Decreasing number of apprentice-training businesses	x	x	x	x
Decreasing number of trainers and qualified instructors			x	x
Decreasing willingness to adapt job descriptions and curricula to match current requirements		x		x
Decreasing willingness to pursue qualifications and further training (insufficient social, economic, ideational, and/or legal benefits)	x	x	x	x

**The basis for the development of this endangerment matrix was the set of foundational core competencies in Figure 3, p. 46. These were used to derive the measured parameters (shaded in grey), which are significantly influenced by the causes listed in the left-hand column. An example here is the cause “Decreasing attractiveness and social status”: when a specific trade’s attractiveness and social status decrease, the degree to which this trade’s entrepreneurs identify with their traditional trade likewise decreases, as does the number of individuals who work with this specific trade’s skills and/or desire to pursue related further training in these skills. If the attractiveness and social status of this specific traditional trade decrease, so does the number of business founders and successors involved therein. All of this ultimately also results in a decrease in the number of trainers and places of training as well as in a decrease in the general interest in pursuing training in this trade.

The more strongly the individual core competencies manifest themselves in the context of a trade's characteristics, the more viable this specific traditional trade is.

The loss of even a single one of these core competencies leads to departure from the realm of traditional craftsmanship over the long term. This applies both to individual businesses as well as to entire lines of work as aggregates of these businesses.

Due to the enormous differences in the nature of these lines of work, however, the absolute number of businesses practising traditional craftsmanship is significant neither as an initial figure nor as final one.

In order to assess a trade's endangerment, the crucial factor is the change in the number of those trade businesses that actually exhibit the specified core competencies.

The degree of endangerment consequently develops between the antipode's of "total loss of a competency" and "ideal manifestation" of the core competencies in all characteristics of traditional craftsmanship.

The parameters listed in the relational and value(s)-based pillars of Figure 3 must also be paid attention when assessing endangerment, since they relate to and interact with each another, ultimately also influencing the manifestation of the individual core competencies.



4.6 Possible Approaches to Supporting and Strengthening Traditional Craftsmanship in Austria

The dangers specified in the matrix also entail potentials and possible avenues via which to combat the loss of various forms of traditional craftsmanship. And in this way, the sets of measures below represent conclusions from this study's qualitative and quantitative findings (see Sections 4.1 to 4.5). Concrete measures could be the following:

4.6.1 Measures to positively influence the image of and esteem for traditional craftsmanship in society, thus enhancing the attractiveness and social status of traditional trades and skilled crafts

The core competencies that constitute traditional craftsmanship should be made known to the public via a comprehensive bundle of communication measures in order to achieve greater esteem for traditional craftsmanship among the general populace. Such a communication concept would need to start from the core competencies along with the parameters that comprise the relational and value(s)-based pillars in Figure 3. Examples of such communication measures would be:

- **Public presentation of individual entrepreneurially active craftspeople as testimonials to the inseparability of traditional craftsmanship and entrepreneurial personalities**, in forms such as:
 - storytelling on social media platforms
- **Public featuring of the winners of craftsmanship awards and competitions in a way similar to how successful athletes are marketed via the media**, for example as:
 - “craftsperson of the year”, analogue to “athlete of the year”
- **Engenderment of esteem for independent entrepreneurialism in craftsmanship-related areas at schools and universities**, for example by:
 - anchoring “practice businesses” in curricula,
 - developing a business game as an app,
 - including knowledge about successful craftsmanship-related businesses in business and history instruction
- **Improvement of the image of craftsmanship-related occupations among youth**, for example by:
 - pointing out future/career opportunities and rendering them understandable
 - portraying the equivalence of vocational diplomas with those from institutions of general education

4.6.2 Measures to improve the competitiveness of businesses practising traditional trades and skilled crafts in order to facilitate economic success and higher potential incomes in the long term

A general increase in competition along with an exclusive focus on short-term economic gain with no consideration for the economy's long-term economic success are the main reasons why enterprises practising traditional craftsmanship are experiencing a continual decline in their business success, leaving entrepreneurs with less and less room to manoeuvre both economically and socially. For this reason, craftsmanship has a greater-than-ever need for concrete measures that promote predictable general economic conditions in which to work, measures such as:

- **Reduction of the tax burden, particularly in terms of overall employer costs,** for example by:
 - reducing non-wage labour costs

An Excursus on Total Labour Cost

One of the greatest burdens for businesses is total labour cost, consisting of *gross employee wages* (net wages, social insurance, and employee payroll tax) and *the employer's contribution* (employer's contribution to social insurance, accident, pension, and unemployment insurance, surcharge in accordance with the Act on Wage Compensation, Chamber of Labour fee, and residential building subsidy contribution, plus the underground transportation network tax in Vienna), *the surcharge on the employer's contribution* (Economic Chamber fee), *municipal tax*, and *contributions to the employee provision fund*.

Particularly in an apprentice-training trade business with small structures, these costs can jeopardise economic viability due to the fact that trade businesses in particular are strongly dependent on human labour. And price competition with low-wage countries is leading to an exodus of jobs. According to a EUROSTAT press release of 30 March 2015, the average overall cost of an employed worker in Austrian trade and industry totals EUR 31.70 per hour compared with working hour costs of EUR 3.80 in Bulgaria, EUR 4.80 in Romania, and EUR 10/hour in neighbouring Slovakia (ec.europa.eu/EUROSTAT, 20 Oct. 2015). The widening gap in terms of average labour cost in the EU countries is a concrete manifestation of a situation of extreme imbalance with which businesses practising traditional craftsmanship cannot cope on their own.

- **Tax advantages for providers of craftsmanship-related goods and services,** for example:
 - a 50% value added tax reduction for services (already implemented in other EU countries)
 - incentive models such as a tax bonus for craftspeople

- **Support for investments by businesses,** for example via:
 - eased loan terms for businesses practising traditional craftsmanship
 - investment subsidy programmes adapted to the needs of businesses practising traditional craftsmanship
 - introduction of a tax allowance for investments
 - support and dissemination of innovative financing models such as crowdfunding

The rising time-related and financial burdens of increased bureaucracy, compliance with various norms, and inspections can hardly be borne anymore by the typically smaller management structures of trade businesses—be they in construction, among carpenters or locksmiths, in the food industry, or in other categories of traditional craftsmanship.

The issue of bureaucratisation, norms, and inspections can be portrayed in light of the following example from the butcher's trade, which makes clear the necessity of measures to reduce bureaucratic burdens and additional regulations and requirements.

The business in this example: a butchery that has 10 employees, produces all of its meat and sausage products in an artisanal manner, and runs two small shops.

Every year, this business has to deal with 20 different obligatory inspections and bureaucratic procedures. Even if the proprietor has managed to organise his or her business very well, he or she will still need at least 644 hours per year in order to deal adequately with the continual obligatory bureaucratic and inspection-related work (see WKO, Bundesinnung Lebensmittelgewerbe, 2015). If one uses the calculated average working time of full-time employees (1,655 work hours per year) as a basis, it means that the proprietor must spend around 40% of his or her time dealing with inspections and obligatory documentation.

Alongside this, the proprietor remains responsible for all areas of his or her business from purchasing raw materials to the masterful production of his or her sausage and meat specialties as well as for managing and instructing the employees, for training apprentices, for organising substitutes when employees fall ill or go on vacation, for solving

problems and dealing with the unforeseen circumstances that arise in any business, for the ongoing improvement of product quality, for sales, for designing and maintaining the appearance of the shops' storefronts, for schooling and motivating his or her sales staff, for product presentation, for finding and retaining customers, for dealing with complaints, for networking activities in the region, and for other things all the way to strategic further development of the business as a whole.

The overall conditions, inspections, requirements, and bureaucracy for food producers have become so burdensome over the past few decades that hardly any new enterprises have been opened, while existing enterprises have tended to become prisoners of their own selves. Proprietors are either too old or too financially and/or ideationally bound to their trades to quit and start pursuing some other type of work at age 45 or 50. And what's more, their private wealth is for the most part tied up with and in their business.

Newly founded enterprises working in traditional food-related trades as well as in numerous other traditional trades that create jobs and training opportunities in the region are having to deal with more and more conditions that threaten their economic viability.

The order of the day for policymakers and the business community must therefore be to pursue concrete measures that reduce bureaucratic burdens, regulations, and inspections for entrepreneurs and their employees.

- **Craftsmanship needs a level of bureaucracy that is reasonable.** This entails measures such as:
 - comprehensive assessment of new bureaucratic burdens, requirements, regulations, inspections, and the like, especially with an eye to their effects on traditional craftsmanship
 - giving more consideration to the interests of traditional craftsmanship
 - simplifying existing legal regulations, above all for traditional craftsmanship
 - introducing time limits on legal regulations as well as a requirement to evaluate such regulations' effects before extending them
 - simplifying and accelerating regulatory approval of businesses equipment in keeping with the principle: one project, one bureaucratic process, one approval.

4.6.3 Measures to improve specialised qualifications of entrepreneurs and employees via the incentivisation of training and continuing education.

Just how future-proof employment in traditional craftsmanship is depends entirely on the quality of training. This is a central point in traditional craftsmanship's self-understanding and thus calls for the strengthening of traditional craftsmanship especially in this area by way of targeted measures:

- **Improvement of the incentives for businesses to take on apprentices**, via measures such as:
 - subsidisation of apprentice-training businesses
 - coaching for apprentice-training business
 - adaptation of vocational school schedules with an eye to peak seasons in the various lines of work
- **Consistent adaptation of occupational definitions and curricula to prevailing reality in the relevant industries**, for example via:
 - regular efforts to rework training curricula (involving the affected areas of craftsmanship along with their specialised experts), above all in terms of how these curricula relate to actual practice and how future-proof their content is
- **Improvements to the quality of vocational schools**, via measures such as:
 - constant evaluation of the quality of vocational school teachers in conjunction with continual further training
- **Enhancement of the attractiveness of the dual system of vocational education**, for example by:
 - offering talent checks / analyses of potential for all young people of a given age
 - providing career information / orientation in schools
 - expanding practice-oriented career days at schools
 - enhancing the system of dual vocational education by adding routes to gaining admission to tertiary-level educational institutions
 - Participation in Euro-/WorldSkills
- **Strengthening of entrepreneurs' managerial skills**, for example by:
 - providing practice-oriented schooling/coaching sessions that are adapted to the traditional craftsmanship field and deal with management topics, in par-

ticular with setting up internal administrative structures and handling all forms of internal and external business communication.

- **Improvement of the specialised qualifications of entrepreneurs and their employees**, for example with:
 - opportunities for further training and the exchange of experience that are adapted to the traditional craftsmanship field
 - support and subsidies for digitisation (digital means of communication, conversion of production methods, new processes and business models, and similar)

- **Establishment and development of networks that serve traditional craftsmanship**, for example with:
 - subsidies and support for setting up and accompanying cooperative relationships between businesses that practise traditional craftsmanship
 - subsidies and support for setting up and accompanying cooperative relationships between businesses practising traditional craftsmanship and other businesses and/or organisations/institutions from the fields of tourism, commerce, agriculture, education, the arts, and culture

To support and ensure the successful implementation of all three blocks of measures, it is essential to deal with the thematic area of “traditional craftsmanship” in an academically well-founded manner in order to sustainably establish concrete measures in society, in business, and in public policy. Due to its heterogeneity and diversity, craftsmanship has not yet received a thorough scholarly portrayal. It will therefore be necessary for various research disciplines such as economics, law, psychology, sociology, cultural and social anthropology, and philosophy to join forces on this topic, collaborating and cooperating in order to successfully deal with the challenges faced by traditional craftsmanship in a manner that is relevant to actual practice.



5 Summary

The answers to the research questions can be summarised as follows:

I. What is understood by the term “traditional craftsmanship,” and/or what specific criteria must “traditional craftsmanship” fulfil in order to qualify as such?

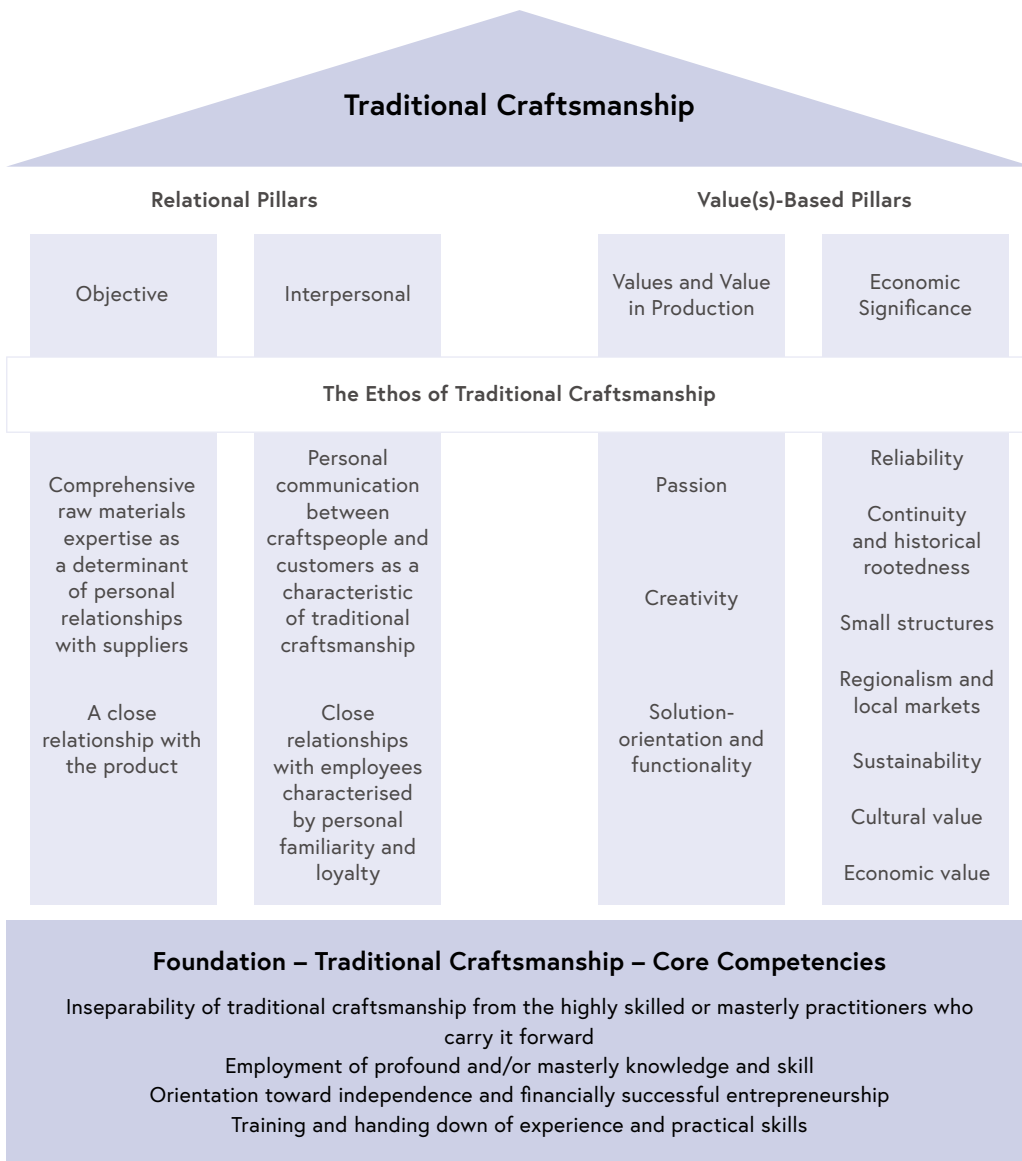


Figure 3: Descriptive Model of the Characteristics of Traditional Trades and Skilled Crafts

This graphic defines the fundamental values and contents of “traditional craftsmanship” and represents the relationships and interplay between them by visualising a foundation plus relevant relational and value(s)-based pillars in a way that is clear and easily comprehended.

The parameters that form this graphic’s “foundation” are in constant interplay with the elements that make up traditional craftsmanship’s relational and value(s)-based pillars. These elements, in turn, are closely interrelated via mechanisms of causes and effects.

In order to ensure traditional craftsmanship’s medium- to long-term survival, it is necessary that all four of the parameters comprising the foundation be fulfilled. If even one of these parameters goes missing, it is no longer possible to speak of traditional craftsmanship in the strict sense. The essential defining parameters of traditional craftsmanship included in the foundation therefore represent indispensable core competencies, competencies without which traditional craftsmanship cannot successfully sustain itself and continue to develop.

In contrast to the essential elements listed in the foundation, the degree to which the elements of the relational and value(s)-based pillars are necessary—and/or the degree to which they are manifested—is flexible. This flexibility is due to the heterogeneous nature of the various fields of traditional craftsmanship, with their differing outputs and/or services. In addition to production, these also encompass installation, maintenance and care of, and repairs to products combined with service-related components, all of which are frequently rather specialised and/or customised.

Therefore: not every single element of the relational and value(s)-based pillars need necessarily be present in order to speak of traditional craftsmanship. But on the other hand: the less pronounced the characteristics from the relational and value(s)-based pillars at a business are, the less present practically applied, intangible traditional craftsmanship values are at that business.

In order to qualify as traditional craftsmanship, the four core competencies of the foundation should be joined by at least one essential defining parameter from each of the relational and value(s)-based pillars that is included in the values brought to bear in a business’s strategic and operative orientation.

II. What forms of traditional craftsmanship exist in Austria, and to what extent are they threatened in their respective existences?

Traditional craftsmanship in Austria is characterised by liveliness and dynamism, with an eye to possible change up ahead as well as to the transformations and changes that have taken place over the various fields' histories—which typically go back several centuries.

Over the observation period of the present study (1950–2015), craftsmanship occupations have undergone constant change. There have been cases of repositioning via specialisation, discovery of economic niches, and link-ups with other occupations. And several occupations that were crowded out of the market and consequently went extinct can now be experienced only in a museum-context.

In 1954, Austria's longstanding system of dual education provided the opportunity to enrol in systematic vocational training for 249 traditional skilled crafts and trades plus 63 craftsmanship skills that were passed on informally (see Section 4.3).

At present, however, there exist just 180 such professions that are passed on via systematic formal training. In some categories of trades and skilled crafts, professional training modules are offered that combine multiple earlier job descriptions either in their entirety or in part. The individual traditional trades and skilled crafts and their development over six decades are detailed under point 4.2.1.

On the basis of this study's clustering of trades and skilled crafts as well as its evaluation of six decades of apprentice statistics for the individual trades, various developments can be observed. Since 1954, trades in the thematic group "Textiles, Fashion, and Leather" have been subject to pronounced shrinkage. The thematic trade groups of "Paper, Photo, and Printing", "Art and Music", "Foodstuffs and Semi-Luxury Products", and "Wood, Clay, Glass, and Natural Materials" logged an increase in apprentices prior to 1980, but over the entire comparison period of 1954 to 2014, a clear overall reduction in the number of apprentices can still be made out.

The occupations from the groups "Construction, Home, and Garden" and "Metal Technology and Machine Building" also suffered slight overall decreases during the 1954–2014 period, though these groups contain numerous outliers that exhibited either rising numbers of apprentices or severe overall decreases in the number of people learning these trades.

Only the three trade groups of "Health and Body Care", "Electrical Technology and Electronics", and "Chemistry and Synthetics" had more apprentices in 2014 than they did in 1954.

In terms of methodology, general findings on the individual thematic groups of trades in relation to “traditional craftsmanship” were the product of for the most part qualitative research and analysis (see also “Study Design and Methods”). Figure 3 (Descriptive Model of the Characteristics of Traditional Craftsmanship, p. 46 and p. 137) renders this clearly visible. And this model’s characteristics and parameters typifying traditional craftsmanship represent the criteria in terms of which their respective endangerment is evaluated.

Trade professions’ decreasing attractiveness and low social status, especially among young people, combined with the constantly decreasing opportunities to earn money and achieve success enjoyed by those who practise traditional craftsmanship on an entrepreneurial basis, are major reasons behind traditional craftsmanship’s endangerment (see “Endangerment Matrix”, Table 12, p. 126).

Due to the heterogeneity and diversity of occupations involving traditional craftsmanship, including within the groups defined in the present study, the situation and degree of endangerment of individual trades and/or skilled crafts can only be portrayed upon detailed examination of the individual defined areas (see also p. 27 and p. 30 of this study). In order to understand the development of individual occupations, deeper research into said occupations is always required (see p. 30)—which, however, would far exceed the scope of the present basic study.

III. How is knowledge of traditional craftsmanship handed down from one generation to the next?

For traditional trades and traditional skilled crafts in Austria, the following systems of training can be described:

System 1 stands for traditional trades, the practice of which typically requires certain knowledge and skills that are imparted via an official course of fundamental training. Specific skills are passed on either directly as part of apprenticeships at businesses certified to do so in combination with coursework at a vocational school (i.e., the dual education system) or in full-time professional schools and/or schools and colleges for intermediate and higher vocational education with practical vocational orientations.

System 2 stands for traditional skilled crafts that are practised on the basis of specific knowledge and skills that are acquired freely and without any regulated systems of training.

The systematic and dynamic further development of practical skills in traditional craftsmanship is a significant prerequisite for its continued survival. Should the systematic transfer of knowledge in a specific trade or skilled craft go missing, loss of the entire occupation becomes a medium-term threat, since the entire body of practical experiential knowledge will be lost over the course of time.

IV. Which forms of traditional craftsmanship are of cultural, socio-political, and economic relevance to the present and to the future?

On the basis of their role in the economy, businesses practising traditional trades and skilled crafts perform a multitude of functions that are sustainable, economic, social, and cultural in nature. Businesses practising traditional trades and skilled crafts make contributions in terms of:

- jobs and apprentice positions in their respective regions,
- supplying the local and regional populace with goods and services,
- the availability of products and services that convey a regional and/or national culture and identity,
- social commitment on location and in their surroundings,
- regional anchoring and networking,
- regional value-added chains,
- tax revenues on the municipal, provincial, and national levels, and
- crisis-resistance and autonomy.

Altogether, Austria is home to 151,558 active trade group members (source: 2015 WKO annual statistics for the Crafts and Trades Division, active trade group memberships by trade group), who represent the traditional craftsmanship occupations in the present study (see Section 4.2).

Each year, these businesses train half of all apprentices. Proportionally, 55.6% of all training business are ones that work in trades and skilled crafts (see Dornmayr et al., 2014, p. 17 ff. and p. 30). Hence, it is above all such businesses that offer many youth the opportunity to gain a foothold in the labour market, including those for whom higher schooling or higher education is not an option.

Every third Austrian business with employees is an enterprise that provides craftsmanship services as defined in the present study. Expressed in concrete figures: among 147,539 active members of the guilds in the Crafts and Trades Division that are also employing

businesses, 47,643 practise trades and skilled crafts that can be characterised as traditional craftsmanship (source: WKO, employees in 2015 according to sector and trade group).

Of altogether 2,264,934 employees in businesses represented by the WKO, 537,418 individuals are employed by businesses that can be categorised as involved in traditional trades and skilled crafts (source: WKO, employees in 2015 according to sector and trade group).

V. What need is there for action on the part of political and business circles to strengthen traditional craftsmanship?

The study makes clear that the poor image of “traditional craftsmanship” as well as a number of structural impediments in recent decades (see above all 4.6) have occasioned a decrease in attractiveness and, consequently, a decline of “traditional craftsmanship”.

In the interest of strengthening and encouraging “traditional craftsmanship”, the present research findings would suggest consideration of the following measures:

- **Measures to positively influence the image of and esteem for traditional craftsmanship in society, thus enhancing the attractiveness and social status of traditional trades and skilled crafts:**
 - Public presentation of individual entrepreneurially active craftspeople as testimonials to the inseparability of traditional craftsmanship and entrepreneurial personalities
 - Public featuring of the winners of craftsmanship awards and competitions in a way similar to how successful athletes are marketed via the media
 - Promotion of the esteem accorded to independent entrepreneurialism in craftsmanship-related areas at schools and universities
 - Improvement of the image of craftsmanship-related occupations among youth

- **Measures to improve the competitiveness of businesses practising traditional trades and skilled crafts, thus contributing to sustainable economic success and higher potential income:**
 - Reduction of the tax burden, particularly in terms of overall employer costs
 - Tax advantages for providers of craftsmanship-related goods and services
 - Support for investments by businesses
 - Reasonable levels of bureaucracy

- **Measures to improve the specialised qualifications of entrepreneurs and employees via the incentivisation of training and continuing education.**
 - Improvement of the incentives for businesses to take on apprentices
 - Consistent adaptation of occupational definitions and curricula to prevailing reality in the relevant industries
 - Improvements to the quality of vocational schools
 - Enhancement of the attractiveness of the dual system of vocational education
 - Strengthening of entrepreneurs' managerial skills
 - Improvement of the specialised qualifications of entrepreneurs and their employees
 - Establishment and development of networks that serve traditional craftsmanship



6 Quotations from the focus group discussions and in-depth interviews

To the authors of the study, documenting the emotional aspects of traditional craftsmanship is a matter of paramount importance. How do those individuals who carry forward traditional craftsmanship feel about, think about, and understand their trades and crafts in everyday life, in facing the challenges of entrepreneurship, and in how they understand and relate to people, politics, and society? The following is a small excerpt from the statements made by the 67 experts who were interviewed:

“**Abrupt changes** just don’t work because of our relatively strong linkage with our customers. Any changes have to be made in a way that’s fairly gradual, targeted, and deliberate.”

“Listen up: the **EU Services Directive** is killing us!”

“Everyone hundred years, **craftsmanship gets hit by a crisis**—200 years ago, 100 years ago, and again today.”

“Everything I can **get for cheap** has to be paid for by someone else.”

“The expenses and **bureaucratic hassle** necessary to fulfil legal requirements are just insane for a small business!”

