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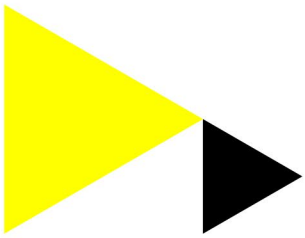

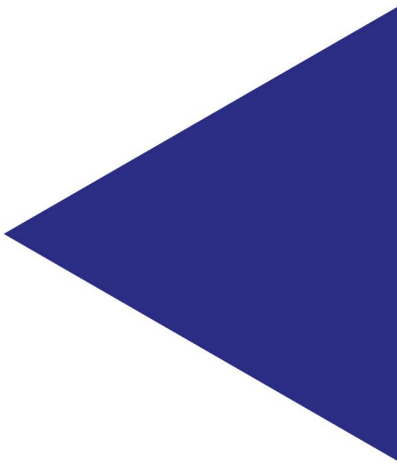

On Paradigm Shifts and Industrial Revolutions: Tracing Prevalent Dressmaking Practices and Apparel Production Systems in the Netherlands and Northwest Europe (1850-2016).

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INTRODUCTION

The manufacture of customized products on demand has been growing during the last decades, when technological developments in communications coupled with digitally- controlled manufacture machines - machines with high degrees of automation that make possible to produce more flexibly and relatively fast (Boradkar 2010, pp.115–119). In Western Europe, these developments have been supported by public policy aiming at reviving the local industries based on service and technology-intensive production. The German government, for example, has promoted the concept of "Industry 4.0" or Fourth Industrial Revolution to encourage emerging uses of cyber-physical systems in industrial settings. The term makes reference to previous significant technological developments such as the introduction of mechanical production facilities with the help of water and steam power (18th century, 1st Industrial Revolution), the introduction of division of labour and mass production with the help of electrical energy (19th century, 2nd Industrial Revolution), and the use of electronic and IT systems to further automate production (1960s, 3rd Industrial Revolution) (Deloitte 2014). In the same line, the Dutch policy promotes the development of "Smart Industries", which have

> *"a high degree of flexibility in production, in terms of product needs (specifications, quality, design), volume (what is needed), timing (when it is needed), resource efficiency and cost (what is required), being able to (fine) tune to customer needs and make use of the entire supply chain for value creation. It is enabled by a network-centric approach, making use of the value of information, driven by ICT and the latest available proven manufacturing techniques" (Dutch Ministry of Economic Affairs 2014).*

Within the sector of fashion, these concepts have typically materialized in online services for customized products that are manufactured based on direct consumer demand. Showcases of this format often include the London based firm Unmade. Having developed from a creative start-up (Knyttan) where customers could walk in the store and use an interactive platform to create their own knitted sweaters, the current Unmade online store provides an overview of customizable designs for knitted sweaters, T-shirts and scarfs (fig. 1). The choices provided to customers include size, model, colour and pattern, which are selected through digital visualizations and knitted on-demand by a numerically controlled knitting machine after the order is completed (Unmade n.d.).

This format has not only developed within the realm of creative start-ups; giants of sportswear such as Nike and Adidas have diversified their services by implementing customization systems as part of their offer. Through online platforms NIKEiD and miadidas, consumers can design personal sport shoes by combining a variety of models, colours, shapes, and sizes online. The resulting design is produced on-demand and shipped within 3 to 5 weeks (NIKEiD n.d.; miadidas n.d.). Moreover, governments and knowledge institutions are facilitating networks of local companies that can deliver such services by working together. European Union-funded projects such as CoreNet (Customer-oriented and eco- friendly networks for healthy fashionable goods) and "From roll to bag" are first steps promoting a transition from traditional industrial formats to a new model in which production batches are smaller and production lines more flexible (CoreNet n.d.; Fromrolltobag n.d.).

Both public policy supporting these developments and scholars studying emerging models for flexible production on demand stress its benefits in opposition to mass production. The discourse of Industry 4.0 or Smart Industry is usually based on the argument that new technologies are to some extent enabling a return to the values of pre-industrial societies and tackling the problems brought about by the first and second industrial revolutions (see e.g. Boradkar 2010, p.124). "Traditional" industrial models are accused of having distanced consumers and producers, enabling overconsumption and overproduction. Customized production, on the other hand, is promoted as a possible solution to those challenges: a more sustainable system in which the needs and desires of consumers are directly translated into manufactured products rather than products being created first and then pushed into the market (see e.g. Black et al. 2009; Niinimäki 2009). The vision is that by enabling a "smarter industry" we can solve some problems of "mass production" by, for example, moving manufacture facilities nearer to the consumer and diminishing industrial waste.

