

Fur and Sustainability Cards

Design for Longevity

FUR AND SUSTAINABILITY CARDS -DESIGN FOR LONGEVITY

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Layout: Atlant

Design School Kolding in collaboration with Copenhagen Fur, 2016

Design and Concept

- Co-Creation
- Customisation
- Design for Disassembly
- Embedded Storytelling
- Formal Alteration and Modification
- Formal Sharing and Heritage
- Modularity
- Mono-Material
- Multi-Functionality
- Rental Service
- Technical Durability
- Upcycling
- User Understanding
- Zero-Waste



Emotional Values

- Aesthetic Lifetime
- Embedded Storytelling
- Product History



The collection includes 35 cards that introduce and describe selected sustainability articulations. The cards have been developed as an inspiration and methods toolkit to be used in sustainable design practice.

In this version, the content on the cards specifically addresses sustainable aspects and fur.

The cards are distributed in six categories:



Material and Production



User and Practice



Design and Concept



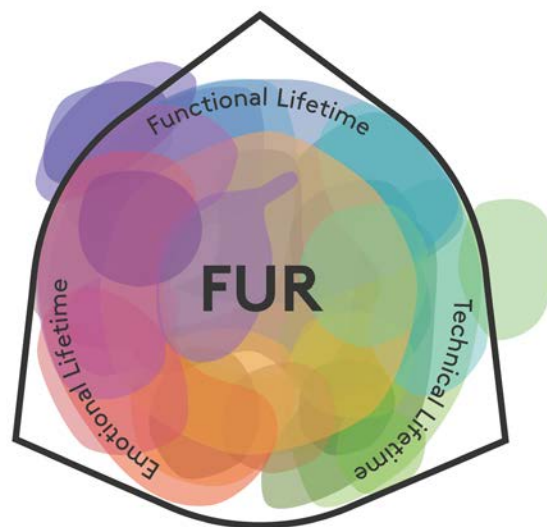
Transparency



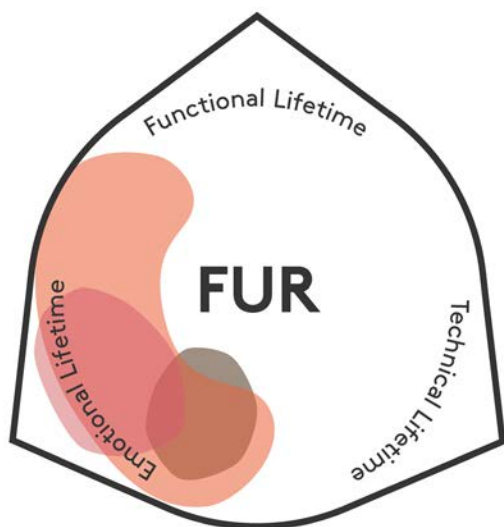
Emotional Values



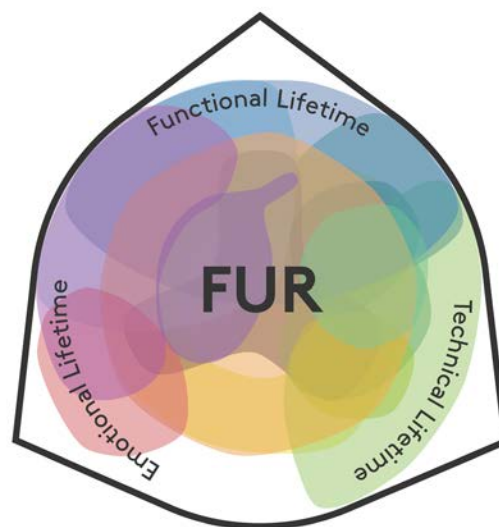
Services



Emotional Values



Design and Concept



Materials and Production

- Aesthetic Lifetime
- Design for Disassembly
- Environmentally Friendly Materials
- Formal Alteration and Modification
- Informal Alteration and Modification
- Labour Conditions
- Local Production
- Maintenance
- Mono-Material
- Product History
- Production on Demand
- Re-Use
- Technical Durability
- Upcycling
- Zero-Waste