“Legal requirements like: a hairdressing apprentice’s **broomstick** has to measure 2.5 centimetres in diameter.”

“In my view, craftsmanship is something like the **sum of all the aspirations and skills** needed in order to survive and build a life worth living.”

“It’s the case with us that a whole lot happens in our heads; our hands then put it into practice—and **we create something.**”

“With traditional craftsmanship, we’re talking not about some romantically glorified thing, but about very concrete **manual skills** that we simply need.”

“The **dual education system** is something that’s very close to my heart: apprentice, journeyman, master, and additional training.”

“The necessary specialised skills, an idea, and a **certain personality**—it’s when these three things come together that it’s good design.”

“Craftsmanship acts as a wholesome **antipode to the fast-paced**, the interchangeable, and the random.”

“Craftsmanship is simply **emotional**. After all, what essential aspect of being human isn’t?”

“That’s a political topic that relates to values. **Education policy** is a disaster, because though they’re constantly making reforms, no one really has the courage to start a conversation about the values that are in play.”

“Rethinking the old in a new way.”

“The problem is that **craftspeople are dying off** gradually. So nobody notices whenever one more is gone.”

“The difficult thing is that it’s handiwork and not **mouthy work**.”

“The spectrum of traditional craftsmanship skills has undergone continual **expansion and change**.”

“To my mind, craftsmanship based on tradition is **modern, innovative, and creative**.”

“Some **regional politicians’** appreciation of regional and sustainable economic activity just isn’t all that well developed.”

“At this point, abolishing the status of **master crafts-person** could virtually be called irresponsible, because you have all this knowledge getting lost.”

“Craftspeople combine enormous **competence** in terms of raw materials, in terms of solutions for their customers, and also in terms of how they continue to develop their skills with the **obligation** they feel towards their region, towards the people for whom they produce, and towards the people with whom they work.”

“**Improvement of [craftsmanship’s] image** is something that has to happen in people’s heads and has to come from above—because after all, the discourse about the number of university graduates was also a top-down thing.”

“Customers have become **better informed**, and they’re constantly demanding more based on what they know.”

“Master status is really coming to be **worth less and less**—or at least the regulations would indicate that people think masters are less and less capable.”

“The decline of traditional craftsmanship would mean **cultural impoverishment** and a blow to plurality.”

“The insane thing, I think, is that craftsmanship’s being killed anyway—by **overregulation**. It’s no longer possible to do all these things. And at some point, you run so afoul of the law that they shut you down. After which only the large businesses will be left—because it’s not a problem for them.”

“The wealth of the country isn’t measured by its **share of university graduates!**”

“The **dual education system with its apprenticeships** is a cultural asset.”

“The threat that the **abolishment of the master’s examination** poses really is very serious.”

“The great masters who created **timeless works** that still amaze us today were highly educated people.”

“As a rule, **industrial producers** have an entirely different organisational structure: marketing department, sales department, development department, pre-production, production...”

“Industrial producers are selling our values!”

“Industry just wants to sell its **‘junk’**. And on a ten-person committee, eight will be from industry and simply want to get their priorities codified as law up there in Brussels. The civil servants there don’t care because they don’t really know what it’s about, anyway—and none of the other affected parties are present.”

“The **inspirations** come in all sorts of ways—they come from nature, they come from art, and they come from conversations with employees, with customers, and with friends.”

“Pre-school teachers are supposed to earn university degrees while we’re having our **master’s exam** taken from us—they don’t want us doing one any more. That’s just really weird.”

“They’re doing their best to preserve **the building trades’ complexity**, since it’s often the case that more lawyers than builders have been involved in a construction project by the time it’s done.”

“Passing on the passion: that’s what’s difficult today, I think.” It’s this **sense of mission**, this idea that we’ve got to preserve something that’s in the process of being lost.”

“All the masters really are anymore is **the ones who procure the work**, who go out and get the jobs; the true masters are the journeymen, who pull the apprentices along with them.”

“This whole thing with **standardisation** has gone so far, already—like with metalworkers: they need to have passed a hundred exams so they can keep working in a way that’s even close to normal, and there are certain things that small businesses just aren’t allowed to do at all anymore. Only the big guys.”

“**Politicians** don’t care at all about our small businesses. You have to be self-sufficient, work hard, pay taxes—then you’re someone.”

“On its own, a school just can’t give someone this continuous form of practical experience; what you need is **direct transfer**.”

“The difficulties with **apprentice training** are partly a matter of social policy: the situation you have as an entrepreneur is that once an apprentice has been with you for three months, you’re married to them for three years—even if they end up completely losing interest. And businesses don’t want to inflict that upon themselves anymore.”

“The **social status** of craftsmanship isn’t what it used to be.”

“When craftsmanship suffers, the rootedness of a **society** suffers along with it.”

“This **bureaucracy!** All these colouring agent rules and the entire Packaging Ordinance, and now the allergens and all that junk. Who’s supposed to handle it all?”

“All these **regulations** are, in part, shackles and additional weight that traditional craftsmanship has to bear.”

“This **shift in image**, an appreciation of specialised, high-quality training—that’s what apprenticeships and craftsmanship need today.”

“We’re losing everything due to **liberalisation**; not just training, but the entire trade.”

“A knockout criterion in craftsmanship is laziness. A craftsperson has to be a **hard worker**.”

“One phenomenon of our Western, civilised society that we **control and protect everything to death**. Which is reckless because it destroys so many businesses.”

“**Tourists** want to discover what’s special about a region, and that’s naturally quite often manifested via craftsmanship.”

“It’s a traditional craftsmanship business if the boss takes part in the actual work and **gets his hands dirty** at least once in a while, and if he also has to face the public and take responsibility for defects at any time.”

“Only when craftsmanship has disappeared do people suddenly realise what the term ‘**craftsmanship**’ actually means.”

“What it takes is awareness-raising—an artisanal product just does have a different **final price** than an industrial product.”

“What’s missing when they **write the laws** is some connection to actual practice. What’s being done there is seriously negligent. Large businesses with 100 or 1,000 employees get lumped together with small businesses and micro-businesses, and that simply doesn’t work.”

“This isn’t just about the carpets. What we in Europe are now destroying is really the entire store of **knowledge**. That’s a fact.”

“It’s a **brutal business** in every respect. But when you do it with love, you don’t care about that quite so much.”

“It’s an occupation where your **senses** are involved.”

“It’ll have to get a lot worse before it gets better.”

“There are **no preservatives** in my products because I make them to be eaten, not to be stored.”

“Friends, in mediaeval times we **trained for three years**, and today we still train for three years. But what do we learn during those three years? In my occupation, it’s got to be 50 times as much!”

“**Freshness** can’t be produced, and producing things fresh doesn’t make the best business sense. So it doesn’t pay off financially, but it does pay off in terms of product quality and customer satisfaction.”

“To me, **training** is at the heart of it.”

“To my mind, an absolutely essential aspect that’s meaningful and fulfilling is the opportunity to make your own decisions and to **be independent**.”

“To me, craftsmanship is basically what would remain behind if we ended up losing all the **technology** we have today. If that happened, the principle of craftsmanship would end up being the core pillar of human existence and a matter of existential significance.”

“Trades and crafts, that’s really the **motor for Austria**—in a financial and an economic sense. So their image needs to be improved.”

“Well-trained **teachers** are the bearers of knowledge that they can pass on to young people. And the important thing is that this wheel keeps on turning.”

“Craftsmanship has managed to survive every possible **form of government** right up to the present day. But I can guarantee you it won’t survive the next one.”

“Craftsmanship is not anonymous.”

“Craftsmanship is whatever bears my **handwriting**.”

“Throughout its history, craftsmanship has had to remain **innovative** and adapt to the conditions of its times. That simply an economic necessity.”

“Craftsmanship that **failed to develop** no longer exists today.”

“Craftspeople are being **de-crafted** and, all of a sudden, no longer considered to be craftsmanship.”

“Art of an artisanal character accompanies human beings from **birth to death**.”

“Craftsmanship skills were and still are an **elixir of life** for young people.”

“Trade businesses play an extremely important role, particularly within rural structures, because they support local associations and **village communities**.”

“I, as boss, am required to instruct my employees on the dangers of sunlight, to provide them with sunblock and sun hats, and to make sure they stop working out in the sun with their shirts off. And I have to **document in writing** that I’ve done that before I turn them loose at the construction site. I’m not joking about this. The world really is living on borrowed time!”

“I think craftsmanship’s an important factor in a **city’s attractiveness**.”

“I think that manual and tactile work is very important, namely for a giant segment of the population that wouldn’t otherwise have any **chance to survive**.”

“I think that we in Austria have already **squandered** our advantage.”

“I can’t take on a female apprentice because for that apprentice, I’d have to set up separate toilet and **showing facilities**—even if not a single apprentice has ever showered at my business.”

“I don’t want to know how many trade business owners ended up putting their own private money in the tills during the **financial crisis** so they wouldn’t have to close. While industry, for their part, gobbled up assistance packages like reduced working hours, training programs, etc.”

“I don’t know why the **vocational schools** are only in session when other schools are in session. For businesses, it would be great if apprentices would come to work in July and August.”

“I’d wish for **industry** to no longer have us on its leash.”

“By and large, the whole skill lies in producing a beautiful product within an appropriate amount of time in such a way that our customers end up with **more benefits than costs**.”

“In traditional craftsmanship, values translate into **product quality**; where craftsmanship isn’t involved, the same values often just go into the **packaging**.”

“As far as politics goes: do these gentlemen really find craftsmanship to be so insignificant? I mean, as long as we keep **paying taxes**, they don’t even know we’re here. We should just stop paying. Then they’d notice that we actually exist.”

“The deeper [a customer’s] knowledge is and the more concrete [their] **knowledge about production**, the greater the value and the less relevant the price.”

“Current regulations give you the impression that we’re **slowly but surely protecting ourselves to death.**”

“You only really learn once you’ve taught something. **Passing things** on is also learning, it solidifies things—and I think that’s part of craftsmanship.”

“My kids say to me: ‘You think I’ll also want to be at the business from morning ’til night and stay there ’til Saturday night so that I manage to keep up with all the paperwork, etc. that I have to do and then ultimately have nothing to show for it?’ That’s what’s difficult. And it’s why lots of young people say: ‘No, please, **you keep your business**, and I’ll do something else.’”

“What’s important to me is that I can **live my philosophy**; working against my philosophy is something I can’t do. The business side of things just isn’t that important to me.”

“With all these regulatory requirements everywhere you look, you barely get around to working anymore as a master, because you’re busy just doing the **administrative stuff**. And for every little thing, someone comes by to inspect—things are way too overregulated.”

“Passing on knowledge about craftsmanship both verbally and practically. **Master to journeyman, and journeyman to apprentice.** To me, that’s a very important aspect of a trade.”

“You can, of course, convey a lot through written material and similar, but craftsmanship, in particular, is something that you pass on via **shared experience and work**—from master to apprentice.”

“Where there’s no master, there’s also no apprentice!”

“Particularly where craftsmanship and apprenticeships are concerned, Austria’s a pioneer and a role model within Europe. So the **political tendencies towards liberalisation** and the de-craftsmanshiping of craftsmanship in some areas doesn’t go together with that at all.”

“**Tradition** is not holding the ashes, but passing on the fire.”

“Traditional craftsmanship creates **value** and gives rise to values.”

“Traditional craftsmanship and nostalgia need to be separated. Craftsmanship as such is **timeless.**”

“Lots of people are saying they’re just not going to bother anymore.”

“Why do people always have to reinvent the wheel? The way training is done in the trades has been a **proven model** for centuries.”

“What, to me, is a good craftsman? A **problem-solver!**”

“When customers stand there with **wide eyes**, look amazed, and just feel good—that’s what sparks passion.”

“If you don’t move, you’ll end up being moved.”

“When **scientists** develop something, there’s always a role to be played by the person who actually builds, designs, makes it by hand.”

“It’s best for us to have **customers who actually reflect on things.** And who have money.”

“If this continues (and it’s decided that we don’t need master craftspeople anymore), we’ll just be exacerbating the **worsening image** of apprenticeships.”

“If craftsmanship dies, Europe will have lost a definite advantage in terms of knowledge. Knowledge that was built up over **centuries**.”

“If there were at least some evaluation of what those **state-run, non-business apprentice workshops** are actually accomplishing—instead, they get money thrown at them, and then their participants show up at their final apprenticeship exams and are capable of nothing, just nothing!”

“Those who can’t do it any better compete via their price!”

“I feel like an ant on the moon when I read through the **Services Directive**—that’s so liberal, even the English couldn’t have managed it.”

“We’re working on dismantling craftsmanship even though we serve as **role models**.”

“We honour the old, **welcome the new**, and stay true to ourselves and where we come from.”

“We make wishes come true.”

“We always talk about a **knowledge society**, which—amusingly—is something of which we possess a merely academic understanding.”

“While we keep talking about **individuality**, what’s actually happening is the exact opposite.”

“We’re not just hands, we’re everything: **body, mind, and soul**—and in craftsmanship, especially in beautiful craftsmanship, these things can’t be separated.”

“We’re problem solvers. **No project’s too hot** for us.”

“We’re **teamworkers**.”

“We spend so much time **working at the computer** or at a desk to comply with all the demands made on us by policymakers and their laws. No one’s paying us for this work.”

“**Knowledge** that’s been handed down through the centuries is often something you can’t acquire on your own—after all, how would you?”

“Anything that doesn’t require formal training ends up looking like **low-level work**. So without the dual system of education, we could just forget it.”

“Insufficient demand on the part of actual users isn’t a form of endangerment; it’s a **process of natural selection**, because otherwise, craftsmanship wouldn’t be dynamic—and we’d still be running around with wooden clubs.”

“Like with **soliciting bids at the municipal level**: It really does leave me flabbergasted and speechless when I witness municipalities’ sense of responsibility. They’ll even deliberately solicit printing bids from the Czech Republic and then ask printers from the region—who are subject to vastly different taxes and regulations—to match their price. That’s a patently unfair way of doing things. Who’s paying the local taxes? Who creates the local jobs? It sometimes just leaves me speechless.”



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8 Appendix

8.1 Appendix 1, Participating Experts

Last Name, Title	First Name	Field of Work	Province
Participants in the focus group session "Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor" on 3 March 2015 in St. Pölten			
Mölzer, master tailor	Annemarie	Textiles	Lower Austria
Landl, Loden producer	Karl	Textiles	Lower Austria
Pridt, master florist, Ing.	Lorenz-Mario	Floristry	Vienna
Czesany, general manager, Mag.	Erwin	Textiles, Federal Guild of Fashion and Clothing Technics	Vienna
Wein, master florist	Franz Josef	Floristry	Lower Austria
Eipeldauer, landscape gardener, general manager, Ing.	Herbert	Garden design	Vienna
Schrott, master baker	Josef	Foodstuffs, bakers	Vienna
Fellner, master butcher	Erwin	Foodstuffs, butchers	Vienna
Hagmann, master cake and pastry baker, Mag.	Thomas	Foodstuffs, cake and pastry bakers	Lower Austria
Mar, HTL headmaster, Prof. DI	Alfred	HTL Wels, foodstuffs	Upper Austria
Breiter, master joiner	Josef	Joinery	Lower Austria
Krenn, master joiner	Johann	Joinery	Lower Austria
Steiner, master smith	Siegfried Peter	Metal	Carinthia
Schmutz, master tailor	Johann	Metal	Lower Austria
Kyral, master belt maker and master tinsmith	Ludwig	Metal	Vienna
Kurz, master plasterer	Manfred	Construction-Related Trades	Lower Austria
Huemmer, general manager, Mag.	Franz Stefan	Federal Professional Association of Ancillary Construction Trades	Vienna
Participants in the focus group session "Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor" of 17 March 2015 in Salzburg			
Schneider, art consultant, MAS	Elisabeth	Cultural networking	Salzburg
Luidold, office head, Dr.	Lucia	Provincial Department of Culture, Education, and Social Affairs	Salzburg
Awender, master florist	Maria	Floristry	Salzburg
Weissengruber, Mag. Dr.	Thekla	Textiles, Anton Bruckner Museum	Upper Austria
Köhl, General Manager	Hans	Heimatwerk	Salzburg
Kanzler, master joiner	Wilhelm Michael	Joinery	Salzburg
Winkler, master cake and pastry baker	Erich	Foodstuffs	Salzburg
Höller, master tailor	Lydia	Textiles	Salzburg
Weiss, hand weaver	Rupert	Textiles	Salzburg
Kisslinger-Ziegler, Mag. Ziegler-Stahlbau	Elisabeth	Metal	Salzburg
Rothböck, master carpenter	Richard	Wood construction	Salzburg
Participants in the focus group session "Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor" of 14 April 2015 in Graz			
Pöttler, museum director, Dir. Mag.	Egbert	Open-Air Museum Stübing	Stübing/Styria
Regula, master baker	Heinz	Foodstuffs	Styria
Tilp, master smith	Wolfgang	Metal	Styria
Hajek, master florist	Rudolf	Floristry	Styria
Eder, master garden designer	Wolfgang	Garden design	Styria

Last Name, Title	First Name	Field of Work	Province
Grabner, Dr. DI	Michael	Historical wood processing, University of Natural Resources and Life Sciences, Vienna	Lower Austria
Glawischnig, project head	Claudia	Meisterwelten Steiermark	Styria
Strunz, master weaver	Regina	Textiles	Styria
Schaden, master joiner, Ing.	Anton	Joinery	Styria
Niedermayer, Mag.	Lisa	Academy of Fine Arts Vienna	Vienna
Participants in the focus group session "Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor" of 11 May 2015 in Andelsbuch, Vorarlberg			
Haag, master cake and pastry baker	Hansjörg	Foodstuffs, cake and pastry bakers	Tyrol
Schedler, master builder	Werner	Construction	Vorarlberg
Ruscher, master joiner	Heinz	Joinery	Vorarlberg
Felder, master metal engineer	Anton	Metal	Vorarlberg
Schallert, master florist	Barbara	Floristry	Vorarlberg
Haussle, master florist	Brunhilde	Floristry	Vorarlberg
Fitz, master baker	Wolfgang	Foodstuffs, bakers	Vorarlberg
Moser, master potter	Erich	Construction-Related Trades	Innsbruck
Breuss, art historian, Dr.	Renate	Craftsmanship in general; General Manager of Werkraum Bregenzerwald	Vorarlberg
Berger, museum head, Mag.	Karl	General, head of the Museum of Tyrolean Regional Heritage	Tyrol
Huditz, master tailor	Brigitte	Textiles	Tyrol
Abendstein, master tailor	Silvia	Textiles	Tyrol
Fink, chairman	Peter	Cooperating member of Werkraum Bregenzerwald	Vorarlberg
Maurer, master florist	Heidi	Floristry	Vorarlberg
List of individuals interviewed on the topic of "Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor" between May and June 2015			
Seiringer, quill embroiderer	Helmuth	Textiles	Tyrol
Moosbrugger, felter	Marianne	Textiles	Vorarlberg
Huber, Mag.	Astrid	Head, Kartause Mauerbach	Lower Austria
Nötsch, master butcher	Johann	Foodstuffs	Lower Austria
Huber, master smith	Walfried	Metal, general	Lower Austria
Haubenwallner, museum head	Christine	General, Handwerksmuseum Burgenland	Burgenland
Schinnerl, Dr.	Heimo	General, museum, Carinthian Open-Air Museum Maria Saal	Carinthia
Feldbacher, master builder	Johann	Construction, Construction Academy Salzburg	Salzburg
Mang, general manager, Dr.	Brigitte	General garden design Austrian Federal Gardens	Vienna
Steurer, master builder, Ing.	Günter	Construction	Lower Austria
Kern, Mag.	Barbara	General, Handwerkshaus Bad Goisern	Salzburg
Wagner, textile printer	Maria	Blueprint	Upper Austria
Lehner, master florist	Harry	Floristry / Garden design	Upper Austria
Furtner, master smith	Thomas	Metal workshop	Upper Austria
Höllwarth, master tailor	Hans	Textiles	Vienna

8.2 Appendix 2, Total Active Businesses by Guild as Indicated by Chamber Memberships Between 1955 and 1994

T = Overall total
I = Inactive business licences
A = Active businesses

		CRAFTS AND TRADES DIVISION										
		Year	1955	1959	1960	1965	1970	1975	1980	1985	1990	1994
1	Construction Trades 1) (up to 1973: incl. construction industry)	T	4,140	4,161	4,316	5,200	5,764					
		I	413	464	436	400	501					
		A	3,727	3,697	3,880	4,800	5,263					
1	Construction Trades 1) (from 1974: w/o construction industry)	T						6,413	7,137	7,411	8,241	9,647
		I						588	838	952	1,037	1,454
		A						5,825	6,299	6,459	7,204	8,193
2	Master Stonemasons	T	497	482	481	456	474	469	495	503	520	562
		I	21	17	20	20	25	28	33	32	36	31
		A	476	465	461	436	449	441	462	471	484	531
3	Roofers and Pavers	T	908	828	817	782	752	696	764	827	920	1,022
		I	54	35	25	22	22	24	26	34	39	55
		A	854	793	792	760	730	672	738	793	881	967
4	Potters, Pavers and Tile Setters, Ceramists	T	624	607	622	653	682	714	802	844	946	1,065
		I	40	29	23	23	21	14	37	30	34	51
		A	584	578	599	630	661	700	765	814	912	1,014
5	Glaziers	T	1,714	1,533	1,497	1,551	1,459	1,332	1,269	1,201	1,255	1,257
		I	70	63	62	50	49	45	63	60	70	94
		A	1,644	1,470	1,435	1,501	1,410	1,287	1,206	1,141	1,185	1,163
6	Painters, Varnishers, and Sign Painters	T	4,227	3,937	3,871	3,784	3,620	3,248	3,094	2,922	2,952	3,093
		I	366	203	198	176	165	165	190	187	195	246
		A	3,861	3,734	3,673	3,608	3,455	3,083	2,904	2,735	2,757	2,847
7	Ancillary Construction Trades 2) (until 1974)	T	3,811	4,037	4,175	4,619	4,673					
		I	385	402	362	432	479					
		A	3,426	3,635	3,813	4,187	4,194					
7	Ancillary Construction Trades 2) (from 1975: incl. floor layers)	T						6,773	6,495	6,031	6,102	6,603
		I						627	786	745	751	1,000
		A						6,146	5,709	5,286	5,351	5,603
8	Master carpenters	T	1,854	1,724	1,713	1,559	1,434	1,311	1,335	1,283	1,315	1,419
		I	115	113	99	94	82	73	110	102	113	154
		A	1,739	1,611	1,614	1,465	1,352	1,238	1,225	1,181	1,202	1,265
9	Joiners	T	10,424	9,783	9,677	9,213	8,466	7,300	7,058	6,987	7,055	7,505
		I	771	634	584	539	454	437	441	440	437	537
		A	9,653	9,149	9,093	8,674	8,012	6,863	6,617	6,547	6,618	6,968
10	Vehicle Body Constructors and Wainwrights	T	3,506	2,765	2,630	2,046	1,428	1,055	920	810	697	644
		I	378	301	255	238	150	92	90	69	51	51
		A	3,128	2,464	2,375	1,808	1,278	963	830	741	646	593
11	Coopers, Basket Weavers, and Wickerworkers 3) (until 1984)	T	2,024	1,597	1,562	1,159	820	541	414			
		I	248	182	168	148	104	80	91			
		A	1,776	1,415	1,394	1,011	716	461	323			

CRAFTS AND TRADES DIVISION

	Year	1955	1959	1960	1965	1970	1975	1980	1985	1990	1994
12 Turners, Wood Sculptors, Plastics Automoulders, Injection Moulders, and Semi-Finished Product Producers 3) (until 1974, then Guilds 12 and 18)	T	961	857	840	801	814					
	I	89	60	69	60	60					
	A	872	797	771	741	754					
12 Brush and Paintbrush Makers, Turners, Wood Sculptors, and Toymakers 3) (1975-1984)	T						681	573			
	I						65	83			
	A						616	490			
12 Sculptors, Coopers, Brush and Paintbrush Makers, Turners, Basket Weavers and Wickerworkers, and Toymakers (from 1985) 3)	T								856	771	749
	I								144	119	129
	A								712	652	620
13 Brush and Paintbrush Makers, Comb Makers, and Hair Accessory Makers 3) (until 1974, then Guild 12)	T	438	364	347	270	205					
	I	26	17	11	15	10					
	A	412	347	336	255	195					
14 Metalworkers 4) (until 1974, then new Guild 14)	T	5,775	5,293	5,195	4,960	4,914					
	I	300	272	271	260	233					
	A	5,475	5,021	4,924	4,700	4,681					
14 Metalworkers, Agricultural Machine Mechanics, and Smiths 4) (from 1975)	T						6,735	6,331	5,947	5,921	6,165
	I						359	402	359	395	515
	A						6,376	5,929	5,588	5,526	5,650
15 Tinsmiths and Coppersmiths	T	2,331	2,129	2,092	1,991	1,909	1,804	1,755	1,749	1,733	1,818
	I	127	93	84	71	64	79	85	89	90	112
	A	2,204	2,036	2,008	1,920	1,845	1,725	1,670	1,660	1,643	1,706
16 Sanitary and Central Heating Technicians	T	2,101	2,376	2,373	2,604	2,891	3,108	3,547	3,714	3,983	4,336
	I	111	191	152	182	182	248	370	394	396	476
	A	1,990	2,185	2,221	2,422	2,709	2,860	3,177	3,320	3,587	3,860
17 Electrical Engineers including for Radio and Video	T	3,601	3,771	3,798	3,894	4,385	4,585	5,067	5,201	5,739	6,678
	I	207	206	211	254	270	323	592	699	833	1,214
	A	3,394	3,565	3,587	3,640	4,115	4,262	4,475	4,502	4,906	5,464
18 Smiths 4) (until 1974, then Guild 14)	T	5,931	5,077	4,916	4,214	3,405					
	I	383	260	231	201	198					
	A	5,548	4,817	4,685	4,013	3,207					
18 Plastics Processors 3) (from 1975, until then Guild 12)	T						601	727	778	763	762
	I						44	98	100	114	128
	A						557	629	678	649	634
19 Metal Founders, Belt Makers, Engravers, Metal Spinners, Metal Cutters and Galvanisers	T	1,034	900	895	776	678	574	535	508	493	509
	I	82	54	50	46	49	44	51	49	45	63
	A	952	846	845	730	629	530	484	459	448	446
20 Mechatronics Engineers	T	2,912	2,759	2,777	2,713	2,579	2,463	2,378	2,536	2,963	3,515
	I	225	198	218	210	179	165	160	183	214	332
	A	2,687	2,561	2,559	2,503	2,400	2,298	2,218	2,353	2,749	3,183
21 Motor Vehicle Engineers	T	3,138	3,194	3,198	3,290	3,510	3,793	4,260	4,686	4,975	5,144
	I	201	225	216	194	170	199	282	292	320	364
	A	2,937	2,969	2,982	3,096	3,340	3,594	3,978	4,394	4,655	4,780
22 Surgical Truss Makers and Orthopaedic Technicians 5) (until 1979, then Guild 49)	T	162	154	157	153	138	116				
	I	9	4	5	5	4	0				
	A	153	150	152	148	134	116				