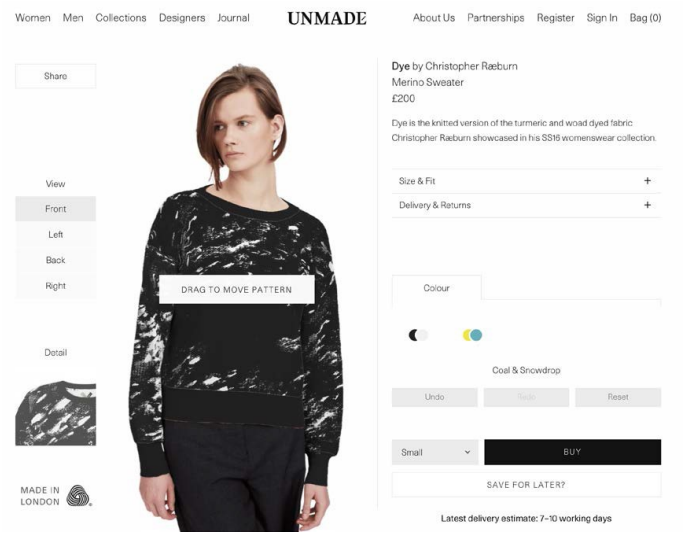


Figure 1. Unmade's online store including customization options (Unmade n.d.)

Figure 2 summarizes historical perspectives of industrial substitution, stressing the relationship between apparel pre-industrial and emerging flexible systems. According to this historical vision, the process of industrialization dismantled crafts-based dressmaking practices. Therefore, by enabling new advantageous ways of apparel production we may replace traditional mass manufacture with more sustainable production systems. Some common elements be-

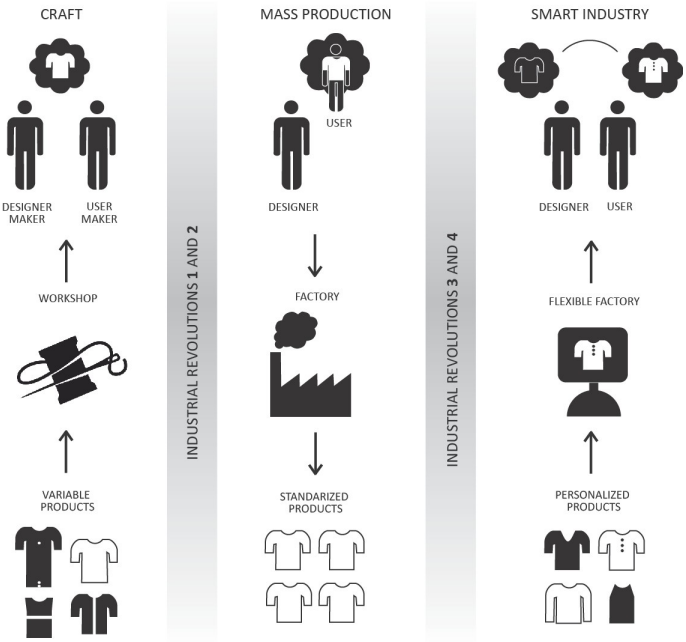


Figure 2. Historical overview of production systems stressing the role of "industrial revolutions" as enablers of industrial substitution.

tween the first and the last column include the active participation of the user in the configuration of the product (in mass production the user is involved only in intention, through the figure of the professional designer) and the flexibility of the production process based on demand (note a difference in the orientation of the arrows in the illustration), both leading to variable results. If understood chronologically, from left to right, the message is that -although with more efficiency and sophistication- present forms of industrialization are somehow bringing back the advantages of craft.

This article contests this historical view, claiming that it is based solely on the development of production systems. In order to assemble a more comprehensive historical perspective, we should include considerations of mediation and consumption of garments in addition to production (Lees-Maffei 2009). As it will be discussed in the following sections, the development of new ways of producing and consuming in the apparel sector has been incremental rather than substitutive. In other words, the popularization of new models has not led the old ones to disappearance. Production and consumption rates have grown together with new systems and emerging models have complemented rather than substituted old ones. From this perspective, notions such as "revolution" or "paradigm shift" in the sector are contested on the bases of historical research. A review of secondary sources at a European level and the analysis of statistical data from the Netherlands and the city of Amsterdam points out that transformations in the apparel sector during the process of industrialization were far more complex than fig. 2 suggests. Industrial formats developed side by side with a growing culture of consumption and new machinery suitable for small-scale manufacture, leading to increasing levels of production through various channels. Personal dressmaking practices did not disappear but developed and transformed together with the expansion of mass-produced clothing, in a complementary rather than a substitutionary way.

