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DESIGN FOR LONGEVITY CLOTHES USING ELEMENTS OF MORPHOLOGICAL TRANSFORMATION

Purpose. *The fashion industry is currently undergoing a major transformation. Voices are growing increasingly vocal about the negative environmental impact of textile production and post-consumer disposal. The linear "take-make-dispose" model is becoming increasingly untenable due to resource scarcity and rising costs. Fashion activists are increasingly calling for a transition to a circular fashion model, extending the life cycle of end-of-life products through various strategies: donation, giving to those in need, selling used items, upcycling, and so on. One strategy for circular fashion is designing for longevity.*

Keywords: *designing for longevity, fashion industry, collection, circular fashion strategy.*

Objectives. The aim of this work is to develop design solutions to extend the lifecycle and diversify women's clothing products.

Methodology. We used an analytical approach to evaluating clothing based on functionality and cost. Women's clothing is often primarily designed to meet aesthetic needs while offering a high degree of variety. However, in today's sustainable consumption paradigm, there is a tension between variety and the number of items in a personal wardrobe. Therefore, it is necessary to develop design solutions that ensure visual diversity within a basic garment.

Research results. A circular system offers opportunities to reduce environmental impacts and reduce demand on natural resources while maximizing product value. The public is increasingly aware of the fashion industry's environmental impact. Consumers expect the industry to address production-related issues such as excessive water consumption, toxic chemicals, and the accumulation of clothing in landfills. Implementing a circular approach provides an opportunity to evaluate and improve current business models and offers a unique opportunity to build close relationships with consumers [4]. An integral part of creating a circular system in fashion is the development of a system for integrating circular design, implementing collection systems, and managing end-of-life clothing. This can be achieved through life-extending methods, such as resale, design for longevity [1], as well as recycling worn-out clothing and using recycled fibers in the production of new materials for clothing.

The concept of cyclical design is realized through various forms depending on the purpose. When designing for durability, wearability, and repairability, the goal is to ensure the extended life of clothing for one or more wearers. When designing for cyclical design, products that meet durability requirements must initially incorporate solutions for potential functional failures [5].

Implementing a circular design process will vary depending on the chosen design approach. For example, designing for longevity involves selecting higher-quality materials and a design that allows for easy replacement of individual product components in the event of failure or deterioration. When designing, it is important to consider the entire product lifecycle, including its design concept, after-sales service, and maintenance, to understand how to achieve long-life design.

Women's special occasion wear is an exceptional category of clothing. It's worn infrequently; in fact, items are often stored away and unworn for long periods. Therefore, it makes sense to design it for longevity, especially given that such clothing often carries a high price tag. This, in turn, means that consumers expect durability as a measure of value for money.

This necessitates classic, rather than trendy, designs, with the potential for alterations. However, the price also allows for the use of luxurious fabrics, surface embellishments, and luxurious finishes [6]. Another factor to consider is the ability to design garments to last longer, even if their lifespan is shortened by increased wear.

Top five solutions of design for longevity of women's occasional wear are:

- ✓ Using classic styles, innovatively, to help transcend fashion fads.
- ✓ Ensuring high quality fabrics are used when designing garments.
- ✓ Designing garments that are multi-functional, to give the customer the option to wear different parts of the outfit with other clothes.
- ✓ Facilitating alteration through adjustable waistbands, generous seams or additional buttons.
- ✓ Selecting materials and components that can withstand the chemicals used in the dry-cleaning process [3].

Our approach is focused on designing garments that are multi-functional, to give the customer the option to wear different parts of the outfit with other clothes.

Dresses with detachable elements that fundamentally change the morphology and function of the garment can be considered an example of design for longevity. Detachable elements in women's dresses are components of the outfit that can be added or removed, altering the dress's

appearance or functionality. These elements typically include straps, sleeves, cords, ruffles, layers of fabric, buttons, or even design elements such as collars or skirts. The use of these elements provides flexibility, allowing women to tailor an outfit to the occasion, personal style, or comfort preferences. For example, a dress with straps can be worn for a daytime event, while a strapless one can be worn for an elegant evening. This versatility makes dresses with detachable elements popular, as they are more adaptable and cost-effective, allowing for multiple looks to be created from a single garment. At the same time, in the context of the rational use of material resources, this approach is part of the concept of sustainable fashion, which has an overall impact on the environment.