Services

- E-Shop
- Formal Alteration and Modification
- Formal Sharing and Heritage
- Rental Service
- Re-Use



Transparency

- Information
- Labelling
- Product History
- Tagging

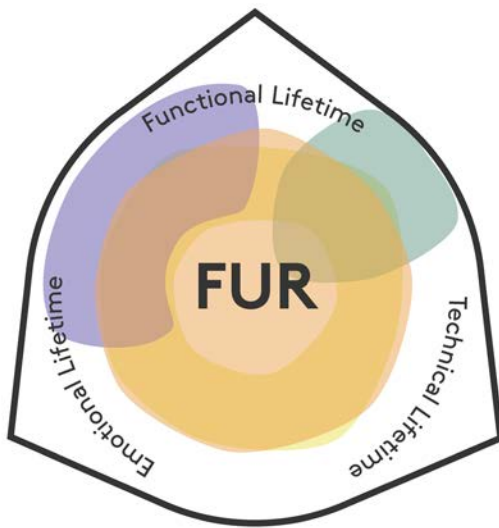


User and Practice

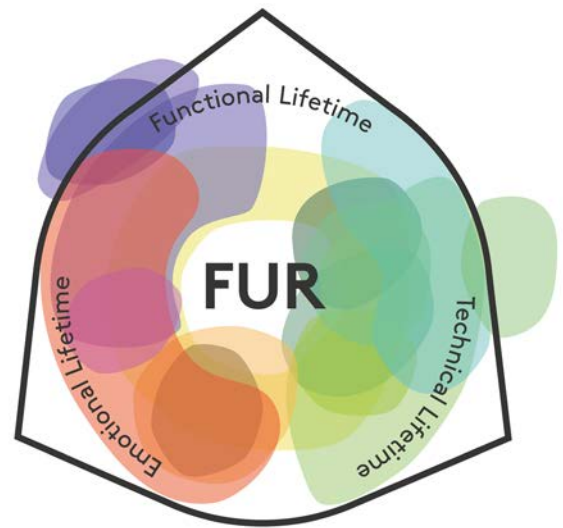
- Co-Creation
- Customisation
- Informal Alteration and Modification
- Informal Sharing and Heritage
- Maintenance
- Modularity
- Multi-Funtionality
- Rental Service
- Repair
- Re-Use



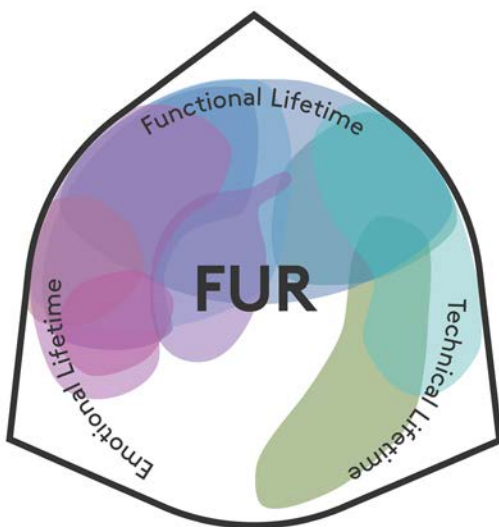
Services



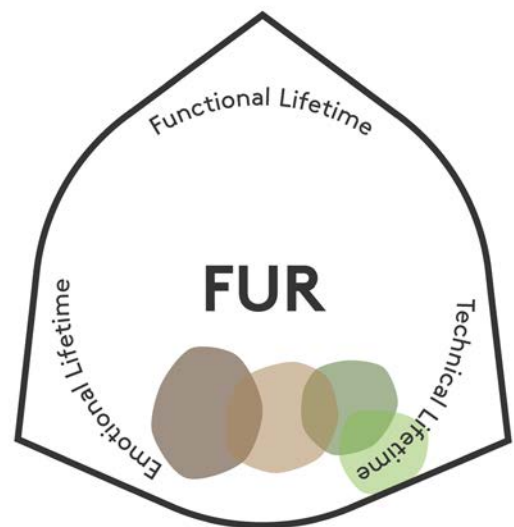
Materials and Production



User and Practice



Transparency



Aesthetic Lifetime

WHAT?