Understanding current developments in historical context, this study questions how the popularization of emerging systems can solve the problems of traditional ones. While apparel "smart industries" are in development, mass production of clothing is not showing signs of decline. Therefore, the capacity of the "forth industrial revolution" to enable beneficial changes such as localizing the industry or diminishing industrial waste is contested.

The industrialization of the apparel sector: a broad literature review

Historians studying the rise of the apparel industry acknowledge that assumptions about this process are not uncommon. "We assume that before the industrial revolution clothing, at least for ordinary people, was made at home. This is not so" writes social historian Judith Coffin (Coffin 1996, p.22). In a detailed account of the making, selling and consuming of garments during the 18th century, Coffin stresses that while maintenance of clothes was a domestic task, new garments were mainly provided by tailors. The kind of dressmaking service varied to a great extent, from traveling craftsmen sewing simpler clothes in the countryside to urban, sophisticated dressmaking shops (Coffin 1996; Perrot 1994). Home sewing was restricted to very simple clothing such as shirts, smocks, caps and baby clothes, until well into the nineteenth century, given the difficult nature of crafts-based dressmaking without the assistance of paper patterns or sewing machines and the structural complexity of clothing in those times, specially for women (Arnold 1999; Wilson 1999; Fernandez 1994). Those with more limited income relied on the second hand market; therefore garments went through several cycles of use, trade and alteration, slowly descending in social class (Perrot 1994).

In terms of design, there was an intricate and strict set of rules related to gender, class and regional identity to define the appropriate dress. Clothing served the explicit function of linking individuals with social structure, for example by identifying the street seller in the public space (de Leeuw 1993). Moreover, tailors were subject to design norms determined by their guilds and put into practice according to the client's social position (Perrot 1994). Even when the production system (cutting and sewing by hand) virtually allowed a great variety of dress typologies and the active participation of the user both in design and manufacture,

reports of dressmaking practices show that these were very restricted, in the case of design decisions by rigorous dressing rules, and in the case of manufacturing by the level of knowledge and skills needed for dressmaking without more sophisticated technologies than a pair of scissors, thread, and needles. Such restrictions, unlike the diagram in fig. 2 suggests, diminished with the industrial revolution through the development of new sewing technologies with lower barriers for amateur dressmaking and the dissemination of an arguably more flexible set of dressing rules, that of fashion's changing trends.

Radical social and political changes during the second half of the 18th century led to rupture in former sartorial codes. In 1793 Paris a decree was issued stating that "[n]o person of either sex can force any citizen, male or female, to dress in a particular way" (Perrot 1994, p.20). In line with the rise of the bourgeoisie, a more fluid social configuration was emerging; one in which "work with its fluctuating fortunes, rather than rank and hierarchy ordained by lineage, was an important determinant of an individual's status" (Wilson 2003, p.24). In response to this potential social mobility and associated to the increasing purchasing power of the emerging class, clothing demand rose unprecedentedly in all sectors of the population, leading apparel traders –in particular those involved in the second-hand market- to start experimenting with novel ways of organizing production and sales (Perrot 1994; Coffin 1996).

During the 19th century, northwest Europe saw the boom of ready-made clothing. At first manufacturing only simple items such as underwear, the ready-made industry developed based on the manual labour of both home sewers and workshop workers. Coffin has highlighted how female homework was central for its exponential growth, given that the domestic environment allowed women to keep "decency" while contributing to the economy of the family. These women received seasonal assignments from ready-made traders and their own clients alike, while making clothes for their own families. The author states that "[o]ne of the most striking features of the garment industry's history is the resilience of industrial homework, which flourished and grew alongside new modes of production, rapidly expanding markets, and new patterns of consumption" (Coffin 1996, p.7).