CRAFTS AND TRADES DIVISION

	Year	1955	1959	1960	1965	1970	1975	1980	1985	1990	1994
23 Gold- and Silversmiths, Jewellers, and Watch and Clockmakers	T	2,245	2,135	2,103	2,003	1,907	1,788	1,725	1,698	1,676	1,676
	I	117	92	88	70	78	67	85	77	75	90
	A	2,128	2,043	2,015	1,933	1,829	1,721	1,640	1,621	1,601	1,586
24 Musical Instrument Makers	T	332	286	281	244	203	180	186	233	273	302
	I	15	7	7	6	6	3	10	19	25	30
	A	317	279	274	238	197	177	176	214	248	272
25 Furriers, Glovers, and Tanners	T	1,284	1,136	1,092	970	819	734	663	629	571	497
	I	86	81	80	68	53	46	33	27	36	47
	A	1,198	1,055	1,012	902	766	688	630	602	535	450
26 Leather Goods Producers, Bag Makers, Saddlers and Harness Makers	T	2,432	1,956	1,853	1,429	1,025	689	527	404	306	274
	I	184	155	113	93	70	41	29	24	19	25
	A	2,248	1,801	1,740	1,336	955	648	498	380	287	249
27 Shoemakers	T	10,892	8,480	8,050	6,120	3,972	2,349	1,892	1,659	1,440	1,240
	I	1,122	871	751	646	384	210	135	115	104	90
	A	9,770	7,609	7,299	5,474	3,588	2,139	1,757	1,544	1,336	1,150
28 Bookbinders, Carboard Box Makers, and Case Makers	T	742	666	654	616	521	432	398	356	305	298
	I	40	33	25	20	22	20	26	26	15	29
	A	702	633	629	596	499	412	372	330	290	269
29 Paper Hangers 2) (incl. floor layers up to 1974, then Guild 7)	T	2,382	2,471	2,596	3,448	4,035					
	I	122	111	91	169	274					
	A	2,260	2,360	2,505	3,279	3,761					
29 Paper Hangers and Decorators 2) (from 1975: without floor layers)	T						2,110	1,946	1,770	1,628	1,505
	I						112	123	108	86	91
	A						1,998	1,823	1,662	1,542	1,414
30 Hat Makers, Milliners, and Umbrella Makers	T	1,870	1,441	1,355	1,062	715	452	330	242	174	146
	I	206	119	101	77	38	21	18	16	10	13
	A	1,664	1,322	1,254	985	677	431	312	226	164	133
31 Tailors	T	19,207	16,303	15,677	12,792	9,179	5,885	4,210	3,323	2,841	2,346
	I	2,431	1,767	1,446	1,459	1,219	1,017	778	604	540	519
	A	16,776	14,536	14,231	11,333	7,960	4,868	3,432	2,719	2,301	1,827
32 Shapeware and Clothes Producers	T	2,608	2,105	2,041	1,655	1,143	730	533	454	391	334
	I	348	268	282	216	120	73	43	56	43	45
	A	2,260	1,837	1,759	1,439	1,023	657	490	398	348	289
33 Embroiderers, Knitters, Weavers, Passementerie Makers, and Cord and Ropemakers	T	4,803	4,344	4,221	3,473	2,586	1,886	1,676	1,679	1,529	1,371
	I	463	343	319	340	265	199	198	240	256	261
	A	4,340	4,001	3,902	3,133	2,321	1,687	1,478	1,439	1,273	1,110
34 Millers	T	3,024	2,426	2,317	1,849	1,433	1,066	869	769	670	578
	I	292	278	253	199	134	86	81	69	75	76
	A	2,732	2,148	2,064	1,650	1,299	980	788	700	595	502
35 Bakers	T	6,227	5,915	5,820	5,340	4,775	3,792	3,332	3,027	2,738	2,580
	I	406	326	267	220	205	174	137	107	106	119
	A	5,821	5,589	5,553	5,120	4,570	3,618	3,195	2,920	2,632	2,461
36 Cake and Pastry Bakers	T	1,997	1,911	1,887	1,895	1,944	1,819	1,816	1,797	1,874	1,802
	I	148	146	144	114	87	74	111	118	134	159
	A	1,849	1,765	1,743	1,781	1,857	1,745	1,705	1,679	1,740	1,643

CRAFTS AND TRADES DIVISION

	Year	1955	1959	1960	1965	1970	1975	1980	1985	1990	1994
37 Butchers	T	8,144	7,411	7,190	6,532	5,709	4,710	4,162	3,768	3,266	2,843
	I	780	701	659	588	409	310	322	299	285	293
	A	7,364	6,710	6,531	5,944	5,300	4,400	3,840	3,469	2,981	2,550
38 Dairies and Cheese Dairies	T	260	231	227	193	139	126	122	109	104	94
	I	50	48	46	42	20	17	14	8	12	12
	A	210	183	181	151	119	109	108	101	92	82
39 Food and Catering Trades	T	2,362	2,378	2,402	2,321	2,033	1,964	1,558	1,337	1,196	1,146
	I	192	175	156	160	114	127	161	178	179	197
	A	2,170	2,203	2,246	2,161	1,919	1,837	1,397	1,159	1,017	949
40 Gardeners and Florists	T	1,706	1,676	1,682	1,727	1,831	2,005	2,408	2,632	2,822	3,397
	I	146	120	132	135	124	162	283	343	386	759
	A	1,560	1,556	1,550	1,592	1,707	1,843	2,125	2,289	2,436	2,638
41 Printing	T	1,144	1,159	1,170	1,202	1,266	1,460	1,707	2,028	2,606	3,091
	I	76	69	65	56	52	88	184	306	463	643
	A	1,068	1,090	1,105	1,146	1,214	1,372	1,523	1,722	2,143	2,448
42 Photographers	T	1,552	1,460	1,435	1,369	1,284	1,335	1,604	1,857	2,245	2,414
	I	99	80	74	76	65	68	173	174	271	358
	A	1,453	1,380	1,361	1,293	1,219	1,267	1,431	1,683	1,974	2,056
43 Chemistry-Related Trades	T	2,236	2,100	2,075	1,990	1,753	1,573	1,549	1,509	1,641	1,886
	I	234	202	204	166	125	121	174	182	250	327
	A	2,002	1,898	1,871	1,824	1,628	1,452	1,375	1,327	1,391	1,559
44 Hairdressers and Beauticians 6) (until 1970)	T	7,306	7,417	7,430	7,490	7,295					
	I	490	415	397	437	414					
	A	6,816	7,002	7,033	7,053	6,881					
44 Hairdressers 6) (from 1971: beauticians in Guild 44a)	T						5,260	5,083	5,136	5,402	5,586
	I						195	157	157	189	236
	A						5,065	4,926	4,979	5,213	5,350
44a Pedicurists, Beauticians, and Masseurs 6) (1971 to 1978, then Guild 51)	T						1,498				
	I						198				
	A						1,300				
45 Drycleaners, Launderers, and Dyers	T	2,381	2,164	2,083	2,048	2,101	2,006	1,837	1,629	1,435	1,095
	I	151	110	102	130	107	100	126	108	132	123
	A	2,230	2,054	1,981	1,918	1,994	1,906	1,711	1,521	1,303	972
46 Chimney Sweeps	T	916	936	932	932	906	878	844	835	812	779
	I	6	4	4	1	0	0	0	10	7	7
	A	910	932	928	931	906	878	844	825	805	772
47 Undertakers	T	449	486	492	531	576	592	604	596	576	563
	I	4	4	4	2	0	0	2	7	9	10
	A	445	482	488	529	576	592	602	589	567	553
48 Building Managers, Real Estate Agents (incl. Collection Agencies) 7) (until 1963: incl. Advertisers)	T	2,558	2,584	2,573							
	I	153	167	163							
	A	2,405	2,417	2,410							
48 Real Estate and Wealth Fiduciaries	T				1,553	1,537	1,818	2,111	2,228	3,367	5,639
	I				56	64	140	266	311	450	1,127
	A				1,497	1,473	1,678	1,845	1,917	2,917	4,512

CRAFTS AND TRADES DIVISION

	Year	1955	1959	1960	1965	1970	1975	1980	1985	1990	1994
48b Commercial Advertisers 7) (1964–1965)	T				1,310						
	I				109						
	A				1,201						
48a Commercial Advertisers 7) (1966 to 1978, then Guild 52)	T					1,548	2,230				
	I					133	226				
	A					1,415	2,004				
49 Opticians 5) (until 1979, then new Guild 49)	T	282	291	296	312	339	419				
	I	11	9	8	6	2	2				
	A	271	282	288	306	337	417				
49 Ophthalmic Opticians, Orthopaedic Technicians, Surgical Truss Makers, and Hearing Aid Audiologists 5) (from 1980: with Surgical Truss Makers and Orthopaedic Technicians, formerly Guild 22)	T							717	846	979	1,130
	I							18	21	34	46
	A							699	825	945	1,084
50 Dental Technicians	T	127	148	153	181	185	216	287	349	456	527
	I	10	7	7	7	6	11	9	11	19	21
	A	117	141	146	174	179	205	278	338	437	506
51 Toymakers 3) (until 1974, then Guild 12)	T	500	391	379	303	228					
	I	58	36	33	36	27					
	A	442	355	346	267	201					
51 Pedicurists, Beauticians, and Masseurs 6) (from 1979, formerly 44a)	T							1,869	2,617	3,328	3,915
	I							324	554	870	1,023
	A							1,545	2,063	2,458	2,892

- 1 In 1974, the construction trades and the construction industry were separated.
- 2 From 1975, the floor layers (up to then part of Guild 29) were part of Guild 7 (Ancillary Construction Trades).
- 3 From 1975, the brush makers, paintbrush makers (up to then Guild 13), and toymakers (up to then Guild 51) were combined in the new Guild 12 (Brush and Paintbrush Makers, etc.) The plastics processors, who had up to then been part of Guild 12, were given their own Guild 18.
In 1985, the coopers, basket weavers and wickerworkers (Guild 11) were made part of Guild 12.
- 4 From 1975, the smiths (18) were made part of the Guild of Metalworkers (14).
- 5 1980 saw the surgical truss makers and orthopaedic technicians moved from Guild 22 to join the opticians (Guild 49).
- 6 In 1971, Guild 44 (Hairdressers and Beauticians) was split up. The beauticians, pedicurists, and masseurs were combined in their own guild (44a) until 1978.
Beginning in 1979, the beauticians, pedicurists, etc. were moved to Guild 51.



8.3 Appendix 3, Job Descriptions for the Trades of Grain Milling, Joinery, and Men's Tailoring

8.3.1 Grain Milling

8.3.1.1 Process Engineering for Grain Processing, 2015

Source 1: © ibw Austria – Research & Development in VET – www.bic.at – 9 Nov. 2015; Process engineering for grain processing – Grain miller (apprenticeable trade)
Apprenticeship: 3 years
Other name(s): formerly Grain Miller

Job Description

Process engineers for the grain industry – grain millers produce flour primarily from wheat and rye but also from other types of grain. Gristmills also make semolina, groats, flakes, and powdered spices. Millers take delivery of raw materials, inspect, and store them. Production today is for the most part fully automated, with millers operating and monitoring the equipment and machines. Production processes include cleaning, grinding, mixing, and weighing. Millers work together with other millers as well as with machinery engineers and production technicians. In addition, they are in contact with employees of the company laboratory as well as with customers and suppliers.

Scope of Work and Activity

Process engineers for the grain industry – grain millers work in a highly mechanised and automated workplace. Today, a process engineer for grain processing no longer works in an environment of flour dust and noise but in one filled with highly complex machines and computer technology.

A gristmill uses a wide variety of grains to produce and process flours, semolina, course-grained flours, groats, and many other products. Millers working at spice mills produce powdered spices and pastes. The finished products are sold to consumers, bakeries, and other enterprises.

The activities engaged in by grain millers are wide-ranging: they are involved in accepting delivery of raw materials and storing them, scheduling and monitoring production, adjusting machines, maintaining equipment, laboratory quality testing, and purchasing and selling (distributing and advising).

Today, the entire production process is automated. The processing sequences are electronically controlled. Grain is ground in a fully automatic milling machine. Grain millers have modern methods for testing the quality of the grain. They use, for example, an instrument called an amylograph to simulate the rise and fall of temperatures in the baking process and analyse a product's suitability for use in baking.

Various techniques are used to produce mill products. The production processes of cleaning, grinding, and weighing are carried out by machines that are operated and monitored by grain millers. Depending on the desired product, mixing is based on various formulas. Grain millers observe all relevant guidelines,

They also conduct regular quality checks. In addition, they ensure that all of the tools, machines, and equipment are in good working order. They also arrange any necessary repairs or carry them out themselves.

Materials

Process engineers for the grain industry – grain millers work with a variety of grains (rye, wheat, oats, barley, etc.), but also with spices. They operate and monitor partially or fully automatic milling machines, adjust them, and maintain them. To do so, they employ hand tools, electronic measuring devices, and spare parts. Millers study food laws and sanitary regulations to ensure that they are observed during production. In performing analyses in the laboratory, they work with test tubes, chemicals, and testing equipment (e.g., an amylograph to simulate the temperatures involved in the baking process). To document the results they use lists, tables, and computers.

Work Environment/Job Locations

Grain millers are involved primarily in production, but they also work in mill laboratories, compound feed plants, and food production facilities. Millers work together with other millers and with machinery engineers and production technicians. In addition, they are in contact with employees of the company laboratory (e.g., food technicians, chemists) as well as with customers (e.g., employees from the baker's trade or from the bread and baking industry) and suppliers.

Working in a gristmill sometimes produces dust, despite the use of modern exhaust extraction systems. Therefore, as the circumstances require, grain millers may need to wear breathing protection and special safety clothing in order to comply with sanitary regulations.

- controlling and monitoring production processes
- handling and maintaining equipment, machines, and tools

- evaluating and handling grain, other raw materials, auxiliary materials, and their products
- accepting delivery of, examining, and storing raw and auxiliary materials and preparing them for use
- weighing, storing, and packing products
- mixing milled products to produce specific types of flour
- implementing measures to ensure quality
- accepting orders and discussing them with customers

Enterprises and Institutions

- mills
- compound feed plants
- silos and storage facilities
- food production facilities
- facilities producing spices, teas, and pastas
- facilities producing dry baked goods

Requirements

Every profession requires *highly specialised knowledge and skills* that are acquired during training. But there are also many requirements that are important in practically all professions. These include: *reliability, honesty, and punctuality, the ability to work exactly, carefully, and independently, enthusiasm, and a sense of responsibility*. Furthermore, the *ability and willingness to work with others (teamwork)* and the *willingness to learn* have also become virtually indispensable today.

The specific abilities and qualities expected in *this profession* can vary widely from one workplace to another. The following list provides a summary of other requirements that are frequently specified. Note that many of these are included in the apprenticeship training.

Physical Requirements

- good physical condition
- ability to react quickly
- imperviousness to noise
- imperviousness to dust

Professional Skills

- knowledge of chemistry
- good powers of observation
- a systematic way of working
- technical know-how

Social Skills

- good judgement/decision-making ability
- communication skills

Personal Skills

- attentiveness
- flexibility
- safety and security awareness
- environmental awareness

Other Requirements

- hygiene awareness

Alternatives/Specialisation

Related Apprenticeable Trades

Credit for the training received in one apprenticeship program for a skilled trade may be applied to the requirements for an apprenticeship in another (related) trade. This shortens the apprenticeship period for those learning an additional skilled trade (or switching to a related trade).

In the following related skilled trades, the apprenticeship is shortened by the stated number of years. (Example: the note “1st full” means that the apprenticeship in the related skilled trade is shortened by one full year.)

- Food Technology (apprenticeable trade), “1st full”

Apprenticeship and Qualification for Higher Education

Successfully completing an apprenticeship programme and four additional examinations is the equivalent of passing a university entrance exam. This opens the way for study at a university or a specialised institution of higher learning. What’s more, it opens up additional career opportunities within the chosen profession and outside it as well.

This is how it works: in addition to the completed apprenticeship, four other examinations are required: German (written and oral), mathematics (written), a modern language (written or oral), and a specialised field (written exam or project and an oral exam). The specialised field is chosen from content relating to the candidate’s occupation.

What is the Preparatory Process?

Preparatory courses ready candidates for the university entrance exam. They are offered by institutions that provide continuing education (e.g., WIFI Education Centres, the BFI Vocational Training Institute), trade schools, and upper secondary schools (e.g., schools of general education, commercial schools, polytechnic schools, business schools). These institutions can also administer the various examinations. Three of the four exams can be taken during one's apprenticeship. The last of the four exams can be taken following completion of the apprenticeship but not before one's 19th birthday.

Since September 2008, a funding programme has made the preparatory courses and examinations available free of charge throughout Austria. Various models for courses to prepare for the university entrance exam exist in the individual Austrian provinces. Information is provided by educational institutions and by the apprenticeship offices of the Economic Chambers.

Source 2: AMS Careers Lexicon – www.beruflexikon.at – 9 Nov. 2015; Process Engineering for Grain Processing
Apprenticeship: 3 years
Note: formerly called Grain Miller
This apprenticeable trade can be learned with the following specialisations:
Baking Agent Producer, Animal Feed Producer, Process Engineer for Grain Processing.

Job Characteristics

Production in the grain industry today is for the most part carried out in large automated facilities. Process engineers for the grain industry control and monitor the production process. They assess the quality of the raw and auxiliary materials (especially various types of grain, such as wheat, rye, maize, barley, oats, and durum), prepare them for the production process (e.g., clean and weigh them), adjust the production machines, and monitor the various steps in the production process, including packaging, weighing, and packing the final products. They are responsible for maintaining the equipment by regularly cleaning and servicing the machines and making minor repairs when necessary. Process engineers for the grain industry therefore need to have not only comprehensive knowledge of raw materials (awareness of quality standards) and of the various formulations and mixtures required for the final products but also of how all the machines involved in production function. The most important products made by process engineers for the grain industry are—depending on the focus of the facility—various types of

flour (e.g., cake flour or coarse-grained flour and wholemeal flour made from the entire cereal grain), semolina, coarse meal, bran, wheat germ, rolled oats, compound feed for farm animals and pets, and flour treatment agents. Hulling mills remove the husks from various types of cereal grain and legumes and make groats, meal, and flakes. Spice mills process, grind, and package spices of all kinds.

Training Focus “Grain Miller”:

Process engineers for the grain industry with the focus “Grain Miller” take delivery of, inspect, store, and clean the grain. Then they grind it (primarily in a roller mill), mix the intermediate products produced by the milling process into final products in keeping with the usual commercial norms, and monitor their packaging. In taking receipt of the grain, process engineers for the grain industry check it for type, colour, size, possible infestation, smell, humidity, protein content, falling number, amylograph results, and impurities and then store it in silos according to its respective quality. They subsequently conduct other quality checks, carrying out the tests in their own laboratory or sending samples to an outside testing lab. In addition, process engineers for the grain industry draw grain from the silos in the proper mixing proportions and send it for final cleaning to the scouring machine, which is usually located in a separate part of the mill. Air separation is used to clean the grain from all lightweight particles, such as dust and chaff. Other machines remove stones, pieces of metal, and weed seeds (e.g., a dry de-stoner for removing stones and a cockle cylinder for removing weed seeds). Following this cleaning, process engineers for the grain industry prepare the grain for grinding. They add moisture to bring the grain to the correct humidity and soften the endosperm for grinding. A scouring machine separates the grain kernels from their outer layer and removes dust and microorganisms.

The complete removal of the husk from the kernel and the grinding of the latter into flour are performed in a roller mill. The entire milling process involves 15 to 20 steps, with the gap between the rollers being reduced after each step. Process engineers for the grain industry adjust the roller mill to the desired degree of fineness and send the intermediate product to a plan-sifter where the flour is sifted. They take frequent samples of the intermediate products and make fine adjustments to the roller mill or the sifting process as needed. From a central control panel, they regulate the onward transfer of the intermediate products of the milling process to the mixing station, where they are combined into final products in keeping with the usual commercial norms. Pneumatic or mechanical conveyors load the flour mixtures into tank lorries or send them to the packing department, where they are put into bags or other containers.

Training Focus “Animal Feed”:

As in grain milling in general, production of animal feeds uses grains and grain products, but it also makes use of waste materials from flour production and a number of other plant- and animal-based protein products, mineral raw materials, and other auxiliary materials and additives (e.g., vitamins). The production process closely resembles that of grain milling. The raw materials are cleaned, ground, mixed together according to various formulas, and packaged in a variety of forms depending on their intended use (mostly in meal or pellet form). Such animal feeds are primarily intended for consumption by farm animals (cattle, pigs, etc.) but also for feeding wildlife, zoo animals, and not least pets (e.g., hamsters, guinea-pigs, and birds).

Training Focus “Flour Treatment Agents”:

Flour treatment agents are mixtures of grain products (especially flour) and various additives (milk powder, sugars, fats, baking powder, spices, minerals, etc.) that are required to produce a variety of baked goods. Process engineers for the grain industry have responsibilities similar to those required by the other training focuses. They control and monitor the production process from delivery of the raw materials to the packaging of the final products. In addition, they are responsible for checking the products in a test bakery.

Requirements

- Manual dexterity: for adjusting roller mills and carrying out minor machine repairs
- Good sense of sight and smell: for assessing grain quality
- Good hearing: for recognising anomalies in the operation of milling machines and conveyors
- Technical know-how: for operating machines
- Ability to react: for recognising and correcting problems in the production process
- Autonomy: for overseeing the mill

Employment Opportunities

Process engineers for the grain industry find employment opportunities at small and mid-sized milling businesses, in the milling industry, at compound feed plants, in grain storage facilities, at transshipment points, at mill construction companies, and at related businesses in the general and semi-luxury food industry. The career prospects in this profession are excellent because only a limited number of apprentices undergo such training, and graduates generally find secure, well-paid positions with their employers. However, securing an apprenticeship is very difficult. At present, most of the workers in this profession are male. But with the growing automation of mills, the physical demands of the profession have been sharply reduced, and the focus of workplace activity has

increasingly shifted to the operation and monitoring of machines, opening up more employment opportunities for women. The 24-hour shift-work that is a feature of large enterprises, however, limits women's employment opportunities.

Advanced Training

Professional advanced training is offered by the Polytechnic College of Food Technology in Wels, Upper Austria, and by the WIFI Education Centres in the Austrian provinces. Suppliers also offer courses.

Advancement and Independence

Process engineers for the grain industry with a focus on "Grain Miller" (prerequisite: master's certificate) can become self-employed (as business owners, leaseholders, or managers). Credit is applied towards the requirements for the master's certificate upon successful completion of the Master School for Millers (duration: 1 year; location: Wels, Upper Austria).

The Miller, 1961

Source: Index of Austrian Professions, 1950–1965

The Miller (from the 1961 edition)

Development and Significance

Even before written history began, grain was prepared by being crushed by hand between two stones or in a mortar; in ancient times, rotating flat stones were used to mill grain. The Romans used animals to turn the stones. In the Middle Ages, operating a gristmill was the prerogative of the landowner. Mills powered by water or wind were known in Asia in ancient times and came into widespread use in Europe during the early Middle Ages. The first steam-powered commercial flour mill was completed in London in 1786. That same year, a "steam mill" opened in Vienna that used a steam engine to pump water to a higher elevation. The American inventor Oliver Evans built the first automated flour mill and published an influential book on milling

In Austria in 1807, Ignaz Paur invented a machine to separate grain from dust and impurities. In 1845 two Frenchmen invented a grain cleaner and separator that they called a "trieur". Friedrich Wegmann patented a porcelain roller mill in the 1870s. In the 1880s Carl Haggemacher patented a plan-sifter to separate the flour between grindings. Mechanisation and automation have continued down to the present, especially for conveying of

the intermediary products from one process to the next, for final packing, etc. Artisanal and industrial mills in Austria currently supply the nation's entire demand for flour.

Characteristics of the Profession

Millers produce ground products for human nourishment, for animal feed, and to some extent for industrial purposes.

In Austria, three years of training are required to become a grain miller as an artisanal or industrial occupation. In Austria, milling of sugar, spices, and feedmeal is mostly carried out by enterprises of the food industry. As a trade, however, this activity is restricted to those in possession of the certificate that an apprentice receives upon successful completion of training. Mixing organic substances in general, however, is a free trade and requires no certificate or licence. Artisanal milling enterprises in both the free and the restricted categories employ mostly semiskilled workers who have been trained on the job. Commercial mills purchase grain and sell the ground products; other, smaller mills grind individual farmers' grain in return for a fee. There are currently 66 industrial gristmills in Austria, most of which are medium-sized. Only a small number of industrial gristmills are large enterprises. There are currently about 1,100 artisanal gristmills of a commercial character, while some 1,300 artisanal mills do only fee-based work for individual farmers. Large gristmills are found only in cities. Mid-sized and small mills are mostly in rural areas.