There are different approaches to working with the aesthetic lifetime of a product – for example to ensure that the intended product-lifespan is supported by the product's aesthetic expression (1), to ensure that a product age without losing aesthetic value (2) or to ensure that intended aesthetic lifetime is aligned within a circular systems thinking (3).

WHY?

The aesthetic lifetime can support product longevity. Aesthetic means can prolong product lifespan when product expression targets user and context of use and aesthetic traces of time and use can add value to a product.

CHALLENGES

- The aesthetic lifetime and aspects that define it are difficult to predict.

EXAMPLES

- Classic and simple aesthetics less influenced by fast changing trends. See e.g. the company *Armoire Officielle* (<http://armoireofficielle.com>).
- Aesthetic 'richness' that allows the user to 'read' and discover a product over time, e.g. through applying craft and couture techniques.
- Working consciously with patina as an aesthetic value, that only increases over time. See for example full-grain leather and furniture.

THIS CARD LINKS TO

/ Customisation / Embedded Storytelling / *Emotional Lifetime* / Formal Alteration and Modification

FURTHER READING

Clark (2008). *SLOW + FASHION—an Oxymoron—or a Promise for the Future ...?* Fashion Theory 12, pp. 427–446 / Niinimäki (ed.) (2013). *Sustainable Fashion: new approaches*. Aalto University, Helsinki.

Co-Creation

WHAT?

The design process is carried out, fully or partly, in collaboration with future users or other relevant actors.

WHY?

Co-creation can support product longevity:

1. Designing for user specific needs and desires.
2. Creating a sense of user ownership to product. Users are less willing to depart with products they have invested themselves in developing.

CHALLENGES

- Users may not be conscious about or able to articulate needs and desires.
- Temporal and/or financial limitations within the design process.

EXAMPLES

- Birger Christensen's past practice of involving users in the design process via dialogue between designer, patternmaker and costumer in the shop and during fitting.
- Lego's work with online user co-creation (<https://ideas.lego.com>).

THIS CARD LINKS TO

/ Embedded Storytelling / User Understanding

FURTHER READING

Gwilt (Ed.) (2015). *Fashion Design for Living*. Routledge / Friis (2016). *Co-Creation Cards*. U-Press / Prahalad & Ramaswamy (2004). *Co-Creation Experiences: The Next Practice in Value Creation*. Journal of Interactive Marketing 18(3).

Customisation

WHAT?

Users can influence the final product, before production, in relation to individual user needs and aesthetic preferences.

WHY?

Customisation can support product longevity through stronger user satisfaction and emotional investment.

CHALLENGES

- Users may not want to make choices.
- Requires a user friendly system.

EXAMPLES

- Big brands such as Nike offer their users the possibility to personalise their purchase (http://www.nike.com/gb/en_gb/c/nikeid).
- Bow and Drape within high street apparel uses a 'coffee to go' strategy, i.e. users choose their own combination of pre-fixed elements: (<http://www.bowanddrape.com>).
- Suiting such as by the company Creyate (<http://www.creyate.com>).
- Unmade's customised knitwear (www.unmade.com).

THIS CARD LINKS TO

/ Aesthetic Lifetime / *Emotional Lifetime* / E-Shop / *Functional Lifetime* / Local Production / Modularity / Production on Demand / User Understanding

FURTHER READING

Niinimäki (ed.) (2013). *Sustainable Fashion: new approaches*. Aalto University, Helsinki / Pine & Gilmore (2011). *The Experience Economy*. Harvard Business Review Press.

Design for Disassembly

Also known as DfD

WHAT?