By the time the sewing machine was adopted, during the second half of the 19th century, there were well-established networks of home workers side by side with small production units. Clothing production volumes were escalating in line with the development of the department store and an increasingly significant culture of consumption. The availability of ready-mades gave access to brand-new, cheaper clothing and new items such as underwear to the lower classes; as a consequence, the second hand market was in decline. Perrot's account of the substitution of Paris's emblematic second-hand market "Temple" in the 1860s by shiny pavilions offering mostly ready-mades illustrates this shift. Meanwhile, used clothes started to be exported oversees (Perrot 1994, pp.70–71).

Tailors and dressmakers were naturally not indifferent to these developments. They dismissed the poor quality of ready-mades, and accused them to have corrupted a honourable industry. While figure 2 suggests that their disapproval was associated to the fact that their work was taken over by mass-manufacture, historians have described a shift in their roles rather than an overall decline, with specific forms of dress craftsmen and women emerging and vanishing during two centuries (roughly 1750-1950). Perrot notes that the popularization of ready-mades during the 19th century encouraged tailors to position themselves in opposition to mass-manufacture, as artists whose domain was that of elegance. While ready- mades took over the production of simple garments, female dresses had to be fitted to the body and therefore remained the job of dressmakers (Perrot 1994, pp.69, 184). In any case, the production volumes of the ready-made industry were outstanding, and that is perhaps a reason behind the common belief that ready-mades substituted made-to-measure during the process of industrialization. This review suggests that the substitution may have been more symbolical and relative than real, as Perrot points out; "[g]iven the demographic growth and prestige of Paris, as well as a rise in the standard of living, the production of made-to- measure clothing did not suffer an absolute decline but was greatly outdistanced by the dynamic, many-sided ready-to-wear industry (Perrot 1994, p.68)"

The sewing machine, fashion magazines and the rise of self-made clothes

At the turn from the 19th to the 20th century, two key developments accompanied the increasing acceleration and importance of fashion trends, together with growing volumes of clothing production: the popularization of paper patterns and the domestic sewing machine.

The sewing machine is often seen as a key innovation for mass-produced ready-mades to have substituted amateur and professional dressmaking; however, a closer look to the actual effects of its popularization let us understand its implications in a different way. Although originally developed for the manufacture of simple ready-to-wear, the sewing machine soon became a useful and popular device for home sewing, supported by strategic product development and advertising campaigns of manufacturers (Coffin 1996). Its "astonishing velocity" did in fact boost industrial production, but fashion historians have also suggested that it augmented production and consumption of home-made and made-to-measure apparel in Europe and the USA (Burman 1999a; Fernandez 1994; Parmal 2001; Putnam 1999).

While the widespread adoption of the domestic sewing machine allowed for more efficient and sophisticated self-making practices - especially for women – developments in printing technologies and the popularity of fashion magazines served to inform and assist home- sewers in design decisions and the cutting process.

During the second half of the 19th century, fashion magazines had become more affordable and acquired wider readership, the publishing industry grew significantly based on the introduction of novel fashion trends with increasing frequency. The ready-made industry was still focused on the production of underwear, simple garments, and, towards the end of the century, menswear; therefore these magazines ended up inspiring mostly professional and amateur dressmaking. At the turn to the 20th century, these publications were increasingly incorporating enhanced technologies for more efficient dressmaking, lowering the skill barriers for amateur practices and popularizing the practice of self manufacturing (Emery 1999);

> *"Unlike the home dressmakers of a generation or two before, their Edwardian counterparts could make clothes as stylishly as they wished from patterns designed to provide up-to-the-minute fashions promoted with clear seasonal differentiation and frequently with full directions for making-up. There was no shortage of advice to accompany them, particularly when new styles were introduced. The language often mixed promise and exhortation. There was much emphasis on the variety of choice available in the look of the finished article and on speed, simplicity and ease of construction" (Burman 1999b, p.46)*

While the anonymous voice of fashion editors was disseminated through such publications to home-sewers, making fashion available to all, professional dressmakers were benefiting from the search for class differentiation of the higher sectors of the population. Professional dressmaking was more expensive than homemade clothing and access to informed craftsmanship in Europe and North America was a practical way to emphasize the new stratification. The perfectly fitting garments and exclusive service of dressmakers resembled the glamour of Parisian couturiers and succeeded to position their clientele as a sophisticated and at the same time modern social group (Putnam 1999; Benson 2001; Hay 2001; Parmal 2001).