Raw materials:

- Grains: wheat, rye, maize, barley, oats, rice.
- Legumes: peas, beans, lentils.
- Other organic substances: sugars, spices, herbs, etc.

Products:

Wheat: semolina, various types of flour, feedmeal, bran. Rye: bread flour, feedmeal, bran. Barley: rolled barley, feed groats. Oats: oat flakes, rolled oats, oatmeal for human and animal consumption, feed groats. Millet: millet gruel, chicken feed. Rice: husked and polished rice, rice flour. Maize: semolina, flour, middlings for animal feed, bran; feed groats. Limited to the licenced trade and the food industry: granulated and icing sugars, split peas, pea flour, etc.

Work Description

General Job Characteristics

The flour required for making dough is made by grinding the kernel of the grain. The kernel contains starch and protein (gluten), surrounded by several layers of cellulose. The respective cellulose content determines how finely the flour should be milled. After ashing a flour sample in the lab, only the incombustible components remain. The share is expressed in thousandths of a per cent.

The ash content multiplied by 1,000 results in the type numbers used in Austria to identify the type of flour. In a series of milling operations, a comprehensive process is used to clean the grain and remove all the undesired components as well as to sieve and sort the intermediate products. Depending on the setting of the roller mill, wheat is processed into: wheatmeal (a coarse-grained product), semolina (coarse middlings used for breakfast cereals, puddings, and polenta), coarse and fine flour. Depending on the size of the gristmill, it will feature a more or less extensive assortment of complex equipment and machines that a miller must be able to operate as well as constantly monitor and control. The work of a skilled miller includes many different activities from purchasing and receiving grain to storage, pre-treatment, cleaning, and grinding to intermediate storage and transport of the ground products. In non-automated mills, which are mostly the small ones, conveyance of the grain and the intermediate products requires considerable physical exertion. In partly and fully automated mills, physical labour is largely eased by the use of machines. The workspace in a mill is mostly cool and dry. Smoking is absolutely forbidden because of the threat of explosion if the amount of flour dust in the air reaches a critical level.

a. Typical tasks

- **Examining the grain before storage:** The miller must determine the degree of ripeness as well as the size, colour, and hardness of the kernels, etc. based on their appearance, palpable condition, and smell (musty, burnt). The miller must also determine the moisture content. A sample is taken from the delivery to determine the share of defective (deformed or broken, etc.) kernels and of foreign feed grains. The grain is also examined for insect infestation, etc.
- **Storing the grain:** The grain may be stored in sacks, piled up on the floor, or put into silos. It is important to ensure an inflow of fresh air to keep the grain from “sweating”. If grain is stored on the ground, it must be turned from time to time. In mills that use silo storage, turning is performed either pneumatically or by spiral conveyors or belts and lifts. If there is an infestation of animal pests, the grain is fumigated to kill them.

- **Cleaning the grain:** The various machines used in cleaning the grain serve to separate the germ buds and white root sheaths (chits) from the kernels, remove any foreign contaminants, sort the grain by size, and hull it. Mechanical sifting is performed in a series of sieves with increasingly fine mesh or perforations. Sorting is performed in a “trieur” (a rotating cylinder with sockets of varied size for accepting the various sizes of kernels). The miller must monitor the operation of the machines during the sorting process. Any pieces of iron are removed in a special machine by magnets. The cellulose hull is removed from the grain by abrading it against a rotating disk. This, too, requires constant monitoring and control because the speed must be altered as circumstances require.

- **Preparing the grain for grinding:** Grain must have a moisture content of between 15.5% and 16.5% for grinding. If it is too dry, it must be moistened with water. The moistened grain must be allowed to stand for several hours to reach uniform moisture. The standing time can be shortened if warm air is used to raise the temperature of the grain (“conditioning”).

- **Grinding:** In former times, millstones were used to grind the grain. Today only a limited number of small mills still use them exclusively. In a few mills, millstones are used along with other types of grinders, sometimes to produce feed groats. In a traditional mill with two millstones, the lower stone (“bedstone”) is stationary while the upper (“runner”) stone rotates above it in a horizontal plane. It is attached to the millrind, an iron support connected to the main shaft and adjustable in height. The surface of the millstone (made of sandstone, granite, or artificial stone) has deep grooves that allow air to circulate and disperse the heat of the milling process. The grooves also channel the ground flour to the edge of the stones. If the grooves start to become smooth from wear, they have to be deepened by the miller, working with a facing hammer, bush hammer, cracking pick, and furrowing pick (always wearing eye protection). The evenness of the grinding path is checked with a straightedge. Mills with millstones have gradually been replaced by roller mills, which use cylindrical rollers that grind between opposing pairs of rollers or between a cylinder and a flat plate. When using opposing pairs of rollers, the coarseness or fineness of the product can be varied by changing the gap between the rollers. Roller milling machinery is classified into various types of break rolls and reduction rolls. Depending on the milling product to be produced, as well as on the size of a mill and the machines it contains, the respective intermediate products are transported to the purifying and sifting machines through a system of connecting pipes. The final products are automatically packaged in containers.

Millers must understand the operation of all the production machines used in the mill, which are combined as a system for a specific purpose in terms of what is to be produced (diagram). Millers' most important responsibility is to continuously monitor and supervise the entire milling process, immediately recognising and fixing breakdowns and other problems. Millers furthermore assess the quality of intermediate and final products by observing their appearance and feel, and they also take samples for testing.

Distinctions between similar work methods in other professions:

In both the free and the restricted milling trades, semiskilled workers also operate milling equipment, but the requirements with respect to knowledge of materials, storage, complexity of the milling processes, and equipment are considerably less stringent.

IX. Spezialisierungen Betriebspezialisierungen: Mühlen für Mahlprodukte des Weizens für Teigwarenerzeugung (Hartweizenmüllerei), Mahlmaismüllerei (Maisgrieß, Polenta, Stiermehl), Schälsmüllerei (Rollgerste, Spalterbsen u. a.), Haferflockenherstellung. Berufsspezialisierung: Laborant im chemisch-technischen Mühlenlabor (soweit Mühlen hierüber verfügen).	XIII. Wirtschaftlich-soziale Verhältnisse In Anbetracht der örtlich verschiedenen Verhältnisse empfiehlt es sich, jeweils die zuständigen Stellen der Arbeitsämter bzw. Berufsberatungsämter sowie Berufsverbände zu befragen. Die relative Konjunkturfestigkeit der Müllerei als eines Grundberufes der Nahrungsmittelerzeugung sichert aber vor allem dem tüchtigen Facharbeiter jederzeit eine Arbeitsmöglichkeit.
X. Berufsausbildung 3j. Lehre in gewerbl. od. industr. Betrieb, Berufsschule, Gesellen- bzw. Facharbeiterprüfung, im Gewerbe nach 3j. Gesellenzeit Antritt zur Meisterprüfung möglich. 1j. Müllereifachschule in Wels (fakultativ u. hauptsächlich für Obermüller od. solche, die als Besitzer od. Pächter selbständig werden wollen).	XIV. Berufsverbände KaGeWi: Bundessektion Gewerbe, Bundesinnung u. Landesinnungen der Müller. Bundessektion Industrie, Fachverband der Nahrungs- u. Genußmittelindustrie, Verband der Mühlenindustrie. Kammer für Arbeiter und Angestellte. ÖGB: Gewerkschaft der Lebens- und Genußmittelarbeiter.
XI. Anstellungs- u. Aufstiegsmöglichkeiten In gewerblichen u. industriellen Mühlen. ↑ Facharbeiter: zunächst „Postenmüller“, dann Vorarbeiter („Wachtjung“ od. „Walzenführer“). Obermüller (in größeren Betrieben sind sie Angestellte, in kleineren Betrieben sind sie Arbeiter u. heißen dort häufig „Erster“). Geschäftsführer, Buchhalter, Laboratoriumsleiter, selbständiger Meister.	XV. Literaturangaben, Lichtbild- u. Filmmaterial Konrad Welsler: „Müllerfibel“, Verlag Helene Poech, Wien 1948. Allgemeiner Mühlen-Markt: 50 Jahre Mühlen-Markt, Wien 1949. Franz Scheuch: „Vom Getreide zum Brot“, im Selbstverlag des Verfassers, Feldkirch, Vorarlberg.
XII. Berufswechsel A) Ohne beruhsausschließende Gebrechen: 1. Innerhalb der Spezialisierungen, 2. Innerhalb der Aufstiegsmöglichkeiten. B) Bei nach Berufsausbildung erworbenen Gebrechen: Hand-, Arm- u. Fußgebrechen erlauben nicht mehr die volle Berufstätigkeit beim Produktionsprozeß; Ausweichmöglichkeiten im Rahmen eines größeren Betriebes gegeben für Büroarbeiten, Laboratorium u. a.	Herausgegeben im Auftrage des Bundesministeriums für Unterricht. Verfasser: Dr. Wilhelm A. Bardodej. Fachliche Beratung: Die Bundesinnung. Leitung u. Red.: Doz. Dr. Norbert Thumb, Wien III, Rochusgasse 2.

Institut für Arbeitskunde und Berufseignungsforschung Wien Osterreichische Berufskartei	<h1>Der Müller</h1>	Berufsblatt 206 []
I. Entwicklung und Bedeutung Bereits in frühgeschichtlicher Zeit Vorbearbeitung der Kornfrucht durch Zerstoßen in Stein- od. Holztrögen von Hand; im Altertum Erfindung des im Zentrum gelochten Drehsteines. Bei den Römern Antrieb der Mühlen auch durch Tierkraft. Im Mittelalter war der Betrieb von Mühlen alleiniges Recht des Grundherren. Wasser- u. Windmühlen dürften in Asien schon im Altertum bekannt gewesen sein, in Europa seit dem frühen Mittelalter verbreitet. Dampftriebene Mühlen seit 1874 in London, 1786 eine „Feuermühle“ in Wien (eine Wassermühle, bei der das Wasser mit Dampfmaschine hochgepumpt wurde). Grund-	sätzliche Verbesserungen u. erste Automatisierungen der Reinigungsanlagen einer Mühle in Amerika seit 1795 durch O. Evans. Erfindung der „Grießputzmaschine“ 1807 in Ö. durch Ignaz Paur („Wiener Grießmüllerei“), der Getreidereinigungsmaschine („Trieur“) 1845 durch Vachon, des Walzenstuhles 1870 durch Fr. Wagemann, des „Plansichters“ (zur Sortierung des Mahlgutes) 1882 durch Hagenmacher. Fortschreitende Mechanisierung u. Automatisierung bis zum heutigen Tag vor allem der Beförderung des Mahlgutes von einer Verarbeitungsanlage zur anderen, Abfüllmaschinen usw. Zur Zeit deckt die gewerbliche u. die industrielle Müllerei in Ö. die gesamte Vermahlung des Inlandsbedarfes an Mehl.	Ausgabe vom Mei 1961
II. Berufsspezifische Charakteristik Der Müller stellt Mahlprodukte für die menschliche Nahrung u. für Fütterungszwecke, z. T. auch für industrielle Zwecke her. In Ö. gibt es den 3j. Lehrberuf des Getreidemüllers als Handwerk im Gewerbe u. als industriellen Beruf. Die Zucker-, Gewürz- u. Futterschrotmüllerei wird in Ö. überwiegend in den entsprechenden Betrieben der Nahrungsmittelindustrie betrieben; sie ist im Gewerbe hingegen ein gebundenes Gewerbe (an Befähigungsnachweis gebunden), dessen fachliche Voraussetzungen der gelernte Müller bereits durch die absolvierte Lehre mitbringt. Die Vermahlung anderer organischer Stoffe ist sogar ein freies Gewerbe. Der Betrieb im gebundenen u. freien Gewerbe erfolgt fast ausschließlich mit angelernten Hilfskräften. „Handelsmühlen“ kaufen das Getreide ein und verkaufen die Mahlprodukte, „Lohnmühlen“ mahlen das Getreide des Bauern gegen den Mahllohn. Gegenwärtig arbeiten in Ö. 66 industrielle Betriebe der Getreidemüllerei, die vorwiegend Mittel-, zum geringen Teil Groß-	betriebe sind. Im Gewerbe gibt es gegenwärtig ca. 1100 gewerbliche Handelsmühlen in Verbindung mit Lohnmüllerei, ca. 1300 gewerbliche Mühlen betreiben nur Lohnmüllerei. Großmühlen findet man nur vereinzelt in den Städten, die Mittel- u. Kleinmühlen zum größten Teil auf dem Lande. Arbeitsmaterial: Getreide: Weizen, Roggen, Mais, Gerste, Hafer, Reis. Hülsenfrüchte: Erbsen, Bohnen, Linsen. Andere organische Stoffe: Zucker, Gewürze, Kräuter usw. Arbeitserzeugnisse: Weizen: Grieß, Mehle bestimmter Typen; Futtermehle, Kleie. Roggen: Brotmehl, Futtermehle, Kleie. Gerste: Rollgerste, Gerstenfuttermehl. Hafer: Haferflocken, und zwar teils solche für die menschliche Ernährung, teils Futterflocken, Futtermehl. Hirse: Hirsbreien und Hühnerfutter. Reis: Schölen u. Polieren ev. Mahlen. Mais: Grieß, Mehl, Futtermehl, Kleie; Futtermehl. Auf das gebundene Gewerbe u. die Nahrungsmittelindustrie beschränkt: Grieß- u. Staubzucker, Spalterbsen, Erbsenmehl usw.	
III. Arbeitsbeschreibung 1. Allgemeine Charakteristik des Arbeitsbereiches Das für die Teigbereitung erforderliche Mehl wird durch Vermahlen des Getreides aus dem Mehlkern gewonnen; der Mehlkern enthält	Stärke u. Eiweißstoffe („Kleber“), die im einzelnen Korn von mehreren Zelluloseschichten umgeben sind. Der Gehalt an diesen Zelluloseschichten bestimmt den Ausmahlungsgrad eines Mehles. Die laboratoriumsmäßige Veraschung einer Mehlpforte ergibt unverbrennbare Bestandteile, deren Anteil in Tausendstel Prozent angegeben wird.	

Der Aschegehalt mal 1000 ergibt die „Type“, die der Bezeichnung der Mehle dient. Zur Entfernung aller unerwünschten Bestandteile, sowie zur Reinigung, Sichtung, Vorbehandlung u. Sortierung wird das Getreide einem mehr oder weniger umfangreichen Mahlverfahren unterworfen, das in der stufenweisen Zerkleinerung besteht, wobei die einzelnen Vermahlungsstufen z. B. bei Weizen ergeben: Schrot (das durch Vorzerkleinerung entstehende grobkörnige Produkt), Grieß (weitere Zerkleinerung auf Körnungen verschiedener Größe), „Dunst“ u. „Mehl“ (feines bis feinstes Mehl). Je nach Größe u. Einrichtung einer Mühle stehen dem Müller mehr oder weniger umfangreiche u. komplizierte Vorrichtungen u. Maschinen zur Verfügung, deren Bedienung er beherrschen muß u. die eine ständige Überwachung u. Kontrolle erfordern. Die Arbeit des gelernten Müllers umfaßt alle Tätigkeiten vom Einkauf bzw. Übernahme des Getreides über Lagerung, Vorbehandlung, Reinigung bis zur Vermahlung u. Aufbewahrung bzw. Transport des Mahlgutes. Während in nicht automatischen Mühlen, zu welchen überwiegend die Kleinnmühlen gehören, der Transport des Getreides u. des Mahlgutes beträchtliche körperliche Anforderungen stellt, ist in den halb- und insbesondere in den vollautomatischen Mühlen die körperliche Arbeit weitgehend durch maschinelle Arbeitsvorgänge erleichtert. Die Arbeitsräume in der Mühle sind durch kühle u. trockene Luft gekennzeichnet; absolutes Rauchverbot, da bei kritischem Mehlstaubgehalt der Luft Explosionsgefahr besteht.

2. Typische Arbeiten

a) **Prüfung des Getreides vor Einlagerung:** Wichtig ist Feststellung des Reifezustandes, der Korngröße, der Farbe, Härte usw. auf Grund des Aussehens, des Griffes u. des Geruches (muffig, brandig); ebenso Beurteilung des Feuchtigkeitsgehaltes. Von der gesamten Menge wird eine Durchschnittsprobe entnommen, um den Anteil der getreideeigenen Milchprodukte (Auswuchs, Bruch u. a.) u. von Futtermitteln festzustellen; ebenso Prüfung auf ev. Käferbefall usw.

b) **Lagerung des Getreides:** Die Lagerung kann in Säcken, aufgeschüttelt auf dem Boden od. in eigenen Silos erfolgen. Wesentlich ist Vermeidung des „Schwitzens“ des Getreides durch Zufuhr frischer Luft. Bei Bodenlagerung muß dazu das Getreide periodisch umgeschauelt werden, in Mühlen mit Silolagerung erfolgt dies über Transportschnecken oder -bänder u. Aufzüge oder pneumatisch. Bei Befall von tierischen Schädlingen erfolgt Vergasung des eingelagerten Getreides.

c) **Getreidereinigung:** Die verschiedenen mechanischen Vorrichtungen zur Reinigung des Getreides dienen zur Abtrennung der Keimlinge u. der Spitzchen der Körner sowie der Entfernung der getreidefremden Bestandteile, der Größensortierung u. der Schälung. Die mechanische „Sichtung“ verläuft über abgestufte Siebspannungen. Die Sortierung wird im „rotier“ vorgenommen (d. i. ein rotierender Zylindermantel mit Zellen für die verschiedenen Korngrößen). Die Aufgabe des M. besteht dabei in der Überwachung der Maschinen u. in der Kontrolle am laufenden Sortierungsvorgang. Eisenteile werden mit Magneten in besonderen Vorrichtungen entfernt. Das Schälern zur Entfernung der Zelluloseschale wird in einem rotierenden Schirmgelmantel, gegen den das Getreide geschleudert wird, erreicht; auch hier wichtig die laufende Kontrolle u. Überwachung, gegebenenfalls Einstellung der Tourenzahl.

d) **Vorbereitung zum Vermahlen:** Die Vermahlung muß bei einem Feuchtigkeitsgehalt des Getreides von 15,5—16,5% erfolgen. Zu trockenem Getreide wird dazu mit Wasser genetzt. Das genetzte Getreide muß einige Stunden zur gleichmäßigen Durchnetzung „abstehen“. Die Abstezeit wird ev. durch mechanisches Durchzogen des Getreides durch einen Heißluftstrom verkürzt („Konditionieren“).

e) **Das Mahlen:** Früher wurde mit Mühlensteinen („Mahlgängen“) gemahlen. Heute verwenden kaum noch Kleinnmühlen ausschließlich Mühlensteine zum Mahlen. Diese werden nur noch in einigen Mühlen zusätzlich zu anderen Mahlmaschinen und teilweise für die Herstellung von Fullerschrot verwendet. In den Mahlängen ist der Bodenstein fest gelagert, der Läufer rotiert um das „Mühlisen“, auf dem es über dem Bodenstein aufgehängt ist u. ihm gegenüber der Höhe nach verstellbar ist. Die Mahlfläche der Steine (Sand-, Granit-, Kunststeine) haben vertiefte Furchen (zur Luftzirkulation wegen der beim Mahlen entstehenden Wärme); die Stellung der Furchen beider Steine, nach einem bestimmten System zueinander angeordnet, bestimmt das frühere od. spätere Auswerfen des Mahlgutes. Bei Abnutzung der Mahlbahn müssen die Luftfurchen vom M. nachgearbeitet werden. Dazu Arbeit mit Kronhammer, Furchenhammer, Ausschlagpicke u. Messerpicke (Arbeiten mit Augenschutz). Die Abflächung der Mahlbahn wird mit Richtscheit kontrolliert. An Stelle der Mühlensteine sind nun die „Walzenstühle“ (Hartgüßwalzen mit einer Riffelung, die gegeneinander rotieren u. je nach Abstand voneinander gröber od. feiner mahlen) getreten. Man unterscheidet Quetsch-, Bruch-, Schrot- u. Ausmahlstühle. Je nach dem erzielten Mahlprodukt, der Größe u. der maschinellen Ausstattung einer Mühle werden die jeweiligen Zwischenprodukte den Putz- u. Sichtmaschinen vermittelt einer von Maschine zu Maschine führenden Rohrleitung zugeführt. Die Endprodukte werden automatisch in Behälter abgefüllt.

Der M. muß die Funktionsweise aller in einer Mühle verwendeten Maschinen, die systematisch zu einem bestimmten Produktionszweck zusammengestellt sind (Diagramm), kennen. Die fortlaufende Überwachung u. Bedienung, das sofortige Erkennen von Fehlleistungen u. Störungen u. ihre Behebung sind die wesentliche Aufgabe u. Leistung beim gesamten Mahlverfahren. Die Beurteilung des angestrebten Zwischen- u. Endproduktes beruht auf der Beobachtung des Aussehens u. des Griffes. Für weitere Untersuchungen werden Proben entnommen.

Abgrenzung gegen ähnliche Arbeitsweisen in anderen Berufen: Die angelesenen Hilfskräfte in den Mühlen des gebundenen u. freien Gewerbes bedienen zwar auch wie der gelernte Getreidemüller Mahlmaschinen, doch sind die Anforderungen hinsichtlich Materialkenntnisse, Lagerung, Ausmahlung u. Kompliziertheit der Mühlenanlage bedeutend herabgesetzt.

IV. Körperliche Beanspruchung

1. Unbedingt erforderlich:

0. —.

I. 12, 14, 16, 17.

II. 23, 25, 28, 291.

III. 300, 303, 310, 313, 320, 323, 330, 333, 340, 343, 345, 350, 353, 355, 361—365, 371—375.

IV. 40, 43, 480.

V. 50, 54, 58.

VI. 60, 62, 67, 68.

VII. 712, 753 (Mehlstaub).

VIII. 80, 83, 85.

IX. 90, 98.

2. **Ausschließend:** Schwere Herz- u. Lungenleiden, statische Insuffizienz, Hauterkrankungen, chron. Finger- u. Armerkrankungen, Tuberkulose, Hand-schweiß.

3. **Förderlich:** Kräftige Gesamtkonstitution, Abhärtung gegen die ständig kühle Raumtemperatur.

4. **Nicht ausschließend:** Linkshändigkeit, Farbenblindheit, Sprachfehler.

5. **Gesundheitliche Gefährdung:** Hautekzeme.

6. **Berufskrankheiten:** selten Pilz-erkrankungen, z. B. Strahlenpilzkrankung des Atmungs-traktes; Asilhma.

7. **Prophylaxe:** —.

V. Psychische Anforderungen

Funktion	Funktionsprofil:					Funktion	Förderl. =				
	1	2	3	4	5		1	2	3	4	5
Allgemeine Intelligenz						Arbeits tempo					
Räumliche Vorstellung						Arbeits sorgfalt					
Tech. prakt. Verständnis						Selbständiges Arbeiten					
Aufmerksamkeit lang- u. weit						Einzel-, Gruppenarbeit					

Der durch eine Reihe von maschinellen Anlagen verlaufende Mahlprozess erfordert technisches Verständnis u. gute räumliche Vorstellung, um die für das zu erzielende Mahlprodukt richtige Einstellung der Maschine zu treffen u. Korrekturen während des Mahlprozesses vornehmen zu können. Die über mehrere Räume verteilte Anordnung der maschinellen Anlage einer Mühle benötigt eine wachsame Beweglichkeit, gutes Gehör u. große Gewissenhaftigkeit sowohl für die Überwachung der Anlagen als auch der Qualität des Mahlgutes. Das gesamte Arbeitsmilieu einer Mühle mit seiner kühlen Raumtemperatur, dem ununterbrochenen Maschinenlärm u. dem unvermeidlichen Mehlstaub, ebenso auch die immer wieder erforderliche Handarbeit verlangen Bereitschaft zu körperlicher Arbeit. Sauberkeit u. gewissenhafte Reinlichkeit in Verantwortung für das Nahrungsmittel sind ebenso unerlässlich wie charakterliche Verlässlichkeit.

VI. Kenntnisse und Fertigkeiten

1. **Erforderlich:** Materialkenntnisse der Grundstoffe, Kenntnis der Antriebsanlage u. der Maschinen sowie aller Arbeitsgänge gemäß III.
2. **Erwünscht:** Einarbeitung auf spezielle Erfordernisse (s. IX.).

VII. Schulische Voraussetzungen

Gegenstand	Gegenstand					Gegenstand	Gegenstand				
	1	2	3	4	5		1	2	3	4	5
Rechnen						Handfertigkeit					
Naturlehre											

Erfolgreicher Abschluß der Pflichtschule für Antritt der Lehre erwünscht.

VIII. Fragen der Arbeitsvermittlung

1. Haben Sie in einer Mühle gearbeitet, die nur Weizen od. nur Roggen od. nur Mais od. mehrere dieser Getreidearten zugleich verarbeitet?
2. Haben Sie in einem gewerblichen od. industriellen Betrieb gearbeitet?
3. Haben Sie in einer reinen Lohnmühle, in einer reinen Handelsmühle od. in einer Mühle gearbeitet, die Lohn- u. Handelsmüllerei betrieb?
4. Sind Sie auf bestimmte Erzeugnisse spezialisiert? (s. IX.).
5. Tagesleistung der Mühle, in der Sie beschäftigt waren, in Tonnen?