Working with materials in a manner that allows for material separation once product is discarded or in need of repair.

WHY?

Design for Disassembly can ease and support re-use of materials.

CHALLENGES

Design for Disassembly may challenge the intended design expression and/or economic considerations.

EXAMPLES

- Design that makes it easy to remove and replace product elements that wear out first. This is often seen with i.e. linings in fur coats, but can also be collars, sleeves or other exposed parts.
- Design that makes it easy for the user to disassemble the product and replace the exact broken part such as the Fairphone (www.fairphone.com).
- Design where materials can be separated and therefore re-used after the product is fully discarded by the user, by avoiding e.g. glues and mixed fibre materials.

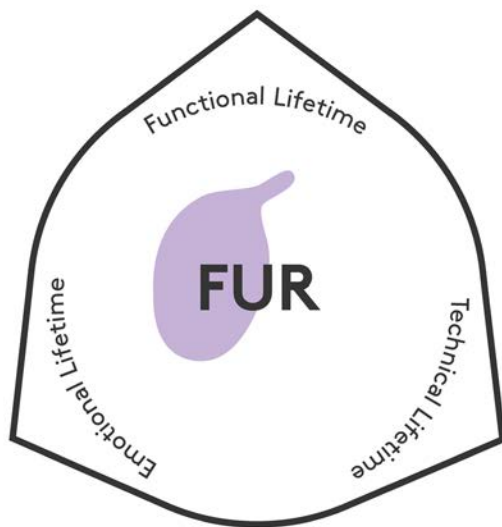
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/ Modularity / Mono-Material / *Technical Lifetime* / Upcycling

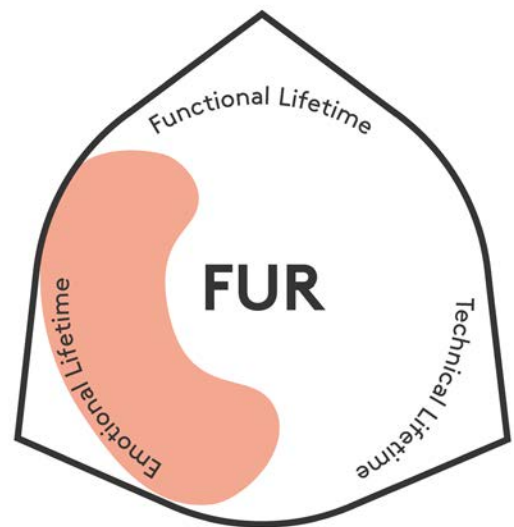
FURTHER READING

Bakker et al. (2014). *Products That Last – Product design for circular business models*. TU Delft, Delft, pp. 104-109 / Bogue (2007). *Design for disassembly: a critical twenty-first century discipline*, Assembly Automation 27 (4), pp. 285-289 / Vezzoli & Manzini (2010). *Design for Environmental Sustainability*, Chapter 9: Facilitating Disassembly. Springer, London, pp. 181-197.