Both technological innovations and the growing relevance of fashion trends contributed to a general increase in the production and consumption of clothes during the end of the 19th and the first half of the 20th century. Wardrobe sizes grew accordingly (Klepp & Laitala 2015), but unlike fig. 2 suggests, increasing consumption found its way not only through industrial production but also through professional and amateur dressmaking practices. Rather than a simple substitution of individual dressmaking by mass produced

clothing, that period saw the growth of a variety of production methods with different levels of popularity depending on region, social class, and clothing type, providing more opportunities for user participation in design.

Primary sources in the local context: a quantitative analysis of the process of industrialization in the city of Amsterdam (1889-1930)

Historians have made an effort to illustrate the point of view developed above based on primary sources, in order to contest visions of industrial substitution. However, the lack of reliable and consistent data, in particular for home dressmaking, has been detrimental to their efforts, leading to confusing results. For example, different quantitative studies of home sewing during the interwar period in Britain have pointed to both an increase and a decrease in the popularity of this practice (Burman 1999a, p.6). With the aim of contributing to this inquiry from a local perspective, I have intended to trace relevant data within the micro-level of the city of Amsterdam. Unfortunately, however, I have encountered constraints as well.

The occupational census carried out in the Netherlands in 1889, 1899, 1909, 1920 and 1930, could be a useful source to map the amount of independent professionals devoted to made-to-measure dressmaking during that period; but the discontinuity of occupation categories, moreover lacking a specific definition, hinders the possibility to develop a local map (see Table 1). For instance, how many of the seamstresses in Table 1 (naaisters, huisnaaisters, and costuumnaisters) worked for the ready-made industry and how many contributed to the work of tailors and dressmakers working on demand? Did the company directors in the clothing sector (bedrijfshoofden) computed in 1920 and 1930 manage an industrial setting or a workshop comparable to that of costumiers, explaining the removal of the latter as an occupational category after 1909? The impossibility to answer such questions with the available sources impedes a reliable comparative study.

Table 1: Population working in occupations relevant for this study in Amsterdam (1889-1930)

Occupation	Position*	1889	1899	1909	1920	1930
Costumiers	A+B	44		1,930		
Costumiers	C+D			3,289		
Dameskleedingmakers	A+B	70				
Dameskleedingmakers	C+D	71				
Kleermakers	A+B	954	2,827	774		
Kleermakers	C+D	1,827	4,471	3,243		
Naaisters	A+B	406	1,001			
Naaisters	C+D	4,150	1,691			
Verstelnaaister	A+B			2,028		
Verstelnaaister	C+D			89		
Bedrijfshoofden	A+B				1,660	1,897
Kleermaker (heeren)	C+D				3,976	
Kleermaker (dames)	C+D				6,660	

Occupation	Position*	1889	1899	1909	1920	1930
Kleermaker (dames en heeren)	C+D				84	
Huisnaaisters	C+D				1,771	979
Kleermaker (maat)	C+D					2,027
Kleermaker (confectie)	C+D					1,441
Costuumnaaister	C+D					4,462
Confectiefabriekarbeider	C+D					2,576

Note. Elaborated by the author based on the occupational censuses published by CBS (Centraal Bureau Statistics) http://volkstellingen.nl/nl/index.html [Accessed September 9, 2015]
* Positions A+B refer to business owners, managers and independent professionals; C+D refer to staff in companies run by others.

The popularity of dress self-making could be compared with professional dressmaking and production of ready-mades by mapping the consumption of fabrics and sewing material in relation to that of complete garments, but unfortunately the statistical records of Hoofdbedrijfschap Detailhandel and Centraal Bureau Statistics do not include information that is detailed and reliable enough for such a study. The retail of sewing machines has been kept as a statistic category along the 20th century; however, discriminating machinery commercialized for the ready-made industry and that for professional and amateur dressmaking is not feasible either.

Table 2: Overview of the population dedicated to clothing in the Netherlands (1889-1930)

	1889	1899	1909	1920	1930
1) Population dedicated to clothing	Category VIa	Category VIIa	Category VIIa	Category VII (1-10)	Category VII (1-10)
	59,915	69,328	78,357	95,911	89,094
2) Total population censused	4,509,670	5,104,137	6,091,802	7,225,493	7,935,565
3) Workers dedicated to clothing per person censused	0.01328	0.01358	0.01286	0.01327	0.01122