8.3.2 Joinery

8.3.2.1 Joiner, 2015

Source 1: © ibw Austria – Research & Development in VET – www.bic.at, 9 Nov. 2015; Joinery (apprenticeable trade)
Apprenticeship: 3 years

Job Description

Joiners make furniture, windows, doors, ceilings, flooring, and wooden building components according to plans and drawings and assemble them in the workshop or onsite for their customers. They also carry out repairs on such products. Joiners make drawings of their projects, choose the proper kinds of wood and other materials, and employ various woodworking techniques such as planing, sawing, sanding, pressing, etc.

They use a variety of manual or power tools and equipment. In industrial production, they also use computer-assisted woodworking machines. Joiners work in businesses of the joinery, carpentry, and cabinetmaking trades, in workshops and factories of the wood processing industry, or for customers onsite. They work in teams alongside colleagues from their trade as well as with other skilled and unskilled workers.

Scope of Work and Activity

Joiners employed at smaller businesses generally make individual, custom-made items or small series. They select wood, other materials, and tools and make various types of furniture and other workpieces according to plans and drawings created in response to the needs and desires of their customers. Among the furniture items they make are tables, chairs, beds, built-in cabinetry, and fitted kitchens. This work includes a number of different woodworking processes such as measuring, marking, planing, sawing, drilling, sanding, grooving, dovetailing, doweling, shaping, and gluing. Joiners deliver their projects to customers and install them. They make and install wardrobes, kitchens, living-room cabinets, and beds as well as install parquet flooring and ceiling panelling. Joiners in the wood processing industry are primarily involved in series production. They operate and monitor computer-controlled (CNC) machines and conduct quality controls as well as perform various reworking and corrective tasks. In the construction industry, joiners make window- and doorframes, wall and ceiling coverings, staircases, and balcony railings. In the field of industrial furniture production, they make a variety of furniture types including tables, chairs, wardrobes, cabinets, fitted kitchens, beds, and garden furniture. In the field

of cabinetmaking, joiners are involved in restoring or making faithful copies of furniture from various historical periods. In doing so, they employ traditional woodworking techniques.

Materials

Joiners use manual and electric tools and equipment of all kinds including drills, saws, planes, files, hammers, and screwdrivers as well as computer-assisted production machines. They work with various types of wood including beech, spruce, birch, and oak and are familiar with the qualities of each wood and its potential uses. In addition, they use veneer and pressboard as well as all types of auxiliary materials and accessories such as nails, screws, hinges, paints, and glues.

Work Environment/Job Locations

Joiners work in workshops and factories of the joinery, carpentry, and cabinetmaking business, in the wood processing industry, and also directly for customers onsite. They work in teams alongside colleagues from their trade as well as with other skilled and unskilled workers (see also, for example, the apprenticeable trades of Wood Turner, Wainwright, and Joinery Technology).

The Most Important Activities and Responsibilities at a Glance

- making and reading sketches and drawings
- planning and designing workpieces
- assessing, selecting, and properly storing wood, other working materials, and auxiliary materials
- processing wood, wood-based materials, synthetic materials, and metal
- employing various woodworking techniques such as measuring, marking, planing, sawing, chiselling, drilling, sanding, curving, joining, grooving, dovetailing, doweled, shaping, and gluing
- using tools, equipment, and machines such as hammers, screwdrivers, and files as well as electric saws, planers, lathes, drills, and moulding machines
- adjusting, operating, and monitoring computer-assisted wood-processing machines
- cleaning, setting up, operating, and maintaining tools, equipment, and machines
- making products and workpieces from wood such as doors, gates, portals, windows, shutters and roller shutters, Venetian blinds, wall and ceiling coverings, and wooden flooring
- assembling and installing workpieces made of wood (in the workshop or for customers onsite)
- applying surface treatments such as planing, polishing, sanding, impregnating, painting, sealing
- conducting performance tests and quality controls

- advising and informing customers

Enterprises and Institutions

- artisanal woodworking businesses
- businesses in the wood-processing industry; window, door, and furniture factories

Requirements

Every profession requires *highly specialised knowledge and skills* that are acquired during training. But there are also many requirements that are important in practically all professions. These include: *reliability, honesty, and punctuality, the ability to work exactly, carefully, and independently, enthusiasm, and a sense of responsibility.* The *ability and willingness to work with others (teamwork)* and the *willingness to learn* have also become virtually indispensable today.

The specific abilities and qualities expected in this profession can vary widely from one workplace to another. The following list provides a summary of other requirements that are frequently specified.

Note that many of these are included in the apprenticeship training.

Physical Requirements

- manual dexterity
- good physical condition
- strength
- imperviousness to noise
- imperviousness to dust

Professional Skills

- creative ability
- good sense of proportion
- good manual dexterity
- good powers of concentration
- good spatial visualisation ability
- technical know-how

Social Skills

- good judgement/decision-making ability
- communication skills
- customer focus

Personal Skills

- flexibility
- creativity
- safety and security awareness
- environmental awareness

Alternatives/Specialisation

Related Apprenticeable Trades

Credit for the training received in one apprenticeship program for a skilled trade may be applied to the requirements for an apprenticeship in another (related) trade. This shortens the apprenticeship period for those learning an additional skilled trade (or switching to a related trade).

Having passed the examination shortens the apprenticeship in the following related apprenticeable trades by the stated number of years. (Example: the note “1st full” means that the apprenticeship in the related skilled trade is shortened by one full year.)

- Boatbuilder (apprenticeable trade), “1st full”
- Wood turner (apprenticeable trade), “1st full”
- Cooper (apprenticeable trade), “1st full”
- Builder of prefabricated houses (apprenticeable trade), “1st full”
- Timber technology (modularised apprenticeship), “1st full”
- Light aircraft builder (apprenticeable trade), “1st full”
- Model maker (apprenticeable trade), “1st full”
- Joinery technology specialising in planning (apprenticeable trade), “1st, 2nd full”
- Joinery technology specialising in production (apprenticeable trade), “1st, 2nd full”
- Event technology (apprenticeable trade), “1st full”
- Wainwright (apprenticeable trade), “1st full”
- Carpentry (apprenticeable trade), “1st full”
- Carpentry technology (apprenticeable trade), “1st full”

Options for Specialisation (selection):

- Exhibition carpenter
- Construction joiner
- Stage carpenter
- Wood designer
- Cabinetmaker

Apprenticeship and Qualification for Higher Education

Successfully completing an apprenticeship programme and four additional examinations is the equivalent of passing a university entrance exam. This opens the way for study at a university or a specialised institution of higher learning. What's more, it opens up additional career opportunities within the chosen profession and outside it as well.

This is how it works: in addition to the completed apprenticeship, four other examinations are required: German (written and oral), mathematics (written), a modern language (written or oral), and a specialised field (written exam or project and an oral exam). The specialised field is chosen from content relating to the candidate's occupation.

What is the Preparatory Process?

Preparatory courses ready candidates for the university entrance exam. They are offered by institutions that provide continuing education (e.g., WIFI Education Centres, the BFI Vocational Training Institute, adult education centres), vocational schools, and upper secondary schools (e.g., schools of general education, commercial schools, polytechnic schools, business schools). These institutions can also administer the various examinations. Three of the four exams can be taken during one's apprenticeship. The last of the four exams can be taken following completion of the apprenticeship but not before one's 19th birthday. Since September 2008, a funding programme has made the preparatory courses and examinations available free of charge throughout Austria. Various models for courses to prepare for the university entrance exam exist in the individual Austrian provinces. Information is provided by educational institutions and by the apprenticeship offices of the Economic Chambers.

Independence

Joiners have the legal possibility of becoming self-employed under the following Austrian law and amendments:

- a. Regulated businesses/trades:
 - Trade of Joiner, BGBl. No. II 91/2003, amendment to Art. 44, BGBl. II No. 399/2008
 - Trade of Wood Turner, BGBl. No. II 91/2003, amendment to Art. 44, BGBl. II No. 399/2008

- Trade of Cooper, BGBl. No. II 91/2003, amendment to Art. 44, BGBl. II No. 399/2008
- Trade of Boatbuilder, BGBl. No. II 91/2003, amendment to Art. 44, BGBl. II No. 399/2008
- Trade of Model Maker, BGBl. No. II 91/2003, amendment to Art. 44, BGBl. II No. 399/2008

b. Special certification trades:

- Trade of Master Construction Carpenter, BGBl. No. II 102/2003, amendment to Art. 49, BGBl. II No. 399/2008

In order to practise a regulated trade, an applicant must meet the general conditions and be in possession of the qualification certificates specified in the indicated editions of the Federal Law Gazette (BGBl.).

Special certification trades [known as *Rechtskraftgewerbe* or *Zuverlässigkeitsgewerbe*] are trades for which the soundness of the applicant's qualifications is must be tested and confirmed by the competent trade authority (district or city government).

The requirements and examination rules are available for download (Federal Law Gazette)

c. Limited qualification certificate:

- Furniture Kit Assembly

Information concerning limited qualification certificates:

Lesser qualifications are required to run a business of one's own that engages in the activities specified by a limited qualification certificate in a regulated trade (e.g., final apprenticeship examination and/or a certain period of practical experience but no master's certificate).

The 2002 amendment to the Trade Regulation Act enhanced the status of those with limited qualification certificates. There has since then been no limit on the number of individuals they may employ, and apprenticeship training may also be offered.

d. Free trades:

- Wainwright
- Souvenir Maker
- Clog Maker
- Wooden Toymaker

Information concerning free trades:

Free trades generally require no certificate or licence but must be registered with the competent trade authority (district authority). The scope of the trade is defined in the respective application.

Source 2: AMS Careers Lexicon – www.beruflexikon.at; 9 Nov. 2015

Joiner

Apprenticeship: 3 years

Note: See also the apprenticeable trade of Joinery Technology (apprenticeship: 4 years)!

Job Characteristics

Joiners make and assemble furniture and components from wood and synthetic materials and also carry out repairs on such products.

In the construction trade, joiners make windows, doors, flooring, wall and ceiling coverings, and staircases. In the furniture trade, they make various types of furniture (e.g., tables, chairs). Cabinetmaking work such as the restoration or reproduction of period furniture using traditional woodworking techniques is also part of the range of things that joiners do. At industrial businesses, they often work in series production. And as cost-cutting measures have become increasingly widespread at such businesses, operating computer-controlled machines that carry out individual process steps such as shaping has become an important part of a joiner's job. Joiners employed at smaller businesses generally make individual custom-made items. In keeping with a customer's desires, these joiners make design sketches and personally perform all of the work from the beginning of production to assembly and installation. In larger enterprises, the work to produce a final product is shared by a number of workers. Joiners select the various materials such as rough or high-grade wood, synthetic materials, and various auxiliary materials and cut them to measure according to the work drawing. To make straight cuts they use a circular saw and for rounded cuts a bandsaw. They plane contact faces of the boards and other wooden components with a surface planing machine (or smaller surfaces with a hand plane) and carry out other necessary processes (e.g., drilling, shaping). They employ a variety of techniques for joining boards together depending on their use (e.g., dovetailing, grooving, gluing, nailing). One of the surface treatment techniques involves gluing on a thin layer of a wood of superior appearance (veneer) to improve the quality of the surface or applying a layer of hardwood to a softwood surface

(to protect it). Finally, joiners treat wooden surfaces with various stains to protect them from weathering or to enhance their natural colouration.

Requirements

- Strong body: for carrying heavy pieces of wood and wooden items
- Good balance: for installing windows
- Manual dexterity: for sanding, applying veneer, dovetailing
- Manual dexterity: for restoring period furniture
- Eye-hand coordination: for planing, drilling, shaping
- Good eyesight: for transferring measurements to wood
- Non-sensitive skin: for working with stains and polishes
- Good spatial visualisation ability: for working according to design sketches
- Mathematical skill: for calculating measurements
- Technical know-how: for operating computer-assisted machines
- Ability to work with others: for being a good team member
- Ability to react quickly: for operating circular saws, bandsaws, sanders, and drills
- Autonomy: for producing custom-made items

Employment Opportunities

Most joiners are employed at small and mid-sized woodworking businesses. Some work at large businesses or in factories in the wood-processing industry. This trade is one of the most frequently chosen trades for an apprenticeship. For qualified joiners, the employment opportunities at artisanal cabinetmaking businesses are quite favourable (with the trend being toward custom-made items and natural materials). The number of jobs available at industrial enterprises has been decreasing, however, due to continued automation (rationalisation measures). Most people who work in this profession are men. In recent years, however, the number of young women undertaking woodworking apprenticeships has risen as the increasing use of modern machines has entailed a considerable reduction in this career's physical demandingness.

Advanced Training

Professional advanced training is offered by the BFI Vocational Training Institute and WIFI Education Centres; this includes courses in CAD and CNC, shaping, wooden staircase construction, furniture and interior construction, and surface treatment as well as restoration and various woodworking techniques. Training courses in CAD are also offered by Jugend am Werk ("Youth at Work") in Vienna. The training centre operated by the Federal Monuments Authority Austria at Mauerbach, Lower Austria offers courses and seminars in restoration. Additional educational opportunities for obtaining higher educational qualifications and/or for higher qualifications for those who have completed

this apprenticeship are offered at the Master School for Carpentry Procedure and Interior Design (2 years) in Graz, the Master Schools for Carpenters (1 year) in Villach (Carinthia), Pöchlarn (Lower Austria), and Hallstatt (Upper Austria), and the College for Furniture Design (2 years) of the New Design University in St. Pölten, which offers a school-leaving examination and a diploma. The St. Pölten programme is open to graduates of thematically related master schools.

Advancement and Independence

At larger enterprises, joiners can become work planners, foremen, or master workmen. Joiners can become self-employed (as a business owners, leaseholders, or managers) in the apprenticeable trades of “Joiner”, “Cooper”, “Boatbuilder”, “Wood Turner”, or “Model Maker” (requirement: master craftsman’s examination) or in the free trade of “Wainwright” (no certificate or licence required). Furthermore, joiners can operate independently in the following area on the basis of a limited qualification certificate (prerequisite: apprenticeship examination): “Furniture Kit Assembly”.

8.3.2.2 The Joiner – 1951

Source: Index of Austrian Professions, 1950–1965
The Joiner (from the February 1951 edition)

Development and Significance

The oldest pictorial representation of carpentry and joinery is found in an Egyptian pyramid. Ancient forms of furniture (Assyrian, Egyptian, Greek) are “built-in” chests and those made of boards. Since late Roman times, joiners have been making cabinets with doors and shelves as well as tables and chairs. In Rome in the 7th century B.C., joiners were associated in a guild-like “collegium”. A turners’ guild was established in Cologne in 1180. The Middle Ages saw the development of sawmills and of post-and-panel construction: furniture stood on posts that were part of its frame; the Gothic cupboard came into use. The Middle Ages otherwise mostly featured built-in cabinets and niches. Veneer-cutting machines were developed during the 16th century. The 18th century was the golden age of traditional woodworking. The Baroque period saw a transition to movable, highly ornamented furniture; techniques were developed for applying surface treatments such as paint, veneer, and marquetry. Ébénistes, who got their name from working in ebony, were specialists in marquetry. From the late 19th century, there was

increasing mechanisation of the woodworking trade through the introduction of electric saws, planes, and wood-milling cutters as well as due to the advent of series production.

Characteristics of the Profession

Part of a joiner's job is to select individual pieces of wood for a workpiece, taking their function in the finished piece into consideration. It often includes gluing them together (in contrast to a carpenter, who does not usually use glue) and applying surface treatments (stains, polishes, veneer, etc.). A joiner typically uses semi-finished products as raw materials: boards, studs, and beams of a square or rectangular shape, battens, mouldings, plywood, and veneers. Joiners also produce sawn timber in sawmills from domestic types of wood (spruce, fir, larch, oak, walnut, and fruitwood) as well as from foreign types of wood (hickory and black walnut from North America, mahogany from Central America and the West Indies, palisander and rosewood from Brazil, and ebony from South Asia and Africa). Auxiliary materials include: stains, waxes, polishes, paints; hardware (handles, hinges, locks), and table tops made of fabric, linoleum, glass, etc. Finished products include doors, window frames and sashes, soft- and hardwood floors, wall coverings, panelling, furniture for homes and offices (softwood = veneered furniture), chests, frames for seated furniture, billiard tables, swivel chairs, coffins, altars, ladders, cases, frames, notions and toys, radio cabinets, Venetian blinds, tools, etc. In Austria, woodworking is mostly artisanal in nature, less often done in an industrial setting (furniture factories), and largely specialised.

In rural areas, joiners also perform all the operations required for finishing a product, including the tasks of a glazier, painter, and fitter. This is less true in cities and towns, where tasks are largely specialised and variously performed by carpenters, furniture makers, cabinetmakers, and restorers, who repair or replicate period furniture. Within these groups, some individuals specialise in softwood, hardwood, seating, kitchen, office, or bamboo furniture or make portals, parquet flooring, staircases, frames, boxes, cases, chests, ice boxes, coffins, and other items. This extensive specialisation often represents a disadvantage in the context of apprentice training.

Work Description

- **Storing wooden material:** Newly delivered wood must be dried two to six years before use. Good wood storage is a prerequisite for making successful products. Stacking wood on transverse supports will prevent boards from bowing; if this is not done, there will be a loss of material due to bowing, cracking, and swelling as the wood shrinks in its various dimensions: 0.1% in length, 10 to 12% in cross-section along the annual rings.

- **General processing:** This involves designing and creating a sketch and work drawing (1:1), selecting the wood, cutting it to size, and connecting the components before adding a possible surface treatment and any hardware. Work is generally performed in the workshop, with some repairs and much construction joinery, however, being performed onsite.
- **Sketching:** Joiners should be able to draw freehand design sketches in perspective. These are then scaled up to the exactly proportioned sketches (1:10) often used by a furniture or interior designer. They consist of a front view, top view, and end view. The final drawing is the shop drawing (1:1) on brown paper with the various views in different colours. Making and reading these drawings requires an ability to imagine things in three dimensions.
- **Timber selection** must take into consideration the wood's own "movement" (swelling and shrinking), its appearance, and the best way to minimise waste. The design must be carefully calculated and thought through.
- **Cutting** the boards and studs to the proper size with a circular saw or pendulum saw for straight cuts and with a bandsaw for curved cuts. A handsaw is used on a workbench (six to ten feet long with a hardwood surface several inches thick and with one or more vices for holding the boards in various positions, generally configured for right-handers).
- **Planing** the boards on the lower contact face with a planer-jointer (a long, flat metal surface with a rapidly rotating blade that allows for the thickness to be adjusted). The board is laid on the metal surface and fed into the blade (danger of hand injury!) to be smoothed or shaved to the right thickness in a thicknessing machine (a surface with a rotating blade that is used on the upper surface of the board and a corrugated roller that draws in the wood and holds it down. A hand wheel adjusts the thickness by raising or lowering the level; the rotating parts are enclosed). Planing by hand on a workbench is done only from the right side of the body in a typical swinging motion that is dampened by the left knee joint. Various types of plane are used: flat surfaces with a scrub plane, fore plane, smoothing plane, and the long jointer plane; for grooves and concave profiles: fluting plane, fillister plane, moulding plane, and round-nosed plane. When planing, careful attention must be paid to the structure of the wood to avoid splitting.

- **Working the wood with a shaper** (a table with a vertically mounted, high-speed rotating shaft on which various blades can be mounted): By moving a board past a rotating blade, the piece of wood can be worked into the desired shape: hollow shapes, slots, grooves, elliptical shapes, slits, and plugs. A guide bar helps position the wood and keeps the blade from cutting too deeply. The worker stands leaning forward, with both hands holding and guiding the piece of wood. For safety reasons, this process requires caution and concentration.
- **Drilling holes** with various hand drills, a breast drill (carpenter's brace), or an electric drill. Long-hole drilling with a machine (often in combination with a jack plane and shaper) involves first drilling an entry hole and then moving the wood horizontally into the rotating drill.
- **Connecting the pieces of wood** (the basic task of a joiner): Joints must be cut precisely in accordance with a number of specific rules. The two pieces are marked precisely before being worked with a wood-milling cutter or by hand with a saw and chisel and glued together. Dovetail joints, in which "pins" and "tails" cut into two pieces of wood interlock, are the most difficult to make. This technique requires manual dexterity, accuracy, and good spatial visualisation ability.
- **Assembling the workpiece:** Lay out all the component parts in the correct order and position; rapidly and carefully apply the glue in a warm room to keep the glue from forming a skin layer. The glue must penetrate the pores of the wood; adjust the thickness of the glue depending on the type of wood (size of the pores). Once the glue has been applied, clamp the two pieces together or put them into a vice until the joint has completely dried.
- **Surface treatment (to improve appearance):** Fill out any small knotholes, cracks, etc., with wood filler. Smooth the surface of the wood with a sharp smoothing plane, and sand it with glasspaper in the direction of the grain.
- **Staining:** Using a brush, apply a stain that is water-, spirit- or turpentine-soluble. It takes experience to mix some shades correctly.
- **Polishing:** Apply three successive layers of shellac dissolved in spirits. Prime, polish, and re-polish to achieve a high gloss; the room must be dust-free and have an even temperature throughout. This task is time-consuming, arduous, and requires patience. Apply even hand pressure in a figure-eight motion.

- **Veneering:** Thin layers of hardwood are glued to softwood furniture to protect the wood and enhance the appearance. “Saw-cut” veneer is used single-sided, while thin slice veneer is used double-sided (“blind veneer” and “face veneer”). Attention must be paid to the grain of both the softwood and the veneer. In complicated veneering projects (marquetry), the individual pieces are cut with a thin, sharp knife in accordance with an exact plan and first glued upside-down to a sheet of pre-marked paper. For large veneered surfaces, the individual pieces are first fastened together with veneering tape before being transferred to the surface of the furniture. Applying veneer requires speed and careful work. The veneer may be clamped under even pressure between a front and back board along with a sheet of greased paper. The front and back boards (the “mould”) serve to ensure that the pressure applied by clamps or a screw press is even; for curved surfaces, one makes a mould that will achieve the desired result.
- **Hinging doors (determining the pivot point):** Position pivot hinge according to certain rules (visualisation ability and conscientiousness!).
- **The construction joiner** for the most part produces his output in series and typically does not need scale or workshop drawings, instead usually making marks directly on the boards. Wood processing almost entirely by machine; wood joints tend to be mortice and tenon; surface finishing is not done. Dealing with heavy workpieces and working at construction sites requires a strong constitution. Compared with joiners, construction carpenters’ woodworking tasks tend to be rougher and simpler.
- **Cabinetmaker:** The requirements of furniture makers are joined by the production and veneering of curved surfaces.
- **Furniture restorer:** Needs to have knowledge of various styles and the construction techniques that they involve.
- **Related occupations that are distinct:** Patternmaker, apprenticeship: 3 1/2 years; produces wooden moulds for casting metal machine parts. Assembly of these wooden moulds, which represent negatives of the intended metal workpieces, requires additional knowledge of machines and mastery of simple turning skills. Partial relationship between joiners and wainwrights in terms of ski production, which—in practice—is done both by joiners and by wainwrights.

VII. Schulische Voraussetzungen				Erwünscht ist erfolgreicher Abschluß der Pflichtschule.				VIII. Fragen der Arbeitsvermittlung				1. Sind Sie spezialisiert auf:					
Gegenstand		1	2	3	4	5	Gegenstand		1	2	3	4	5	Bau-, Möbel-, Kunst-, Antiquitäten-T.? Kassetten- u. Galanteriewaren-T., Parkettbodenleger? Bestimmte Möbelypen (z. B. Sitzmöbel, Kücheneinrichtungen u. a.)?			
Rechnen							Geom. Zeichnen							2. Können Sie: Werkzeugzeichnungen anfertigen, Intarsien schneiden?			
Zeichnen							Raumlehre										
IX. Spezialisierungen				1. Des gelernten T.: Polittierer, Maschinenarbeiter (vor allem Fräser), Reißer (bei Bau-T.), Fußbodenleger, Büro-, Sitzmöbel-T., Billardtische, Drehstühle, Kisten, Kassetten, Särge, Leitern, Jalousien, Rahmen, Galanteriewaren, Werkzeuge, Schi.													
X. Berufsausbildung				1. 3 J. Meisterlehre mit Gesellenprüfung, 3 J. Industriellehre mit Facharbeiterprüfung; bei dieser Anrechnung der 3 J. Gesellenzeit für Meisterprüfung, wenn Nachweis der vielseitigen Verwendung in Ind. Keine Unterscheidung zwischen Bau- u. Möbel-F. für Gesellen- und Meisterprüfung. Gewerbeberechtigung für T. gilt für alle Spezialisierungen. 2. 3 J. Fachschule ersetzt Lehrzeit und Gesellenprüfung. Bundesgewerbeschule in Mödling (auch Internat), Technikerstraße 5: mit Fachschule für T. und Meisterklasse (Vorbereitung für Meisterprüfung); Bundesgewerbeschule in Villach, Richard Wagnerstraße 8: Fachschule für T. und Meisterklasse; Bundesgewerbeschule in Innsbruck, Anichstraße 26-28: Fachschule für T.; Bundesfachschule für Holzbearbeitung in Hallstatt: Fachabteilung für T. mit Meisterklasse; Bundesfachschule für Holz- u. Steinbearbeitung in Hallein bei Salzburg, Burgfried 170: Fachabteilung für T. mit Meisterklasse (auch Internat).													
XIII. Wirtschaftlich-soziale Verhältnisse				Da die B.-aussichten örtlich sehr verschieden sein können u. ihre Beurteilung auch zeitlich oft einem raschen Wechsel unterworfen ist, empfiehlt es sich, Auskünfte über den jeweiligen Stand bei den zuständigen A.-ämtern bzw. Berufsberatungsstellen und Fachorganisationen einzuholen. Stundenlohn nach Kollektivvertrag vom 20. März 1951 (1949): Spezialfacharbeiter: S 5,55 (4,21), Selbständiger Facharbeiter: S 5,27 (3,95) Angelernter Hilfsarbeiter: S 4,64 (3,44), Ungelernter Hilfsarbeiter: S 4,47 (3,30), Hilfsarbeiterinnen: S 4,31 (3,17), Jugendliche bis 17 J. S 3,70 (2,65). -- Lehrlingsentschädigungen (wöchentlich): Im 1. Lj. von S 28,63-35,05 (23,63-28,35), Im 2. Lj. von S 37,28-45,07 (32,28-40,07), Im 3. Lj. von S 50,08-56,93 (45,08-51,75).													
XIV. Berufsverbände				KaGewWi: Landessektion Gewerbe, Landesinnung der Tischler; Bundessektion Industrie, Fachverband der Holzverarbeitenden Industrie. ÖGB: Gewerkschaft der Bau- u. Holzarbeiter.													
XV. Literaturangaben, Lichtbild- und Filmmaterial				Sch. u. B. Heft 29/30 „Der Tischler“. Cihlar Anton: Lehrbuch für Tischler, Dipl.-Ing. R. Bohmann-Verlag, Wien 1949. Spannagel Fritz: Der Möbelbau, Ravensburg 1936. SHB F 90 Holzfällen im Gebirge Der Herstellung von Sägen (16, 16, st), F 71 Herstellung von Sägen (16, 16, st), BF 3 Grundformen Verfasser: Dr. Wilhelm A. Bardodej. Fachliche Beratung: Direktor Anton Cihlar, Berufsschule, Wien. Dplmkfm. Kurt Koroschitz, Sekretär der Landesinnung Wien. Verantw. Red.: Dr. N. Thumb, Wien II, Rochussgasse 2.													