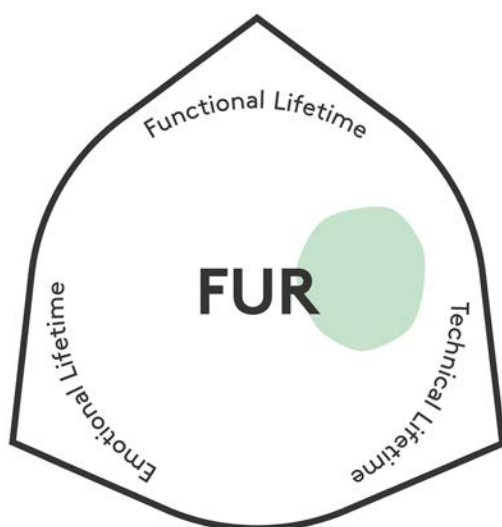
Co-Creation



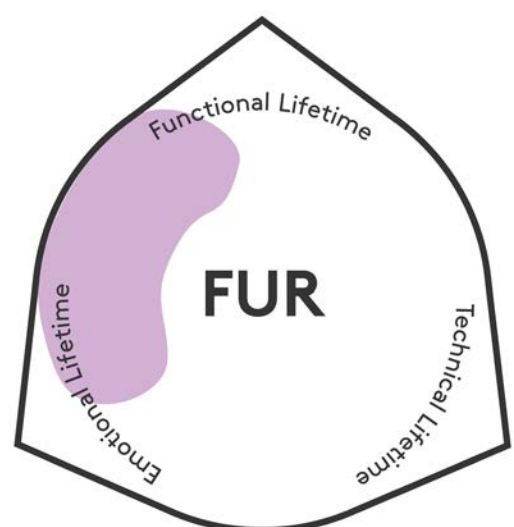
Aesthetic Lifetime



Design for Disassembly



Customisation



E-Shop

WHAT?

Online shop and platform that allow customers to purchase products via their computers.

WHY?

An E-shop can support product transparency and economic efficiency through fewer links, increased control and direct communication with users.

CHALLENGES

It can be difficult for users to test and experience the product before purchase if they only meet the product online?

EXAMPLES

- The designer **Bruno Pieters** uses the e-shop to promote the company/product transparency as his basic approach to design (<http://www.honestby.com>).
- On a larger scale, **Marks and Spencer** uses their e-shop to tell about their strategic sustainability goal (<http://corporate.marksandspencer.com>).

THIS CARD LINKS TO

/ Customisation / Information / Production on Demand

FURTHER READING

Koumbis (2014). *Fashion Retailing, From Managing to Merchandising*. Bloomsbury / Stone (2014). *The Everything Store: Jeff Bezos and the Age of Amazon*. Back Bay Books.

Embedded Storytelling

WHAT?

Embedded stories can generate emotional value in a product through

- Stories embedded by the designer.
- Stories embedded by the user via use.

WHY?

Emotional value prolongs a product's overall lifespan.

CHALLENGES

- Emotional value is difficult to pinpoint, predict and make tangible.

EXAMPLES

- Storytelling embedded by use can be design steered as seen in e.g. the **Pandora concept** (www.pandora.net) Each bead represents something, a personal story, to the user. It can also be user driven by users changing, sharing or re-using products, and thereby building and embedding stories in the product over time.
- Designers generally work with some sort of embedded storytelling. This potential can be further activated by
 1. **creating diverse types of stories** for diverse user groups.
 2. **implementing the story embedded in the design** in the communication of the design to the intended user. See for example Kjetil Aas' work with Swakara fur.

THIS CARD LINKS TO

/ Co-Creation / Customisation / *Emotional Lifetime* / Product History / User Understanding

FURTHER READING

Clark (2008). *SLOW + FASHION—an Oxymoron—or a Promise for the Future ...?* Fashion Theory, 12, pp. 427–446 / Fletcher (2016). *Craft of use*. Routledge.

Environmentally Friendly Materials

WHAT?

Materials and production methods that in different ways consider the environment in a positive way.

WHY?

Environmentally friendly materials are used to minimize pollution and use of resources in materials and production and disposal.

CHALLENGES

- Environmentally friendly materials can be many things and it is just necessary to define, how it is environmental.
- A product may not necessarily be environmental friendly even if the material is.
- Environmentally friendly materials might compete with less expensive alternatives.

EXAMPLES

- Use of **organic cotton** instead of conventionally grown cotton; see e.g. the Danish company **Organic Basics** (www.organicbasics.com).
- Conventional plastics (such as Polyester and Nylon) that are made by using **renewable components**; see for example the **Plantbottle** initiative (www.coca-colacompany.com/plantbottle-technology).

THIS CARD LINKS TO

/ Labelling / Re-Use

FURTHER READING

Allwood & Cullen (2011). *Sustainable Materials – With Both Eyes Open: Future Building, Vehicles, Products and Equipment – Made Efficiently and Made with Less New Material*. UIT Cambridge / Fletcher & Grose (2012). *Fashion & Sustainability: design for change*. Laurence King Publishing, London.