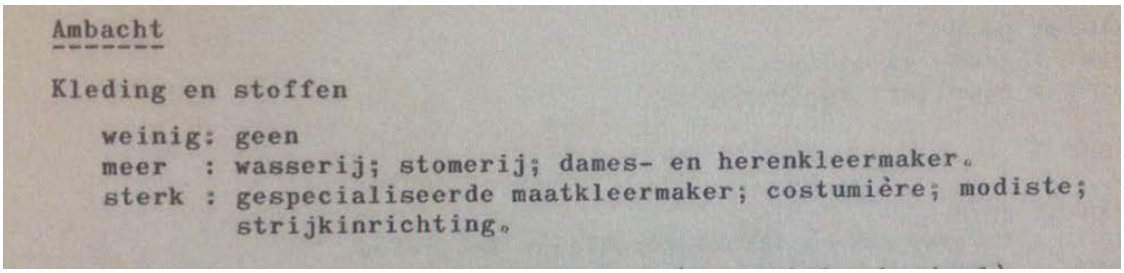
Note. Elaborated by the author based on the occupational censuses published by CBS (Centraal Bureau Statistics) http://volkstellingen.nl/nl/index.html [October 20, 2015]

Despite the struggle to draw a quantitative map, the increase in consumption and production of personalized clothing (clothing produced on-demand on the basis of consumer input) in parallel to that of ready-mades is recognizable by the transformations described in the previous section.

One conclusion that can be taken from the available data is that the general amount of clothes produced at a national level increased significantly, even if we do not consider clothes made at home. Table 2 (row 3) shows that the number of professionals in the field of clothing production per consumer was quite constant; if we assume an increase in productivity per worker based on the development of more efficient ma-

chinery and organization of work, we can conclude that individual consumption was escalating. Why then, to assume that only factories producing ready-mades were growing?

In fact, some sources indicate quite the opposite. A report of the statistical office of the Municipality of Amsterdam covering the developments in retail within the centre of the city (1900-1960) supports the argument of a local increase in professional dressmaking (Bureau van Statistiek der Gemeente Amsterdam 1966, p. 121). In an appendix focused on the apparel sector, the document identifies a growth in the amount of stores dedicated to crafts during that period. The report highlights an increase in professional dressmakers (for ladies and gentlemen) and a particularly strong increase in those working made-to-measure and *costumieres* (fig. 3).


Ambacht

Kleding en stoffen

weinig: geen
meer : wasserij; stomerij; dames- en herenkleermaker.
sterk : gespecialiseerde maatkleermaker; costumière; modiste; strijkinrichting.

Figure 3. Report of the statistical office of the Municipality of Amsterdam indicating an increase in professional dressmaking during the period 1900-1960 (Bureau van Statistiek der Gemeente Amsterdam, 1966, p. 121).

This section intended to contribute to our understanding of the impact of industrialization in sartorial practices in the Netherlands and the city of Amsterdam. The central argument is that industrialization boosted production and consumption through all three channels (mass production, self production and professional dressmaking services) from the turn to the 20th century, accompanying emerging values of modernity and the dissemination and acceleration of fashion trends. In fact "it is only since the Second World War that mass-produced, ready- to-wear clothing has become the standard wear for everyone" (Wilson 2003, p.89), the next section will uncover the shift from a diversity of production and consumption models to the triumph of ready-mades.

The triumph of mass-produced ready-mades and the role of fashion trends

If, as argued above, industrialization supported an increase in production and consumption of clothing at all levels: how and why did mass-produced ready-mades become the standard wear for everyone in current post-industrial regions? User involvement in design and manufacture in order to achieve variable products is a main goal of current industrial development; why, then, was the user excluded from the processes of design and manufacture of clothing around half a century ago?

Historical accounts based on the analysis of production systems explain this transformation through the increasing comparative advantages of ready-mades. The clothing industry started producing only simple garments, slowly expanding to offer menswear and finally women's clothing. While the quality of early ready-mades was poor, industry diversification made possible to provide better quality garments as well; moreover, standard sizes became more accurate and varied, responding to real body shapes. As a consequence of technological and organization developments the costs and prices of these garments decreased, making ready- mades increasingly competitive (Levitt 2009; Godley 1997). According to these perspectives, by the middle of the century ready-made clothing was just varied, good, and cheap enough to displace other ways of making clothes.

Although this view provides a linear and encompassing explanation for the decline of personal dressmaking, we should keep in mind that this process took more than a century, involving several generations of producers and consumers. During that period, various aspects of clothing production and consumption changed, including the values associated to dress. Rather than looking at this as a linear historical process assigned to technological innovations, this study identifies two successive processes. One gradually developing during the 19th and first half of the 20th century in which a variety of production methods flourished all together and another one during the second half of the 20th century, when personal dressmaking declined on the bases of several phenomena. A main element was the importance and speed of fashion trends during that period.