Institut f. Arbeitskunde u. Berufseignungsforschung Wien		Der Tischler		Berufsbild 20 (.....)	
Osterreichische Berufskartei				Ausgabe vom Februar 1951	
I. Entwicklung und Bedeutung		Alteste bildliche Darstellung von Zimmermanns- u. T.-A. in ägypt. Pyramiden. Möbelurform (Assyrer, Ägypter, Griechen): „Einbaumtruhen“ u. Truhen aus gespaltenen Pfosten („Bohlenbau“). Seit spätrömischer Zeit: Schränke mit Türen u. Fächern, Tische u. Sessel. In Rom seit 7. Jh. v. Chr. Zusammenfassung der T. in innungsartigem „collegium“. Alteste Zunftordnung Köln 1190. Im Mittelalter Sägemühle u. „Stollenbau“-Technik: durchgehende Füße („Stollen“) als Möbegerüst; Typ des gotischen Kastenschrankes. Im Mittelalter sonst meist eingebaute Schränke u. Nischen. Seit 16. Jh. Verwendung von Furnierschneidmaschinen. Blütezeit des T.-Handwerkes im 18. Jh.; Übergang zu den beweglichen Prunkmöbeln des Barocks u. Rokokos; Entwicklung der kunstfertigen Oberflächengestaltung durch Anstrich, Furnier- u. Einlagearbeiten. Besondere Bearbeitung des Ebenholzes durch die „Ebenisten“. Seit Ende des 19. Jh. teilweise Technisierung des T.-Handwerkes durch Säge-, Hobel- u. Fräsmaschinen; Serienerzeugung.			
II. Berufscharakteristik		Die eigentliche A. des T. besteht darin, daß er die Einzelteile unter Beachtung auf das A. des Holzes im zusammengefügteten Werkstück herstellt. Dazu kommen Verleimen (im Gegensatz zum Zimmermann, der nicht verleimt), Oberflächenbehandlung (Beizen, Furnieren, Polittieren u. a.). Das Arbeitsmaterial bezieht T. als Halbfabrikat: Bretter, Pfosten, „Stäffeln“ u. „Stollen“ (Balken quadratischen od. rechteckigen Querschnitts), Leisten, Sperrholzplatten, Furniere. Herstellung dieser „Schnittthölzer“ in Sägewerken aus einheimischen Holzarten: Fichte, Tanne, Lärche, Eiche, Nuß, Obstbaumarten; aus fremdländischen Holzarten: Hickory u. Schwarznuß (Nordamerika), Mahagoni (Mittelamerika, Westindien), Palisander, Rosenholz (Brasilien), Ebenholz (Südasien, Afrika). Hilfsmaterialien: Beizen, Wachse, Politturen, Lacke; Beschläge (Griffe, Türangeln, Schlösser), Tischplattenbezüge aus Stoff, Linoleum, Glas u. a. Arbeitszeugnisse: Türen, Fensterstöcke u. -rahmen, Weich- u. Hartholzboden, Wandverkleidungen, Tafelungen; Wohn-, Büromöbel (Weichholzmöbel, Hartholzmöbel = furnierte Möbel), Kisten, Sitzmöbelgestelle, Billardtische, Drehstühle, Särge, Altäre, Leitern, Kassetten, Rahmen, Galanterie- u. Spielwaren, Radiokästchen, Jalousien, Werkzeuge usw. In Ö. vorwiegend Gew., wenig Ind. (Möbelfabriken) mit weitgehender A.-Spezialisierung. Auf dem Lande darf T. auch alle für die Fertigstellung seiner Produkte notwendigen Glaser-, Anstreicher- u. Bauschlosserarbeiten durchführen, nicht so in den Städten, wo überdies weitgehende Spezialisierung: Bau-, Möbel-, Kunststichler, „Antiquitätentischler“ für Reparatur u. Neufertigung von Stilmöbeln, innerhalb dieser Hauptgruppen: Weichholz-, Hartholz-, Sitz-, Küchen-, Büro-, Bambusmöbel; Portal-, Parkett-, Stiegentischler, Bauanschläger; Rahmen-, Kassetten-, Kisten-, Koffer-, Eiskasten-, Leiter-, Sargtischler u. a. Diese weitgehende Spezialisierung oft zum Nachteil der Lehrlingsausbildung.			
III. Arbeitsbeschreibung		Lagerung des Holzmaterials: Frisch geliefertes Holz muß vor Verarbeitung 2 bis 6 Jahre trocknen. Pflege des Holzlagers erste Voraussetzung für Güte des Erzeugnisses. Stapeln auf quergelegten Leisten („Spaneln“) um Verziehen beim Trocknen zu verhindern; sonst Materialverluste durch Risse, Quellen, Werfen, bedingt durch unterschiedliches Schrumpfen des Holzes in seinen verschiedenen Richtungen: Längsfaser 0,1%, im Querschnitt längs der Jahresringe 10 bis 12%. Allgemeiner A.-vorgang: Nach Entwurf Herstellung der Werkstattzeichnung (1:1), Auswahl des Holzes, Zuschneiden u. Verbinden der Teile, ev. Oberflächenbehandlung u. Beschläge. Arbeit im allgemeinen in der Werkstatt, manche Reparaturen u. viele Bautischler-A. auswärts. Zeichnung: T. soll „Entwurfsskizze“ (perspektivisch) freihändig zeichnen können, die er dann in „Maßstabskizze“ (1:10) überträgt (diese oft von Möbelzeichner od. Innenarchitekten bezogen), die aus Grund-, Auf- u. Kreuzriß besteht. Für Werkstattarbeit darnach die „Werkstattzeichnung“ auf Packpapier (1:1), Grund- u. Kreuzrisse in verschiedenen Farben in Aufriß hineingezeichnet. Herstellen und Lesen der Skizzen erfordern gutes räumliches Vorstellungsvermögen. Auswahl des Holzes für Einzelteile unter Beachtung auf Beanspruchung, Arbeiten des Holzes u. Sichtbarkeit, sowie geringsten „Verschnitt“. Genaues Berechnen u. Durchdenken der Gesamtkonstruktion erforderlich. Zuschneiden der Bretter u. Pfosten nach Maß für gerade Schnitte mit Kreissäge, Pendelsäge; für geschwungene Schnitte mit Bandsäge. Mit Handsäge auf Hobelbank (2 bis 3 m lange, pfostendicke Hartholztischplatte mit Vorrichtung zum Festklemmen der Bretter in verschiedenen Lagen, gebaut für Rechtshänder). Hobeln der Bretter an unterer Auflagefläche mit „Abricht-			

hobelmaschine" (in der Mitte einer langen zteiligen, eisernen Tischplatte eine sehr rasch rotierende Messerwelle, Einstellen der Spannweite durch Tiefstellen der vorderen Platte), indem auf Tischplatte aufliegendes Brett über Messerwelle geschoben wird (Gefahr der Handverletzung!), oder Hobeln auf erforderliche Dicke mit „Dicktenhobelmaschine“ (durchlaufende Tischfläche, rotierende Messerwelle bearbeitet nur obere Fläche, Riffelwalzen zum Einziehen u. Niederdrücken des Holzes, Einstellung auf Brettdicke durch Heben od. Senken des Tisches mit Handrad; rotierende Teile verschalt). Hobeln von Hand an Hobelbank nur von re. Körperseite her, typisch schwingende Bewegung mit Federung im li. Kniegelenk, mit Verwendung verschiedener Hobeltypen: ebene Flächen mit Schrupp-, Schlitt-, Putzhobel u. der langen „Rauhbank“; für Nuten u. Hohlkehlen: Nut-, Grat-, Kehl- u. Rundstabhobel. Beachten der Holzstruktur beim Hobeln, sonst Ausreißen des Holzes. Fräsen mit Fräsmaschine (Tischplatte mit senkrecht herausragender, sehr rasch rotierender Spindel, in deren Schlitz verschiedene Messer eingespannt werden können). Durch Vorbeiführen des Breites an rotierendem Messer Herausschneiden der entsprechenden Profile: Kehlformen, Nuten, Falze, Abplattungen, Schlitz- u. Zapfenschnitten; Anschlagleiste unterstützt Führung des Holzes u. verhindert zu tiefes Eindringen des Messers; A. im Stehen vorgebeugt, beide Hände halten u. führen Holzstück. Konzentration u. Vorsicht unbedingt erforderlich. Bohren mit verschiedenen Handbohrern, Brustleier (Zentrumsbohrer) od. Bohrmaschine. Langlochbohren mit Maschine (oft kombiniert mit Abrichthobel- u. Fräsmaschine): zuerst Bohren eines Loches u. dann Bewegen des Holzes quer zum feststehenden, rotierenden Bohrer. Herstellung der Holzverbindungen (elementare A. des T.): Die Formen der Verbindungsstellen müssen präzise u. nach bestimmten Regeln herausgearbeitet werden. Zuerst genaues Anzeichnen („Anreißen“), dann Herausarbeiten mit Fräsmaschine od. von Hand mit Säge u. Stemmeisen, dann Verleimen. Am schwierigsten ineinandergreifende Verzahnungen („Zinken“). Handgeschick, Genauigkeit u. Vorstellungsvermögen! Zusammenbau: Bereitstellen aller Werkstücke in richtiger Reihenfolge u. Lage; rasches u. geschicktes Auftragen des Leimes in gewärmtem Raum, da sonst Überziehen des Leimes mit feiner Haut. Leim muß in Poren des Holzes eindringen; je nach Holzart (Porengröße) verschiedene Leimkonzentration. Pressen der geleimten Flächen in Holzwinden od. Schraubstöcken bis zur vollständigen Trocknung. Oberflächenbehandlung (zur Verschönerung des Produktes): Zuerst Ausfüllen von Astlöchern, Rissen u. a. durch Kitteln u. Verleimen. Glätten der Holzfläche mit scharfem Putzhobel, Schleifen mit Glaspapier in Richtung der Holzfasern. Beizen: Färben durch wasser-, spiritus- od. terpentinlösliche Beizen (Farben mit Pinsel). Zusammensetzen bestimmter Farbtonungen erfordert Erfahrung. Polieren: Auftragen von Schellack, in Spiritus gelöst, in drei aufeinanderfolgenden Gängen: Grundieren, Nachpolieren u. Auspolieren zur Erzielung eines Hochglanzes; staubfreier Raum mit gleichmäßiger Wärme erforderlich. Langwierige u. Geduld erfordernde, den ganzen Körper beanspruchende A. mit charakteristischen Druckbewegungen der Hand in 8er Schleifen. Furnieren: Auf Weichholzmöbel werden dünne Hartholzplatten aufgeleimt, um dem „Arbeiten“ des Holzes entgegenzuwirken u. sie zu verschönern. Einseitiges Furnieren mit stärkeren „Sägeschnittplatten“, zweiseitiges Furnieren mit doppelter Lage dünner Messerschnittblätter („Blindfurnier-“ und Edelfurnierlage): dabei Beachten des Holzfaserverlaufes im Weichholz („Blindholz“) u. der Furniere. Bei komplizierterer Zusammensetzung der Oberflächenfurnierung (Einlegearbeiten) werden Einzelteile mit Messer nach genauer Zeichnung geschnitten u. auf vorgezeichnetes Papier aufgeklebt, ebenso die einzelnen Teile größerer Furnierflächen mit Streifen zusammengeklebt, um als ganze Furnierplatte rasch auf Blindfurnier aufgelegt werden zu können. Rasches u. gewissenhaftes A. erforderlich. Einspannen der furnierten Platten mit eingefettetem Papier, Zwischenlagen u. Gegenbrettern („Zulagen“) zum gleichmäßigen Niederdrücken der Furniere in Zwingen od. Leimböcken; bei geschweiften Flächen Verwendung von selbst hergestellten Zulageformen. Anlegen der Drehpunkte (Türen): Drehpunktmitteilung nach bestimmten Regeln (Vorstellungsgabe u. Gewissenhaftigkeit!). Der Bau-T. stellt meistens Serienprodukte her, benötigt keine eigene Maßstab- od. Werkstattzeichnung, reißt in der Regel auf Brettern aut. Holzbearbeitung fast nur maschinell, Holzverbindungen mehr durch Schlitzeln, Oberflächenbehandlung fällt weg, Umgang mit schwereren Werkstücken u. A. auf Montage verlangt kräftige Konstitution. Im Verhältnis zu Möbel-T. mehr grobe u. einfache Holzbearbeitung. Kunst-T.: Zu den Anforderungen des Möbel-T. kommt noch die Herstellung u. Furnierung geschweifter Oberflächen. Antiquitäten-T. benötigt Kenntnis der verschiedenen Stile u. ihrer Bauweisen. Abgrenzung gegen verwandte Berufe: Der Modell-T., LB. 3½ Lj., stellt Holzformen für das Gießen metallener Maschinenteile her. Der Zusammenbau dieser zum Werkstück negativen Holzformen verlangt zusätzlich Maschinenkenntnisse u. Beherrschung einfacher Drechslerarbeiten. Teilverwandtschaft des T. mit Wagner in bezug auf Schi-Erzeugung, praktisch von T. u. Wagner ausgeführt.

IV. Körperliche Beanspruchung

1. Unbedingt erforderlich:

2. —
 I. 11 (Holzbearbeitung von Hand, Dauerarbeit an Maschinen), sonst 12, 14—17 (je nach Größe des Werkstückes), 18 (Bau-T.)
 II. 22, 23 (Bau-T.), 261 (Maschinen-A., Polieren), 262 (Fußbodenleger), 28, 290 (Bau-T.), 291 (Maschinen, Bau-T.)
 III. 300, 303, 310, 313, 320, 323, 330, 333, 340, 343, 346 (ev. 4 Finger), 350, 353, 357 (ev. 3. od. 4. Finger), 361, 362, 363, 364, 365, 366, 371, 372, 373, 374, 375, 38, 39 (an Hobelbank).
 IV. 41, 43 (Maschinen, Zusammenbau), 44 (Fräsen, Bandsäge), 460, (bei Maschinen u. Montage), sonst 461 od. 462, 480 (Zeichnung, Oberflächenbehandlung, Beizen).
 V. 50 (Maschinen), 51, 54, 55, 58.
 VI. 62, 63 (Beizen, Gifthölzer, Schwefelsäure, Chromkali).
 VII. 70 (bei Leimen u. Furnieren, sofern dafür eigener Raum), 753 (Holzstaub bei Edelhölzern, Bimsstein, Glaspapier), 76 (Nitrolacke, Spiritus).
 VIII. 80, 84, 85, 86, 89 (Hobel-, Fräsmaschinen).
 IX. 90

2. Ausschließend: Herzleiden, Lungenleiden (bes. bei Beizen u. Polieren), insbesondere Anlage zu TBC, Anlage zu Schwindelanfällen u. Epilepsie (Maschinen!), Bruchleiden, Wirbelsäuleverkrümmungen 2. u. 3. Grades, Anlage zu starkem Senk-, Plattfuß od. Krampfadern, Versteifung des li. Beines, chronische Hautkrankheiten, nicht ausgleichende Kurz- od. Weitsichtigkeit, Taubheit.
 3. Förderlich: Kräftige Konstitution für Dauerleistungen (bes. Bau-T.), Farbentüchtigkeit (Oberflächenbehandlung).
 4. Nicht ausschließend: Fehlen einzelner Finger (3. oder 4., soweit nicht Größensicherheit ausgeschlossen), leichte Knieversteifung, leichte Schwerhörigkeit, Einäugigkeit (jedoch sehr gefährdend bei Maschinen u. Montage), leichte Farbunsicherheit.
 5. Gesundheitliche Gefährdung: Reizung der Atmungsorgane u. der Haut durch Staub u. chem. Dämpfe. Augenreizungen (einige Beizen, Polieren u. ev. Spritzen von Nitrolacken), Unfallgefährdung durch Hobel- u. Fräsmaschinen, Rückgratverkrümmungen bei Möbel-T. heute selten (früher bedingt durch andauerndes „Faustschneiden“ = Längenschnitten von Hand, heute Maschinen-A.).
 6. Berufskrankheiten: Krampfadern, Asthma, bei Allergie Hautkrankheiten.
 7. Prophylaxe: Vorgeschriebene Schutzvorrichtungen an Maschinen, Spanabsaugvorrichtungen, Exhaustoren für chem. Dämpfe (Nitrolacke), Gewöhnung an gerade Haltung bei Hobeln, Sägen u. Polieren.

V. Psychische Anforderungen

Funktion	Funktionsprofil:						
	1	2	3	4	5		
Allgemeine Intelligenz							
Formauffassen							
Räumliche Vorstellung							
Techn. prakt. Verständnis							
Grundbedingung für T.-B. ist Vorliebe zum Konstruieren u. Zusammenfügen der in handfestem Zupacken hergestellten Einzelteile, verbunden mit Einfühlung in Eigenart des Holzmaterials. Gute räumliche Vorstellung, planmäßiges Durchdenken des gesamten A.-ablaufes im voraus sowie Einteilung u. Berechnung des Materials und der konstruktiven Einzelheiten (z. B. Zinken), sind erforderlich. Präzises u. sauberes A. Sowohl die Gedanken-A. als auch die Maschinen-A. schließen Fähigkeit aus, so daß sich zum T. am besten ein ruhiger u. überlegender Charakter eignet. Oberflächenbehandlung erfordert Geduld und Ausdauer. Ästhetischer Formen- und Farbensinn förderlich. Beim Bau-T. tritt die kräftige Hand-A. mehr in den Vordergrund; während beim Möbel-T. die körperliche Beanspruchung einseitiger ist, wird der Bau-T. bei der Montage körperlich vielseitig beansprucht. Beim Kasseltent-T. ist körperliche Beanspruchung leichter, aber die Ausführung empfindlicher; Intarsienschneider benötigt dazu noch zeichnerisches Geschick für geschmackvollen Entwurf seiner Einlegearbeiten sowie ruhige u. sichere Hand.	Handarbeit	Fingerfertigkeit					
		Gestaltendes Handgeschick	grob				
			fein				
		Beweg.-Koord. beider Hände					
		sichere, ruhige Hand					
		Arbeitstempo					
Arbeitsweise	Arbeitsorgfalt						
	Aufmerksamkeit	eng — weit					
		ruhig — fähig					
	Schnelle Reaktion						
Selbständiges Arbeiten							
Einzel- — Gruppenarbeit							

VI. Kenntnisse und Fertigkeiten

1. Erforderlich: Materialkenntnisse (Holzarten, Lagerung, Eigenheiten des Holzes), Skizzenlesen, Hobeln von Hand u. maschinell, Herstellen der Holzverbindungen, Leimen, Oberflächenbehandlung (Beizen, Polieren, Furnieren), Instandhaltung der Werkzeuge, Möbelkonstruktionen (Rahmen-, Vollbau), Kenntnis der Beschläge.
 2. Erwünscht: Zeichnerische Fertigkeit, konstruktives Zeichnen, Intarsienlegen, Holzdrechslerarbeiten (bes. auf dem Lande), Kenntnis der verschiedenen Hilfsmaterialien für Oberflächenbehandlung, Möbelbespannungen (Stoffe, Linoleum) u. Verglasungen.



8.3.3 Tailoring

8.3.3.1 Clothing Designer – 2015

Source 1: © ibw Austria – Research & Development in VET – www.bic.at, 9 Nov. 2015; Clothing Design (modularised apprenticeable trade)
Apprenticeship: 3 or 3 1/2 years
Other name(s): formerly Ladies' Clothing Maker, Men's Clothing Maker, Hat Maker, Cap Maker, Furrier, Milliner, Bag Maker (Leather Clothing Producer), Washables Producer

Job Description

When it comes to fashion, clothing designers are always up to date. No matter whether it's trousers, skirts, blouses, or coats – they produce all types of clothing. Including underwear, hats, and various fur and leather clothing articles from A to Z. They take customers' measurements, draw patterns, calculate the amounts of fabric and other materials needed, cut the pieces, and baste and sew them. They work with materials of all kinds (e.g. wool, silk, linen, leather, felt, and furs). They also carry out alterations and repairs as well as advise customers. Clothing designers find employment in workshops and studios of textiles-related businesses (e.g. at custom tailors' and alteration shops) and in textile industry production facilities. They engage in contact with their customers, with colleagues in the field, and with various specialists from the areas of design, production, sales, etc.

Modules and Combinations

Training for the modularised apprenticeable trade of Clothing Design encompasses an obligatory two-year basic module in Clothing Design plus one year of specialised training in one of the following main modules:

- Ladieswear
- Menswear
- Clothes Production [washables including clothing, underwear, and household linens]
- Millinery and Hat Making
- Furriery and Bag Making

Additionally, one can choose to complete a further half year of training in a second main module or one of the following special modules:

- Clothing Design
- Theatre Costumes
- Clothing Technology

Apprenticeship:

- 3 years: basic module + one main module
- 3.5 years: basic module + one main module + one special module
- 3.5 years: basic module + two main modules

Possible combinations:

The main modules “Milliner and Hat Maker” and “Furrier and Bag Maker” cannot be combined with the special module “Clothing Technology”. All other combinations are possible.

Scope of Work and Activity

Depending on the main focus of their training, clothing designers make women’s or men’s outer clothing of all types; hats and other head coverings; clothes, underwear, and (table and bed) linens; theatre costumes; functional clothing; etc. as custom-tailored items or in series (ready-to-wear), and they also carry out alterations and repairs on such output. They produce dresses, suits, skirts, blouses, trousers, jackets, ladies’ suits, pantsuits, evening gowns and ball dresses, coats, clothing for the stage, hats, caps, etc.

At small and medium-sized clothing businesses, clothing designers select fabrics and materials from which they custom-produce articles of clothing, hats, and accessories. They do so according either to their own designs and patterns or to predetermined designs. They also advise customers and take their measurements as well as alter and repair customers’ clothing. Furthermore, they fulfil specific customer requests for pieces such as traditional *Tracht* clothing, fur and leather clothing, hats, and theatre costumes. They typically engage in every aspect of this occupation and produce pieces of clothing on their own from the initial design to the final product.

In the industrial production of collections, they produce items in large numbers according to ready-made patterns in various sizes (in conformance with international clothing size standards).

In this context, clothing designers coordinate the entire working process, monitor the parts of the production process assigned to them, produce the sample garments (tailor for sample garments), and make patterns. Model garment development, pattern development, and cutting are done at the computer using a CAD system.

Information on the tasks performed in the main areas of work covered by the modular apprenticeable trade of Clothing Design can also be found in the information on the trades it has replaced:

- Ladies' Clothing Maker
- Men's Clothing Maker
- Washables Producer
- Hat Maker
- Cap Maker
- Milliner
- Furrier
- Bag Maker (Leather Clothing Producer)

Working Materials

Clothing designers work with all kinds of materials and fabrics such as wool, cotton, linen, silk, synthetic fibres, leather, furs, elastic, ribbons, lining materials, yarns, stitching silk, buttons, zippers, etc. And in the production of hats, caps, and other head coverings, they also use felt blanks, straw, and various leathers. In doing so, they employ forms and blocks made of wood, metal, or plastic as well as felting and fulling machines. Clothing designers use tools including pins and needles, scissors, tailor's chalk and measuring tape, and knives, and they work on sewing machines and automated sewing machines as well as quilting, overlock, seaming, and buttonhole sewing machines, cutting and die-cutting machines, and steamers and irons. Clothing designers read patterns as well as make their own patterns. To do so, they use computers and computer-aided design (CAD) software.

Work Environment/Job Locations

Clothing designers work independently in small workshops and studios as well as in the workshops and factories of medium-sized and large textile companies. They also work in the alteration shops of large clothing retailers. Depending on the nature and size of the business, clothing production is done alone or as part of a team with similarly trained colleagues as well as other specialised and semiskilled clothing production workers—see, for example, the occupations of “Clothing Producer” (apprenticeable trade),

“Textile Technology” (apprenticeable trade), “Textile Technician”, “Textile Designer”, and “Fashion Designer”.

At small and medium-sized custom tailoring businesses, clothing designers engage in contact with their customers in order to advise them, personally take their measurements, and conduct fittings; they also have contact with members of the sales staff at clothing retailers and at fabric and sewing supply businesses.