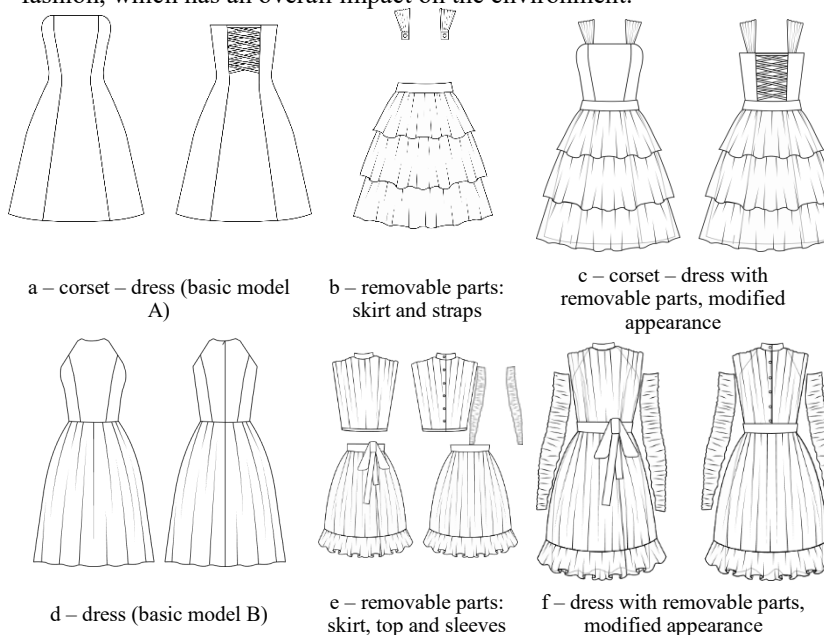


Fig. 1. **Women's dress with removable pieces** (Designed by C.Cantievski_student at TUM)

Despite thoughtful design through modification of the garment's morphology [7], there are numerous opportunities for reuse of these garments, including through "vintage" fashion and alternative business models that don't rely on individual sales. Furthermore, the special fabrics used to make some dressy items are sometimes valuable and can be reused.

Clothes in classic styles and colors are more likely to be reused, especially if the cut allows for modifications, for example, for increased comfort or customization.

Recently observations have revealed high consumer interest in renting dressy or formal clothing—an option currently available in vintage clothing markets, but less so in women's dressy clothing. There is also interest in the "buy-back and resell" model, where buyers can return nearly new dressy clothing to retailers for resale, receiving cash rewards or gift certificates. This gives consumers the opportunity to afford dressy clothing they might not otherwise purchase. It is known that a significant number of people are willing to return used dressy clothing or are willing to buy used. Resale through online platforms, donations, and participation in exchange campaigns are all gaining momentum.

Today, it's safe to say that elements of circular fashion are becoming a part of everyday life [9], not just through design for longevity, but also through new business models in the fashion industry that enable the development of exchange, retail and donations.

Conclusion. The design of clothing products becomes a tool both for satisfying consumer requirements and as a means of rational use of material resources by diversifying the external appearance of the product by adding constructive-decorative elements in such a way that it allows the expansion of the intended purpose of the designed product.

References

1. Lee, S., F. Coughlin, J., Hodara, S., C. Yang, M., L. de Weck, O., Klopfer, E., and Ochsendorf, J. (2024) Design for Longevity Literature Review in Product Lifecycle, Financial Planning, and Gerontology, in Gray, C., Ciliotta Chehade, E., Hekkert, P., Forlano, L., Ciuccarelli, P., Lloyd, P. (eds.), DRS2024: Boston, 23–28 June, Boston, USA. <https://doi.org/10.21606/drs.2024.363>
2. Cooper, T., Oxborrow, L., Claxton, S., Goworek, H., Hill, H., McLaren, A. (2016), Strategies to improve design and testing for clothing longevity, Defra: London.
3. COOPER, T., et al. Design for longevity: Guidance on increasing the active life of clothing. Retrieved December, 2013, 1: 2014.
4. Scripcenco A., Pashkevich K. From linear to circular fashion: is it new trend or necessity? // Актуальні проблеми сучасного дизайну. 2020. P. 265–268.
5. Graur I.-V. та ін. Application of the principle of sustainability in designing a garment collection for women // Innovative textile materials and processing. 2025. P. 257.
6. Scripcenco A. The trends in the processing technologies of apparel in the luxury segment // Creativitate. Tehnologie. Marketing. 2023. P. 232–235.
7. Scripcenco A., Cealovskaia J. Development of a relational database model of technological process of women's jackets production. 2013.
8. Graur I. V., Scripcenco A. Elaborarea îmbrăcăminții intermediare pentru femei cu aplicarea principiilor modelii sustenabile // Conferința tehnico-științifică a studenților, masteranzilor și doctoranzilor. 2024. P. 2080–2084.