Fashion historians have already acknowledged a shift in the image of ready-mades during the first half of the 20th century from cheap, utilitarian products to desirable symbols of modernity. Pouillard (2013) has studied how early North American apparel brands made explicit efforts to integrate fashion trends, at first by illicitly copying the creations of Parisian couturiers and later finding agreed ways of collaboration, leading to the development of fashion design departments in apparel companies. Such efforts were certainly significant for the economic success of ready-made entrepreneurs as the 20th century advanced. Marcketti (2005) has pointed out the relevance of changing dressing styles for their prosperity, stressing that although technology was central at the early stages of their growth, speed of fashion change was more important for their final success.

The speed of fashion trends was in line with that of industrial production, leading ready-made entrepreneurs to integrate them more successfully than professional dressmakers and home sewers. Quality and durability, clear advantages of custom and homemade garments, were less relevant for consumers in the context of rapidly changing aesthetic ideals.

If at first technological developments and fashion awareness had contributed to an increase in production and consumption at all levels, as the 20th century advanced professional dressmakers started to struggle to keep up with the speed of these transformations. Kaipainen (2010) has uncovered this process through a thorough study of Finnish tailor magazines, which promoted rapid reaction to new trends as an essential aspect for the survival of bespoke tailoring. According to Kaipainen (2010) "[n]ot succeeding in copying the latest trends was one reason for the decline of bespoke tailoring; despite all the efforts the ready- made suits were often considered trendier than the bespoke ones".

Maldini & Manz (2016) have highlighted the importance of fashion trends for consumers as an explanation behind the decline in personal dressmaking. Based on a set of interviews with ladies living in a nursing home, the authors claim that during mid 20th century home and custom dressmaking were still the main practices for Amsterdam ladies. Interestingly enough, they were not the most desirable; it was a common practice to study trendy ready-mades visible in shop vitrines as bases for personal dressmaking. Although personalization and exclusivity of dress were already of value at the time, adherence to mainstream fashion proved to be a stronger force. The interviews revealed that by the second half of the 20th century, when ready-mades became more "convenient" in economic terms, they had been already established as "ideal" in terms of style, enabling a transition from a plurality of models of consumption to the triumph of mass-produced ready-mades.

The main argument of this historical overview has been that perspectives based solely on the development of production systems tend to flatten the complexity that industrialization actually entailed. By analysing the specific process of industrialization in the apparel sector and considering both technological and socio-cultural phenomena, a different picture arises. Unlike views represented in fig. 2 suggest, the process of industrialization did enable increasing user participation in design and a greater variety of products. Growing levels of production and consumption through a variety of channels were central for this process, with the popularization of self-made clothes playing a main role. By mid 20th century, however, the importance and speed of fashion trends (among other factors) led to a decrease in the popularity of personal dressmaking.

Conclusion

The introduction of this article highlighted the importance of understanding the process of industrialization in order to analyse current developments in historical context. The overview above points out that historical generalizations may lead to visions of industrial substitution; that is industrial production substituting craft-based personal dressmaking during the turn to the 20th century and consequently on-demand flexible manufacture possibly substituting mass production in the future. However, when the analysis focuses on the apparel sector and broadens to include a variety of sociocultural phenomena, the resulting vision is that of coexisting models of production. According to this historical perspective, emerging models do not substitute old ones but they find their way to complement what is already established, transforming each other in the process.

This way of looking at historical processes leads to an understanding of current developments in the apparel industry not as substitutionary of mass production, but as complementary. Therefore, the implications of emerging production systems manufacturing personalized products on-demand are to be understood in the context of current prevalent industrial models, at least for the near future. Promotion of the "industry 4.0" or "smart industry" on the bases of moving manufacture facilities nearer to the consumer, diminishing industrial waste, and turning the overall chain up-side-down starting at consumer demand tend to overlook that these developments are happening side by side with a growing, global mass-manufacture industry. Increasing the offer of sophisticated product-service systems does not imply that the old ones will be abandoned. In a sector characterized by continuous acceleration of product renewal and growing wardrobe sizes, the incorporation of new practices in addition to established ones is definitely to be expected. Rather than highlighting how emerging systems are better, we should ask ourselves what they add to the already established apparel industry.

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