The Most Important Activities and Responsibilities at a Glance

Makers of ladieswear and menswear:

- advise customers with regard to the patterns, fabrics, and workmanship of articles of clothing and accessories
- take customers' measurements and produce individual patterns and designs
- cut individual parts (front, back, sleeves, pockets, etc.)
- overlock edges
- baste together individual parts
- inspect the fit of pieces of clothing and make changes (1st fitting)
- join and sew together pieces with a sewing machine (including sleeves, pockets, collars, and other parts)
- cut and sew in linings
- attach buttons, zippers, and other accessories by hand or using special machines
- iron the piece of clothing following the 2nd fitting

Hat makers and milliners:

- stiffen ready-made felt blanks by dipping them in a stiffening solution (dressing)
- wring out excess solution by hand or with a wringing machine
- mount felt blanks on wooden or metal hat blocks
- treat felt blanks with steam to allow them to be more easily formed
- shape the crown, apply a shaping band to the place where the crown transitions to the brim, shape the brim
- sew on the inner band
- apply ornaments to the hat (ribbons, veil, tulle, feathers, etc.)
- carry out various surface treatments such as “singeing” (removal of rougher felt fibres by swiftly moving the hat over a gas or alcohol flame) and rubbing the surface with sandpaper and polishing paper
- apply various ointments (e.g. laurel oil and poplar salve) to improve lustre
- brush and shine hats with sponges and ironing cloths.

Furriers and bag makers:

- advise customers on models and types of leather and fur, take measurements, and prepare patterns
- design sample garments and calculate needed amounts of material
- cut furs and leather according to patterns and sample piece, making the most advantageous possible use of the material
- cut out defective areas of fur with a furrier's knife (utility knife)
- tack together the individual pieces, conduct fittings, make alterations
- sew together the pieces at the sewing machine, conduct new fitting
- sew together individual pieces for the torso, sleeves, and collar
- clean, moisten, and stretch pieces of fur on the stretching table; mark contours
- apply and sew in canvas and linings, cotton edge tape, etc.
- apply and sew on pockets, buttons, and ornamental seems or embroidery
- finish individual parts, conduct fitting with the customer to inspect length and cut, and make corrections

Clothes producers:

- lay out fabrics in multiple layers, cut them using cutting machines, die-cutting machines, and/or automated die-cutting machines (monitor cutting systems) – prepare production
- select sewing needles, thread sewing needles, set stitch lengths (entering the criteria on the keyboards of multifunctional and single-function automated machines and systems) – prepare production
- sew together fabric parts at sewing machines and/or automatic sewing systems (monitoring sewing machines, automatic sewing machines, and sewing systems) – parts production and/or finishing
- add buttonholes and buttons by inserting the corresponding fabric parts into automatic buttonhole machines – finishing
- work in ornamental patterns and embroidery by placing the parts in the appropriate machines and/or entering the criteria on the keyboards – finishing
- carry out quality control functions

Enterprises and Institutions

- artisanal clothing businesses (custom tailors and alteration shops, *Tracht* tailor's shops, custom tailor's shops, etc.)
- small artisanal hat-making and millinery businesses
- textile industry (production of ready-to-wear clothing) (rare)
- artisanal furriery businesses

- artisanal leather clothing production businesses
- medium-sized and large businesses in the leather clothing industry
- clothing and textile merchandisers, specialty hat retailers
- raised fabric and fur merchandisers

Requirements

Every profession requires *highly specialised knowledge and skills* that are acquired during training. But there are also many requirements that are important in practically all professions. These include: *reliability, honesty, and punctuality, the ability to work exactly, carefully, and independently, enthusiasm, and a sense of responsibility*. What's more, the *ability and willingness to work with others (teamwork)* and the *willingness to learn* have also become virtually indispensable today.

The specific abilities and qualities expected in *this profession* can vary widely from one workplace to another. The following list provides a summary of other requirements that are frequently specified.

Note that many of these are included in the apprenticeship training.

Physical Requirements

- eye-hand coordination
- manual dexterity

Professional Skills

- sense of colour
- creative ability
- good sense of proportion
- good manual dexterity
- good powers of concentration
- organisational skills
- good spatial visualisation ability
- a systematic way of working

Social Skills

- open-mindedness
- communication skills
- ability to deal with criticism
- customer focus

Personal Skills

- persistence
- flexibility
- creativity
- fashion-consciousness
- self-trust/self-assurance

Other Requirements

- well-groomed appearance

Alternatives/Specialisation

Replacement of Final Apprenticeship Examinations

A successfully completed final examination for the apprenticeable trade of Clothing Design replaces the final examination for the apprenticeable trade of Clothing Producer.

Related Apprenticeable Trades

Credit for the training received in one apprenticeship program for a skilled trade may be applied to the requirements for an apprenticeship in another (related) trade. This shortens the apprenticeship period for those learning an additional skilled trade (or switching to a related trade).

Having passed the examination for the following related skilled trades shortens the apprenticeship by the stated number of years. (Example: the note “1st full” means that the apprenticeship in the related skilled trade is shortened by one full year.)

- Clothing producer (apprenticeable trade), “1st, 2nd full”

Apprenticeship and Qualification for Higher Education

Successfully completing an apprenticeship programme and four additional examinations is the equivalent of passing a university entrance exam. This opens the way for study at a university or a specialised institution of higher learning. What’s more, it opens up additional career opportunities within the chosen profession and outside it as well.

This is how it works: in addition to the completed apprenticeship, four other examinations are required: German (written and oral), mathematics (written), a modern language (written or oral), and a specialised field (written exam or project and an oral exam). The specialised field is chosen from content relating to the candidate’s occupation.

What is the Preparatory Process?

Preparatory courses ready candidates for the university entrance exam. They are offered by institutions that provide continuing education (e.g., WIFI Education Centres, the BFI Vocational Training Institute, adult education centres), vocational schools, and upper secondary schools (e.g., schools of general education, commercial schools, polytechnic schools, business schools). These institutions can also administer the various examinations. Three of the four exams can be taken during one's apprenticeship.

The last of the four exams can be taken following completion of the apprenticeship but not before one's 19th birthday. Since September 2008, a funding programme has made the preparatory courses and examinations available free of charge throughout Austria. Various models for courses to prepare for the university entrance exam exist in the individual Austrian provinces. Information is provided by educational institutions and by the apprenticeship offices of the Economic Chambers.

Independence

Regulated businesses/trades:

- Trade of Ladies' Clothing Maker, BGBl. II No. 38/2003 (amendment to Art. 8, BGBl. II No. 399/2008)
- Trade of Men's Clothing Maker, BGBl. II No. 38/2003 (amendment to Art. 8, BGBl. II No. 399/2008)
- Trade of Furrier and Bag Maker (Production of Leather Clothing), BGBl. II No. 65/2003 (amendment to Art. 28, BGBl. II No. 399/2008)
- Trade of Clothes Producer, BGBl. II No. 38/2003 (amendment to Art. 8, BGBl. II No. 399/2008)

In order to practise a regulated trade, an applicant must meet the general conditions and be in possession of the qualification certificates specified in the indicated editions of the Federal Law Gazette (BGBl.).

Limited qualification certificate:

- Alteration Tailoring

Information concerning limited qualification certificates:

Lesser qualifications are required to run a business of one's own that engages in the activities specified by a limited qualification certificate in a regulated trade (e.g., final apprenticeship examination and/or a certain period of practical experience but no master's certificate).

The 2002 amendment to the Trade Regulation Act enhanced the status of those with limited qualification certificates. There has since then been no limit on the number of individuals they may employ, and apprenticeship training may also be offered.

Free trades:

- Milliners and Hat Makers
- Cap Makers
- Design of Ladies' and Men's Outer Clothing

Information concerning “free trades”: free trades generally require no certificate or licence but must be registered with the competent trade authority. The scope of the trade is defined in the respective application.

Source 2: AMS Careers Lexicon – www.berufslexikon.at – 9 Nov. 2015; Clothing Designer

Apprenticeship: 3 years. If an additional special or main module is included: 3.5 years.

Note: since 1 July 2010, this apprenticeable trade has replaced the former apprenticeable trades Ladies' Clothing Maker, Men's Clothing maker, Hat maker, Cap maker, Furrier, Milliner, Bag maker (Leather Clothing Producer) and Clothes Producer.

Training in this apprenticeable trade consists of a basic module (duration: 2 years) and at least one of the following main modules (duration: 1 year):

- Ladieswear
- Menswear
- Clothes Production [washables including clothing, underwear, and household linens]
- Millinery and Hat Making
- Furriery and Bag Making

In addition, learners can also complete either a further main module (duration: 1/2 year) or one of the following special modules (duration: 1/2 year), in which case the apprenticeship lasts 3.5 years:

- Clothing Design
- Theatre Costumes
- Clothing Technology

All main modules can be combined with each other or with a special module. For combinations with the special modules, the following limitation applies: the main modules “Millinery and Hat Making” and “Furriery and Bag Making” may NOT be combined with the special module “Clothing Technology”.

Job Characteristics

In the applicable regulations on training (Ausbildungsordnung, BGBl. II. No. 191/2010), the following contents (occupational profile) are specified for the five main modules (Ladieswear, Menswear, Millinery and Hat Making, Furriery and Bag Making, Clothes Production) and the three special modules (Clothing Design, Theatre Costumes, Clothing Technology):

Main module “Ladieswear”:

1. Selection of materials based on the job at hand
2. Taking customers’ measurements, production of sketches and patterns
3. Cutting various materials and sewing pieces of clothing
4. Shaping pieces of clothing, such as by ironing and steaming
5. Altering, repairing, correcting, and modernising women’s clothing
6. Production of women’s clothing such as dresses, formal attire, and suits, as well as jackets and coats
7. Advising customers with regard to models, patterns and styles, colours, and fabrics

Main module “Menswear”:

1. Selection of materials based on the job at hand
2. Taking customers’ measurements, production of sketches and patterns
3. Cutting various materials and sewing pieces of clothing
4. Shaping pieces of clothing, such as by ironing and steaming
5. Altering, repairing, correcting, and modernising men’s clothing
6. Production of men’s clothing such as blazers, suits, and formal attire, as well as jackets and coats
7. Advising customers with regard to models, patterns and styles, colours, and fabrics

Main module “Clothes Production”:

1. Selection of materials based on the job at hand
2. Taking customers’ measurements, production of sketches and patterns
3. Cutting various materials for and sewing clothing, underwear, and linens
4. Shaping pieces of clothing, such as by ironing and steaming
5. Altering, repairing, correcting, and modernising clothing, underwear, and linens
6. Production of items such as washable clothing for women, men, and children, including men’s shirts, women’s blouses, and clothing for children and infants; sports, leisure, and work clothing; table and bed linens; at-home garments, underwear, etc.
7. Advising customers with regard to models, patterns and styles, colours, and fabrics

Main module “Millinery and Hat Making”:

1. Selection of materials based on the job at hand
2. Taking customers’ measurements, production of sketches and patterns
3. Cutting various materials and sewing together the cut pieces
4. Finishing of head coverings such as by ironing them into shape
5. Altering, repairing, correcting, and modernising head coverings
6. Production of head coverings such as hats and caps of all types
7. Advising customers with regard to models, patterns and styles, colours, and materials

Main module “Furriery and Bag Making”:

1. Selection of materials based on the job at hand
2. Taking customers’ measurements, production of sketches and patterns
3. Sorting and preparation of furs/hides
4. Cutting furs and other materials and sewing the piece of clothing
5. Shaping pieces of clothing, such as by stretching and steaming
6. Altering, repairing, correcting, and modernising fur clothing
7. Advising customers with regard to types of fur, wearing characteristics, durability, and care

Special module “Clothing Design”:

1. Planning, designing, and creation of sample garments and collections
2. Selection and combination of fabrics and accessories
3. Calculations relating to factors such as materials and work-hours needed to create sample garments and/or collections

4. Creation of sample garments
5. Carrying out fittings of and corrections on the individual samples

Special module “Theatre Costumes”:

1. Creation of costume sketches with details such as closures, ornaments, accessories
2. Selection of materials in collaboration with the costume designer
3. Production and/or alteration of costumes and/or head coverings and accessories
4. Maintenance, mending, and cleaning of costumes and/or head coverings and accessories
5. Helping performers on costume-related issues

Special module “Clothing Technology”:

1. Participation in a business’s production management
2. Documentation of the processes involved in a business’s clothing production
3. Employment of methods to evaluate and improve processes as well as continually improve quality in clothing production
4. Collection, analysis, and evaluation of operational data as well as implementation of any necessary corrective measures
5. Implementation of a business’s quality management system

Requirements

- Manual dexterity: cutting, sewing (by hand and by machine), ironing, manual shaping
- Nimble fingers: threading of needles, sewing by hand
- Tactile sensitivity: inspection and selection of materials (fabrics, leathers, furs)
- Eye-hand coordination: cutting, threading, sewing (by hand and by machine), ironing
- Good eyesight: drawing of designs and patterns, cutting, inspection and selection of materials, shaping, final inspection
- Non-sensitive skin: working with synthetic materials, impregnated fabrics, leathers, and furs; working with dressings and cleaning agents
- Good spatial visualisation ability: creation of sketches/designs and patterns; working according to sewing patterns
- Social skills: customer advising, sales
- Creative ability: creation of designs & garments, selection of fabrics and suitable accessories
- Physical endurance: piecework in collection production (above all at industrial businesses)

Employment Opportunities

Clothing designers work at artisanal clothing businesses or in the garment industry. There is also a small number of employment opportunities at major theatres (in their costume tailoring workshops). The artisanal enterprises where clothing designers work are typically small to medium-sized businesses such as custom and alteration tailoring shops for ladieswear and menswear, producers of washables including underwear and linens, furriers, women's and men's hat-making businesses, etc. The smaller businesses in the trade frequently include a shop that sells items produced in-house and/or by other producers, in which case alterations and repairs often represent a mainstay of their business activities. Artisanal businesses that produce expensive, high-quality items (e.g., exclusive fashion, custom-tailored clothing) have become something of a rarity.

The garment industry is characterised by a high share of semiskilled workers; skilled workers are employed mainly for coordinating and inspection activities and therefore only have career opportunities here if they can demonstrate good knowledge of industrial production, technical knowledge, and computer skills. Further areas where skilled tradespeople are employed in the garment industry include those of design/pattern construction and/or sample garment production as well as pre-production.

Career prospects in clothing production are generally not all that good, since the clothing market is dominated by ready-to-wear clothing and cheap imports from low-wage countries, which has led to a continual decrease in the number of domestic jobs.

This apprenticeable trade is practised overwhelmingly by women. Men seldom work in clothing design, even though this occupation is equally suitable for men and for women.

Advanced Training

Professional development courses for clothing designers are offered by WIFI Education Centres, the BFI Vocational Training Institute, and the provincial-level guilds for fashion and clothing technology. The most important professional development topics are fashion drawing, pattern design, pattern construction, and preparatory courses for the master's examination. Furthermore, it is important for those in this occupation to always keep current on new international fashion industry developments, which can be done by visiting textile trade fairs and fashion shows as well as through the regular study of specialist publications.

Additional educational opportunities to complete further courses of training and/or attain higher qualifications for those who have completed this apprenticeship:

- Master School for Ladies' Clothing Makers
- Training Focus "Stage Costumes" (1 year, Vienna, 16th district)
- Master School for Ladies' Clothing Makers
- Training Focus "Haute Couture" (1 year, Vienna, 16th district)
- Master Class for Ladies' Clothing Makers (1 year, Linz)

Advancement and Independence

Clothing designers can advance to become masters, pattern makers, cutters, workshop heads, and sample tailors. And at industrial businesses in particular, one can advance to the following positions: assembly line manager, work planner, inspector, department head.

Clothing designers can become self-employed (as business owners, leaseholders, or general managers) in the trades of "Ladies' Clothing Maker", "Men's Clothing Maker", "Bag Maker (Leather Clothing Production)", or "Clothes Production" (prerequisite: master's examination). Furthermore, clothing designers can operate independently in the following area on the basis of a limited qualification certificate (prerequisite: apprenticeship examination): "Alteration Tailoring". Those who have completed the main module "Millinery and Hat Making" can operate independently in the trades "Milliner and Hat Maker" as well as "Cap Maker", since these are categorised as "free trades" (no qualification certificate necessary!). Graduates of the main module "Furriery and Bag Making" can operate independently in the trade of "Furrier" (prerequisite: master's certificate).

8.3.3.2 The Men's Tailor – 1953

Source: Index of Austrian Professions, 1950–1965
Men's Tailor (from the July 1953 edition)

Development and Significance

General development of clothing from the loincloth (looped around the body, then belted), wrapped garments, draped garments, capes, tunics without and with arms (sack dress), skirts, trousers (legwear) made of animal fur, textiles, and leather. In Egypt and Crete, the art of weaving and tailoring was already quite highly developed by 1,800 BC,

as it also was in the Inca Empire, Peru, and India. In Central Europe, clothing was originally made from animal hides (tied or tacked together with sinew), then from variously shaped pieces of woven linen or wool that were wrapped and tied around the body. 10th century: some formalised liveries, but common clothing still the same for men and for women; shirt (*hemdl*) and skirt (*bliaud*) woven or simply cut (straight or semi-circular) and sewn only at the shoulders and on the sides, if at all. From the 12th century: shaping of clothing by cutting various pieces and sewing them together. Advent of tight trousers for men, while women's clothing becomes narrower at the waist. 13th century: regulations on clothing (certain lengths, shapes, and colours forbidden; obligatory types of attire for prostitutes, Jews, executioners, heretics, jesters, etc.). End of the 13th century: rise of the guilds; production of men's and women's clothing (including embroidery) now done by men (masters, journeymen, apprentices), women involved only here and there as helpers. 14th century: the word *Knecht* [servant] is replaced by *Geselle* [journeyman] to describe finished apprentices. Clothing now alternates between emphases on various parts of the body (shoulder and side pads, lacing, various different fabrics, embroidery work); genesis of fashion. French and Viennese urban tailors set the tone. 15th century: clothing slit at joints (revolt against confinement); 16th century: stiff clothing (see present-day official attire). 1602: Guild of Viennese "Breech and Court Tailors" (*Leibhosen und Hofschneider*) receives the first set of dedicated trade regulations: differentiation from the "Clothing Tailors" (*Gewandschneider*), who were prohibited from doing custom work and only allowed to make to stock.

1664: ready-to-wear production legally regulated. This area included "shirt makers" (*Pfaidler*), who only produced unlined linen clothing. 17th century (baroque) French fashion (Louis XIV) adopted internationally. 1752: 6 years as a journeyman become a prerequisite for master status. Congress of Vienna (1814/15) leads to a great upswing, since production of the various uniforms and liveries (award ceremonies) requires swift, precise work and individual service; necessity of exact "fits" (now a requirement for men's tailors) earns Viennese men's tailors a worldwide reputation. Advent of Viennese fashion (Biedermeier tailoring). 1816: 1. *Wiener Modezeitung* [1st Viennese Fashion Journal]. Up to that point, clothing had been produced according to cardboard sewing patterns (garment templates made from fabric and cardboard). 1820–30: Viennese tailor J. Rietzentaler first to construct garment patterns geometrically, publishes first men's garment models with patterns in the newspaper *Nationalzeitung* in 1848. Guidelines for form and proportions of sizes. 1808: 1st sewing machine by Madersperger (Tyrol). 1845: New York tailor Elias Howe invents first lockstitch sewing machine (10x faster than by hand), which is rejected by custom tailors but adopted by ready-to-wear producers. 1850: ready-to-wear clothing, with factories and warehouses, dominates the Viennese market;

custom tailors produce “original” and Viennese fashion garments almost exclusively for the nobility and the wealthy bourgeoisie. 1859: new trade regulations. English fashion and men’s clothing increasingly standardised over the course of the 19th century. From the 20th century, ladies clothing made by its own occupational group. Increasing specialisation of men’s tailoring toward various specific men’s garments. Custom tailoring, which is synonymous with individual quality work and sets the tone in fashion, faces constant stiff competition with the exclusively mass-produced products of ready-to-wear clothing enterprises. Ready-to-wear industry attempts to offer clothing wearable by individuals with nontypical figures by producing semi-finished mass-produced clothing that can then be fit (tailored garments).

Characteristics of the Profession

Men’s tailors produce outer clothing and outerwear for men and boys by properly cutting and appropriately working with their materials in terms of sewing and ironing (pressing), and they also carry out all necessary alterations and repairs on the products of their work. Production takes place either as “bespoke tailoring” (= production of clothing to fit specific individuals) or as “ready-to-wear production” (= production according to standard sizes, for the most part in series with labour division).

Working materials: outer fabrics include variously produced and processed linens, wools, silks, and other woven fabrics (e.g. heavy woollen cloth, Loden, double fabric, long nap flannel and melton cloth, worsted cloth, satin, velvet, and imitation furs), synthetic fabrics (cellulose fibres, nylon, etc.), and leather. Linings are made from various silk fabrics (atlas silk, satin) and cotton fabrics (weft atlas, flannel, twill, muslin). Interlinings are made of linen (raw linen, Cordinelle, canvas), cotton (cotton wool, kalmuck [brushed cotton double weave]), sheep’s wool warp-knitted interlining, horsehair, wool horsehair, camel hair, etc. Decorative, ornamental, and protective material (e.g. rep silk and silk facing, colourful woven fabric, cuffs, edging, cords); basting cotton, twisted yarn and silk, machine yarns; various buttons, zippers, hooks (and eyes), eyelets, buckles, ribbons, etc.

Products: outer clothing and outerwear for men and boys such as: suits, blazers, vests, trousers, formal attire (tailcoat), at-home garments (bathrobe, housecoat), outerwear (coat, fur-lined short coat, capes, rain capes), liveries, vestments and occupational clothing (doormen, court officials, foresters, priests), uniforms (railway, post, fire brigades, customs, federal police and gendarmerie), sportswear, and costumes (national dress, historical costumes, and fantasy costumes).

In Austria, custom tailoring is dominated by small and medium-sized artisanal businesses. Ready-to-wear producers are typically medium-sized artisanal businesses or industrial men's clothing enterprises. Industrial work is for the most part done with semiskilled workers; however, the tasks of drawing patterns, cutting, and ironing are typically performed by skilled men's tailors.

Work Description

General work done by the men's tailor: advising customers, taking measurements, calculating and inspecting materials, production of patterns, cutting, ironing cut fabric into shape, lining, assembly, final touches/additions, and ironing.

Advising of customers on the choice of fabric and cut is aimed at producing the most advantageous piece of clothing for them, taking into account customers' desires as well as their physiques and personalities; advising is typically done by a master with help from (perhaps self-sketched) fashion drawings and fabric samples; requires good knowledge of fashion and materials, a well-developed sense of shape, and finesse in dealing with customers. Exact and careful taking of the customer's body measurements is the basis for construction of a pattern suitable to his body and is essential to successful work: take measurements with centimetre measuring tape (or perhaps body-measuring belt in cases of bodily deformation) and enter them into the book of measurements and orders.

Calculation of materials needed (rough calculations mostly from experience) and, especially in wares provided by the customer, inspection for size, weaving and colour defects, moth damage, etc. by touching, visual inspection, and holding up to light. Ironing out distorted patterns if needed and marking all defective spots with chalk on the reverse side. Ironing fabrics on both sides with a moist linen cloth and a hot iron in order to prevent subsequent shrinkage (= getting the fabric "needle-ready"). Execution of the pattern drawing. Procedure: calculate the auxiliary measurements according to established rules. Note all measurements (1:1 on paper) into a basic schematic (= basic block) using a measuring tape and a tailor's square. Sketching of the exact pattern shape (differs according to the cut) freehand with appropriate (typically curved) lines for the contours (sense of shape and proportions!) Pattern production and cutting, typically done by a master and/or a cutter: fold material on the front side (face side) lengthwise in two layers (pattern pieces are symmetrical), pin pattern pieces on the back side (reverse side) with needles; consider grain line, nap direction, pattern, fabric edges, minimal use of fabric, and any fabric defects. Trace the pattern contours, darts, pockets, buttonholes, etc. onto the fabric with tailor's chalk, remove the paper pattern, and cut out parts including seam allowance. Use basting thread to loosely trace all lines onto the 2nd

layer (= “thread-tracing”). Separate fabric layers by cutting through the basting threads. Cutting and arrangement of the accessories and the various shape-giving supports (= interfacings or interlinings) for the garment shell made of appropriately stiff materials (see list) as well as the facings, pockets, undercollar, waddings, etc. Three-dimensional shaping of the inserts by applying appropriate cuts to remove wedge-shaped sections (“darts”) according to individual patterns and sewing them back together. This is the most important step in order to achieve the desired fit (requires the ability to develop a surface geometrically in one’s head!) Tacking in (“folding in”) the inserts on the shell fabric. Sewing (“padding”) of the inserts takes place using special stitches, with the fabric for the lapels, collars, etc., for example, being more strongly stretched than the interlining in order to prevent these parts from standing up.

Application of wadding to correct individual body shapes. Exact trimming of the edges and their reinforcement by sewing in stitch bands etc. Ironing into form (“dressing”) = working out the shapes in individual parts by stretching and ironing with a damp cloth and a hot iron; this requires great experience and the use of considerable strength, and it represents the most significant mark of quality in a men’s tailor’s work. Sewing of the pockets by hand and by machine. Lining: cut the lining material in accordance with the outer shell material with the appropriate allowances (for shrinkage due to ironing and for comfort!), sew any darts that are necessary, and lightly baste in the lining. For winter clothing, also add materials such as wadding (= sheep’s wool warp knit fabric) between lining and inserts and/or outer fabric. Lining is done in various ways, before or after assembly: after placing the individual parts precisely on top of each other according to the markings (including fit problems) and then carefully matching them (perhaps according to any checked or plaid patterns, stripes, etc.), baste together the initial parts and, after fitting on tailor’s dummy and customer, carry out any necessary corrections and alignments on hemlines. Then sew together by hand or machine. Quick recognition of errors and their proper correction requires a good sense of space as well as experience. Finishing of the piece by careful detailed work done mostly by hand, such as neatly sewing on the lining edges (“felling”) such that the stitches are not visible, sewing the buttonholes, making string holes and bartacks by hand or by machine, sewing on buttons, buckles, hooks, etc., bias binding the seams, et al. Repeated ironing during individual work steps and, when finished, off-pressing of the entire piece to make it look better, taking into consideration its shape and cut, pleats and folds, and the characteristics of the material. Different materials require different treatment (particularly in terms of ironing) and need to be fashioned in different ways (particularly in terms of cutting) depending on their elasticity, potential shrinkage, type of weave, patterning, etc. Proper treatment and achievement of a lasting fit requires good knowledge of the materials’

characteristics and a lot of experience. In contrast to custom work, ready-to-wear pieces are made according to standard sizes, with production usually being done in series and with labour division in which most steps are carried out by machines and semiskilled workers. Larger custom tailoring businesses now frequently also implement division of labour in the interest of cost-effectiveness!

Tools and machines: measuring tape, tailor's square, ruler, tailor's chalk, fabric shears and cutting table, sewing needles, thimble and/or thimble ring, scissors, perhaps buttonhole scissors, stitching awl, ironing table, ironing boards and clappers (for collars, sleeves etc.), tailor's hams, irons and ironing cloths; sewing machine, perhaps side table; single thread roll-padding, felling, and buttonhole machines; edge press, ironing press.

Distinct occupations that pursue similar work: ladies' tailors (3-year apprenticeship) produce dresses, skirts, and blouses (French tailoring) as well as coats and pantsuits (English tailoring: work similar to that of men's tailors) both for women and for children.

VI. Kenntnisse u. Fertigkeiten <small>des gelernten Arbeiters</small>		1. Erforderlich: Unterscheiden u. Beurteilen der Werkstoffe hinsichtlich ihrer Eigenschaften, Verarbeitungs- u. Verwendungsmöglichkeiten. Kenntnis des kindlichen u. männlichen Körperbaus, Maßnehmen u. Verrechnen der Maße, einfaches Schnittzeichnen u. Einrichten, Hand- u. Maschinennähen einschließlich Fachnäharbeiten, Kanteln, Kragen- u. Taschenverarbeitung, Füttern, Formbügeln u. Abbügeln. Grundkenntnisse der Kostüm- u. Trachtenkunde, Pflege der Maschinen u. Werkzeuge.	
2. Erwünscht: Zeichnerische Fähigkeit, Schnittentwerfen, Zuschneiden, Pausen von Futterteilen, Maschinenbügeln, Kostüm- u. Trachtenkunde.			
VII. Schulische Voraussetzungen		Erfolgreicher Abschluß d. Pflichtschule für Lehre-erwünscht, für Fachschule erforderlich.	
Gegenstand	1 2 3 4 5	Gegenstand	1 2 3 4 5
Rechnen		Geom. Zeichnen	
Zeichnen		Handarbeit	
VIII. Fragen der Arbeitsvermittlung			
1. Haben Sie in Maß- od. Konfektionsbetrieb gearbeitet?			
2. Sind Sie spezialisiert auf bestimmte Erzeugnisse (Groß- od. Kleinstücke), A.-en (Bügeln, Zuschneiden usw.), auf Lederbekleidung etc.?			
3. Können Sie Schnittzeichnen u. Zuschneiden?			
IX. Spezialisierungen		Berufsspezialisierungen: Großstück- (Bekleidung mit Ärmel) od. Kleinstück- (Westen, Hosen usw.) -schneider, Lederbekleidungsschneider, Theater- u. Modellschneider, Uniformschneider.	
X. Berufsausbildung		Aufzählung bei Innung od. Fachverband, 3 j. Lehre im Gew. od. Ind. u. Berufsschule od. 2 j. Fachschule für Kleidermacher an höherer Bundeslehranstalt für gewerbliche Frauenberufe (Wien IX) Abt. Bekleidungs-gewerbe; Gesellen- od. Facharbeiterprüfung; Meisterprüfung.	
XI. Anstellungs- u. Aufstiegsmöglichkeiten		Anstellung in gew. u. ind. Betrieben, im öffentl. Dienst (z. B. Polizei usw.) als A. Geselle bzw. Facharbeiter, Vorbereiter, Schnittzeichner, Zuschneider, Bügler, Modellschneider, Werkstattleiter, Metzler, selbständiger Metzler. Y. Nur-Reparaturarbeiten, Nur-Maschinenarbeit, Serienarbeit, Aushilfsnäharbeiten.	
XII. Berufswechsel		A) Ohne berufsausschließende Gebrechen: Innerhalb der gew. u. ind. Betriebe u. Spezialisierungen; Erlernen der 3j. LB Damenkleidermacher (engl. Schneider) od. Wäschezuschneideri. Eintritt in öffentlichen Dienst bei Polizei, Gendarmerie usw. (Uniformreparaturwerkstätte). B) Bei im Beruf erworbenen Gebrechen: Spezialisierung auf Einzelarbeiten, z. B. bei Verlust eines Fingers als Zuschneider verwendbar bei entsprechender Fachkenntnis.	
XIII. Wirtschaftlich-soziale Verhältnisse		In Anbetracht der oft rasch wechselnden Wirtschaftslage u. der örtlich versch. Verhältnisse empfiehlt es sich, jeweils die zuständigen Stellen der Arbeits- bzw. Berufsberatungsämter u. Berufsverbände zu befragen.	
XIV. Berufsverbände		KaGeWi: Bundessektion Gew., Bundesinnung u. Landesinnungen der Kleidermacher, Gruppe Herrenkleidermacher. Bundessektion Industrie, Fachverband der Bekleidungsindustrie. OGB: Gewerkschaft der Textil-, Bekleidungs- u. Lederarbeiter.	
XV. Literaturangaben, Lichtbild- u. Filmmaterial		Offizielles Organ: „Fachblatt der Kleidermacher Österreichs“, Österreichischer Fachschriftenverlag, Wien I. KaGeWi — Bundesinnung der Kleidermacher: „Meisterprüfungsordnung für das Herrenkleidermachergewerbe“, April 1950, mit Vorwort von: Kammerat, Komm. Rat Franz Niederler, Bundesinnungsmeister u. Innungsmeisterstellvertreter; Kammerat, Komm. Rat Karl Holas, Bundesinnungsmeisterstellvertreter u. Innungsmeister; Kammerat Josef Schoberwaller, Bundesinnungsmeisterstellvertreter und Innungsmeister; Walter Donner, Bundesinnungssekretär. Innungsmeister Kommerzialrat Franz Zehetgruber: „Die Meisterprüfung im Kleidermachergewerbe“, Böhmner Verlag, Wien 1949. Berufsschuldirektor Franz Fink: „Schnittzeichnen für Herrenschneider“, Böhmner Verlag, Wien 1950. W. Wiesler: „Verarbeitungspraxis f. d. Herrenschneider“, Böhmner Verlag, Wien 1949. SHB: F 180 „Stichbildung durch Nähmaschine, BF 59 „Stichbildung bei Handnähten“, BF 81—84 „Formgeben an Vorderteilen“ I, IV, BF 93—94 „Einsetzen von Maschinenflicken“ I u. II.	
		Herausgegeben im Auftrage des Bundesministeriums für Unterricht. Verfasser: Ing. Karl Krebs, Fachliche Beratung: Die Bundeskammer der gewerblichen Wirtschaft. Leitung u. Red.: Doz. Dr. N. Thumb, Wien III, Rochusgasse 2.	

Institut f. Arbeitskunde u. Berufseignungsforschung Wien Osterreichische Berufskartei		Der Herrenkleidermacher(-in)		Berufsblatt 89 (10.11.01 u. 02)
I. Entwicklung und Bedeutung		auf Lager arbeiten durften. 1664 Konfektion gesetzlich festgelegt. Ihr gehören auch „Pfäldler“ an, die nur Leinwandkleider ohne Futter erzeugten. 17. Jh. (Barock) französische Mode (Ludwig XIV.) wird international. 1752 Vorbedingung für Meister 6 Wanderjahre. Wiener Kongreß (1814/15) führt zu großem Aufschwung da Herstellung der verschiedenen Uniformen u. Trachten (Ordensverleihung) für anspruchsvolle Kunden rasche, präzise Arbeit u. individuelle Bedienung erfordert; Zwang zu genauer „Paßform“ (heute Voraussetzung für HK=Herrenkleidermacher) verschafft Wiener Herrenschneider Welt-ruf. Nun Wiener Mode (Biedermeierschneideri). 1816 1. „Wiener Modezeitung“. Kleidung bisher nach Schnittpatronen (Modell aus Stoff u. Peppe) hergestellt. 1820—30 Wiener Schneider J. Rietzentaler 1. geometrische Grundschnittzeichnungen, 1848 in „Nationalzeitung“ 1. Herrenmodelle mit Schnitt veröfentlicht. Vorschriften für Form u. Proportionen der Maße. 1808 Madersperger (Tiroler) 1. Nähmaschine. 1845 New Yorker Schneider Elias Howe 1. Nähmaschine mit Doppelstiche, aber in Konfektion verwendet. 1850 beherrscht Konfektion mit Kleiderfabriken u. Kleidermagazinen Wiener Markt, Maßschneideri arbeitet fast nur für Adel u. reiches Bürgertum „Originalstücke“, sowie Wiener Modestücke. 1859 neue Gewerbeordnung. Im Verlauf des 19. Jh. englische Mode u. Männerkleidung immer mehr typisiert. Ab 20. Jh. wird Damenkleidung durch eigene Berufsgruppe hergestellt. Zunehmende Spezialisierung der Herrenschneideri auf verschiedene Bekleidungsstücke des Herrn. Maßschneideri Begriff für individuelle Qualitätsarbeit u. tonangebend für Mode, jedoch in ständigem, hartem Wettkampf mit ausschließlicher Serienerzeugung der Konfektionsbetriebe. Versuch der Konfektion durch Erzeugung halbfertiger Serienkleidung diese nach Anprobe auch für Nicht-Normfiguren tragbar zu gestalten (Maßkonfektion).		Ausgabe vom Juli 1953
II. Berufscharakteristik		Maß für bestimmte Person) od. in „Konfektionsarbeit“ (=Erzeugung nach Normalmaßen meist in Serienarbeit mit A.-teilung). Arbeitsmaterial: Als Oberstoff verschieden ge- und bearbeitetes Leinen-, Woll-, Seiden- u. anderes Gewebe (z. B. Tuch, Loden, Double, Lama, Melton, Kemmgarn, Satin, Samt u. Nachahmungen von Pelzware); Kunstfasergewebe (Zellwolle, Nylon usw.) u. Leder. Als Futter verschiedene Seiden- (Atlas, Satin), Woll- u. Baumwoll- (Cloth, Flanel,		
Der HK stellt Ober- u. Überbekleidung für Herren u. Knaben durch fachgerechtes Zuschneiden u. entsprechende Verarbeitung des A.-materials durch Nähen u. Bügeln (Pressen) her u. führt an diesen A.-erzeugnissen alle Umarbeitungen u. Reparaturen durch. Herstellung erfolgt entweder durch „Maßarbeit“ (=Anfertigung individuell nach				

Körper, Mollino) stoffe. Als Zwischenfutter Leinen (Elastik, Cordinalle, Kanavas), Baumwolle (Watte, Kalmuk), Schafwollwattelin, Roßhaarstoff, Wollroßhaar, Kamelhaar u. a. Dekorations-, Zier- u. Schutzmaterial (z. B. Rips- u. Reversseide, farbiges Tuch, Aufschläge, Borten, Kordeln); Helfgarne, Zwirn u. Seide, Maschinengarne; verschiedene Knöpfe, Reißverschlüsse, Haken, Ösen, Schnallen, Bänder usw.

Arbeitserzeugnisse: Herstellung von Ober- u. Oberbekleidung in Maß- u. Konfektionsarbeit für Herren u. Knaben, wie z. B.: Anzüge, Sakkos, Westen, Hosen, Gesellschaftskleider (Frack), Hauskleider (Schlaffrock,

Morgensakko), Überkleider (Mantel, Pelzsakko, Pelertne, Wetterfleck), Livreen, Amts- u. Berufskleider (Portier, Gerichtsbeamte, Förster, Priester), Uniformen (Bahn, Post, Feuerwehr, Zollwache, Polizei, Gendarmarie), Sportbekleidung u. Kostüme (Nationaltrachten, historische Kostüme u. Phantasiekostüme).

In **Ö. gew. Klein- u. Mittelbetriebe** für Maßarbeit vorherrschend. Konfektionsbetriebe in der Regel mittelgroße HK-Betriebe des Gew. od. der Ind. In **Ind. A.** meist mit angelernten Kräften, jedoch für Schnittzeichnen, Zuschneiden u. Bügeln in der Regel gelernte HK.

III. Arbeitsbeschreibung

Allgemeine Arbeiten des HK: Kundenberatung, Maßnahmen,

Materialberechnen u. -prüfen, Schnittanfertigung, Zuschneiden, Formbügeln, Füttern, Zusammensetzen, Ausfertigen u. Bügeln.

Beratung des Kunden bei Stoff- u. Façonwahl verfolgt Ziel, für diesen vorteilhaftestes Kleidungsstück anzufertigen, unter Berücksichtigung der Wünsche sowie körperlichen u. seelischen Eigenarten des Kunden; Beratung in der Regel durch Meister durchgeführt unter Zuhilfenahme von Modazeichnungen (ev. selbst Skizzieren) u. Stoffmustern; erfordert gute Mode- u. Materialkenntnisse, ausgeprägtes Formgefühl u. Gewandtheit im Umgang mit Kunden. Genaues, sorgfältiges **Maßnehmen** am Körper des Kunden = Grundlage für Konstruktion eines der Körperform entsprechenden Schnittes u. eine Voraussetzung für Arbeitserfolg: Maße mit Zentimeterband messen (bei Verwachungen u. Auswachungen ev. mit „Korporimetrischem Gürtel“) u. Eintragen ins Maß- u. Bestellbuch. Erforderliches **Material berechnen** (Überschlag meist aus Erfahrung) u., besonders wenn vom Kunden gestellt, **prüfen** auf Größe, Web- u. Farbfehler, Mottenschäden usw. durch Befühlen, Besehen u. Gegen-das-Licht-Halten. Ev. verzogene Muster zurechtbügeln, alle schadhafte Stellen mit Kreide auf linker Stoffseite markieren. Stoffe beidseitig **abbügeln** mit feuchtem Leinenlappen u. heißem Eisen, um späteres Eingehen („Einlaufen“) zu verhindern (= Stoff „nadelfertig“ machen). **Anfertigen der Schnittzeichnung.** Vorgang: **Ausrechnen** der Hilfsmaße nach festliegenden Regeln. Eintragen aller Maße (in natürlicher Größe auf Papier) in ein Grundscheina (= „Grundaufstellung“) mit Hilfe von Maßband u.

Winkel. Freies Herauszeichnen der genauen Schnittform (je nach Façon unterschiedlich), durch entsprechende (meist geschwungene) Linienführung der Konturen (Formensinn u. Gefühl für Proportionen!). Schnittanfertigung u. **Zuschneiden** in der Regel durch Meister od. Zuschneider: Material auf Vorderseite (rechte Seite) in Längsrichtung doppelt zusammenlegen (Schnittteile sind symmetrisch), auf Rückseite (linke Seite) Schnitt mit Nadeln anstecken; Bedachnahme auf Fadenlauf, Strich, Muster, Einschläge, geringsten Verschnitt u. ev. Materialfehler. Nachzeichnen der Schnittkonturen, Abnäher, Taschen, Knopflöcher usw. mit Schneiderkreide auf Stoff, dann Papierschnitt abnehmen u. Teile unter Nahtzugabe ausschneiden. Mit Hilfsläden alle Linien locker auf 2. Stofflage durchheften = „Fädeneinziehen“. Stofflagen durch Durchschneiden der Fäden zwischen Lagen trennen. Zuschneiden („Einrichten“) der Zubehöre u. der verschiedenen formgebenden Stützen (= Einlagen od. Zwischenfutter) für Oberstoff aus entsprechenden steifen Materialien (s. II.) sowie der Besätze, Taschen, Unterkragen, Wattierungen usw. **Plastische Formgebung** der Einlagen durch Anbringen entsprechender Einschnitte u. Ausschneiden keilförmiger Teile („Abnäher“) nach individuellem Schnitt bzw. Zusammennähen derselben. Wichtigste Arbeit für Erhaltung der Paßform (erfordert vorstellungsmäßige, geometrische Mantelabwicklung!). **Einheften („Unterschlagen“)** der Einlagen an Oberstoff. **Annähen („Pikieren“)** der Einlagen erfolgt mit besonderem Stichen, wobei z. B. bei Revers, Krägen usw. Stoff straffer als Einlage gespannt wird um Aufstellen dieser Teile zu verhindern. Watte zur Korrektur einzelner Körperformen auflegen. Genaues Zurechtschneiden der Kanten („Façonieren“) u. Festigung derselben durch Einnähen von Nahtbändern usw. **Formbügeln** („Dressieren“) = Herausarbeiten der Formen an einzelnen Teilen durch Dehnen u. Einbügeln mit feuchtem Tuch u. heißem Bügeleisen; erfordert große Erfahrung u. Kraftanwendung, bildet wesentlichsten Teil der Qualitätsarbeit des HK. **Taschen Einarbeiten** durch Hand- u. Maschinennähen. **Füttern:** Futterstoff nach Oberstoff mit entsprechender Zugabe (Einlauf beim Bügeln, Bequemlichkeit!) zuschneiden, nötige Einnäher anbringen u. Futter locker einheften. Bei Winterbekleidung zusätzlich z. B. Wattelin (= flockiges Wollgewebe) zwischen Futter- Einlagen bzw. Oberstoff einnähen. **Füttern** unterschiedlich durchgeführt, vor od. nach dem **Zusammensetzen**: einzelne Teile nach exaktam Aufeinanderlegen an Markierung (sonst Paßformfehler) u. sorgfältigem **Zusammenpassen** ev. auf Stoffmusterung (Karos, Streifen usw.) erst Teile zusammenheften, dann nach **Proben** auf Kleiderbüste u. Kunden Durchführung der ev. nötigen Korrekturen u. Abgleich der Längen. Anschließend mit Hand od. Maschine zusammennähen. Rasches Erkennen u. richtige Beseitigung von Fehlern erfordert gute räumliche Vorstellung u. Erfahrung. **Ausfertigung** des Stückes durch sorgfältige Kleinarbeit meist von Hand, wie z. B. sauberes Annähen der Futterkanten („Staffieren“), wobei Stiche nicht sichtbar sein dürfen, Ausnähen der Knopflöcher, Schnürlöcher u. Riegel von Hand oder maschinell, Annähen der Knöpfe, Schnallen, Haken usw., Einfassen der Nähte u. a. Während einzelner A-gänge wiederholtes **Bügeln** u. zum Schluß „**Abbügeln**“ des gesamten Werkstückes zwecks Verschönerung, unter Berücksichtigung der Form u. Façon, der Falten u. Büge u. der Materialeigenschaften. Die verschiedenen Materialien erfordern eine unterschiedliche Bearbeitung (bes. beim Bügeln) u. Verarbeitung (bes. beim Zuschneiden) je nach ihrer Elastizität, Einlaufähigkeit, Webart, Musterung usw. Richtige Behandlung u. Erzielung einer dauerhaften Paßform setzt gute Kenntnis der Materialeigenschaften u. viel Erfahrung voraus. Zum Unterschied von Maßarbeit wird in „Konfektion“ Werkstück nach genormten Größen gearbeitet u. erfolgt Fertigung in der Regel in A-teilung meist in Serien hauptsächlich durch Maschinenarbeit vorwiegend durch angelernte Kräfte. In größeren Maßarbeitbetrieben heute vielfach schon zwecks Rationalisierung Teilarbeit.

IV. Körperliche Beanspruchung

1. Unbedingt erforderlich:

0. —

I. 11 (Bügler), 12 (Mäntelerzeugung), 13, 17

II. 20, 21, 22 (Bügler, Zuschneider), 254 (veretzelt üblich), 270 u. 275 (Nähmaschinenm. Fußantrieb)

III. 300 (Massen, Nähen), 303, 311, 314, 320, 323, 331, 334, 340, 341 (s. 347), 343, 347 (außer Daumen und Zeigefinger), 351, 354, 357, 362 (Pflriemen), 364, 365 (Nadel, Garn, Ösen), 374, 375, 38, 39 (Stoffwefterschieben bei Maschinenarbeit)

IV. 40, 43, 44, 460, 480

V. 51, 57 (bei Kundenbedienung), 58

VI. 60, 65 (Bügeln), 67 (Materialprüfung), 68 (Bügeln)

VII. —

VIII. 80, 81, 84, 85, 89 (Maschinennähen)

IX. 90, 98 (bes. chron. Hautkrankheiten an Händen).

2. **Ausschließend:** Chron. Erkrankungen der Atmungsorgane (gekrümmte Sitzhaltung), starke Mißbildung d. Brustkorbes oder der Wirbelsäule (als Bügler), schwere Gelenkerkrankungen od. Lähmung der Hände, Fehlen einer Hand od. des Daumens od. eines der 3 mittleren Finger der Arbeitshand (Großen u. Führen von Stoff u. Nadel), chron. ekzematöse Hauterkrankungen bes. an Händen, starker Handschweiß, Sehschärfenfehler, d. nicht durch Gläser korrigierbar, Einäugigkeit, Farbenblindheit

3. **Förderlich:** Sportliche Betätigung als Ausgleich zur Sitzarbeit.

4. **Nicht ausschließend:** Leichte Behinderung des II. Armes u. der li. Hand.

5. **Gesundheitliche Gefährdung:** Gefährdung der Lunge, Störung der Verdauung durch langes Sitzen, Schädigung der Augen bei schlechter Beleuchtung, Verkrümmung u. Versteifung d. Wirbelsäule durch schlechte Sitzhaltung, Infektion durch Nadelstiche od. schlecht gereinigtes Material, Verletzung bei Maschinennähen.

6. **Berufskrankheiten:** Erkrankung der Atemwege (bei Zuschneider).

7. **Prophylaxe:** Gut gelüftete Räume, Reinlichkeit, gute Beleuchtung, richtiger Arbeitssitz u. Bügelhöhe.

V. Psychische Anforderungen

Funktion	Funktionsprofil:					Funktion	Funktionsprofil:				
	1	2	3	4	5		1	2	3	4	5
Allgemeine Intelligenz						Gestaltendes Handgeschick	grob				
Formauffassen						fein					
Gedächtnis für Formen						Sichere, ruhige Hand					
Räumliche Vorstellung						Arbeitsorgfalt					
						Aufmerksamkeit	eng — weit				
						ruhig — feurig					
						Einzel- — Gruppenarbeit					

Der B. des HK erfordert einen für flinke, saubere Kleinarbeit aufgeschlossen Charakter mit besonderer Freude an der A. mit Textilien u. dem Herausarbeiten individuell angepasster plastischer Formen aus solchen Materialien. Zur Herstellung betriebliger Werkstücke bedarf es eines Einfühlungsvermögens in die Wesensart des Kund-n, eines guten Geschmacks, modischen Interesses u. ausgeprägten Formen- u. Farbsinnes. Die Bearbeitung erfordert Gefühl für die Feinheiten u. Unterschiede des Materials, ein gutes „räumliches“ Vorstellungsvermögen für die Herstellung der jeweils gewünschten Façon mit ihren individuell verschieden Detailformen, sowie Geduld u. Ausdauer.

Werkzeuge u. Maschinen: Maßband, Winkel, Lineal, Schneiderkreide, Zuschneidsschere u. -fisch; Nähnaedel, Nahrung od. Fingerhut, Handschere, ev. Knopflochscher, Pflriemen (Fadenauszähler); Bügeltisch, -hölzer (Krägen, Ärmel usw.), Bügelkissen, Bügeleisen u. -lappen; Nähmaschine, ev. Seitentisch, Pikier-, Staffier- u. Knopflochmaschine, Kantapresse, Bügelpresse.

Abgrenzung gegen arbeitsmäßig verwandte Berufe: Damenkleidermacher, 3 j LB, fertigt für Damen u. Kinder Kleider, Röcke, Blusen (französische Schneider) sowie Mäntel u. Kostüme (engl. Schneider) = ähnliche Arbeit wie Herrenkleidermacher.



8.4 Appendix 4, UNESCO Convention, Article 2.1

Excerpt from the Convention for the Safeguarding of the Intangible Cultural Heritage

Article 2 – Definitions

For the purposes of this Convention,

1. The “intangible cultural heritage” means the practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith—that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. For the purposes of this Convention, consideration will be given solely to such intangible cultural heritage as is compatible with existing international human rights instruments, as well as with the requirements of mutual respect among communities, groups and individuals, and of sustainable development.
2. The “intangible cultural heritage”, as defined in paragraph 1 above, is manifested inter alia in the following domains:
 - a) oral traditions and expressions, including language as a vehicle of intangible cultural heritage
 - b) performing arts
 - c) social practices, rituals, and festive events
 - d) knowledge and practices concerning nature and the universe
 - e) traditional craftsmanship
3. “Safeguarding” means measures aimed at ensuring the viability of the intangible cultural heritage, including the identification, documentation, research, preservation, protection, promotion, enhancement, transmission, particularly through formal and non-formal education, as well as the revitalisation of the various aspects of such heritage.
4. “States Parties” means States which are bound by this Convention and among which this Convention is in force.

5. This Convention applies mutatis mutandis to the territories referred to in Article 33 which become Parties to this Convention in accordance with the conditions set out in that Article. To that extent the expression “States Parties” also refers to such territories.

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