Formal Alteration and Modification

WHAT?

Users and to specialists to have products adjusted or modified. This can be part of a service system.

WHY?

An existing product have a higher use potential and/or emotional value than a new equivalent product.

CHALLENGES

- Lack of specialists and craftsmen.
- How should the service system be created to support this?

EXAMPLES

- Furriers often offer traditional services to do with modification of garments; see for example **Birger Christensen** (www.birger-christensen.com/da/pels) or **Maison Lama** (www.maisonelama.com/pages/redesign).
- The American company **Runway of Dreams** has expanded on the idea by working with modification of garments for people not applying to the 'fashion-body' norm, identified as 'differently abled' (<http://runwayofdreams.org/about>).

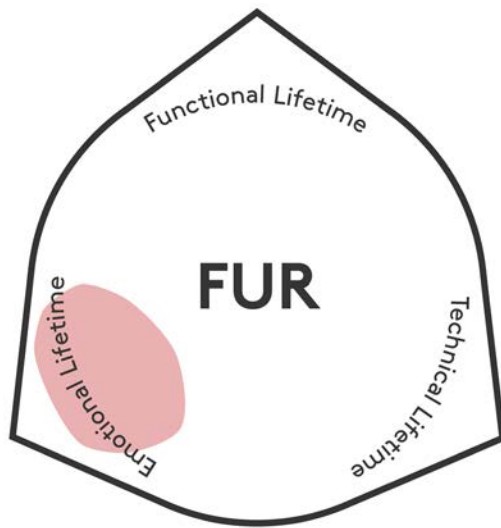
THIS CARD LINKS TO

/ Customisation / Informal Alteration and Modification / User Understanding

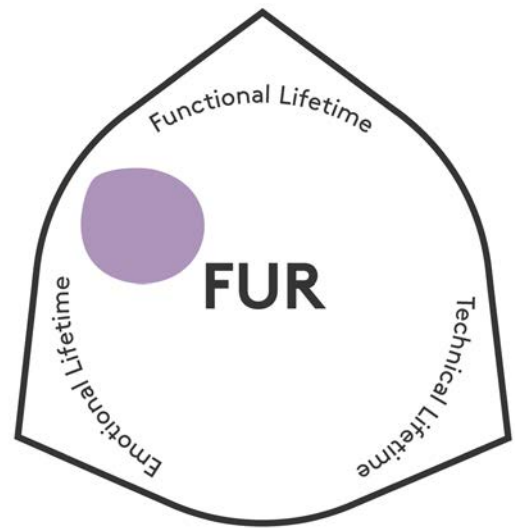
FURTHER READING

Fletcher & Grose (2012). *Fashion & sustainability: design for change, Chapter 9: Adaptability*. Laurence King Publishing / Gwilt & Rissanen (2011). *Shaping Sustainable Fashion: Changing the way we make and use clothes, Chapter 3: Use*. Earthcan.

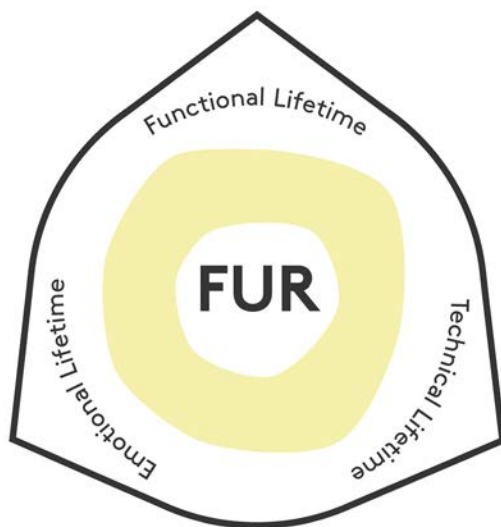
Embedded Storytelling



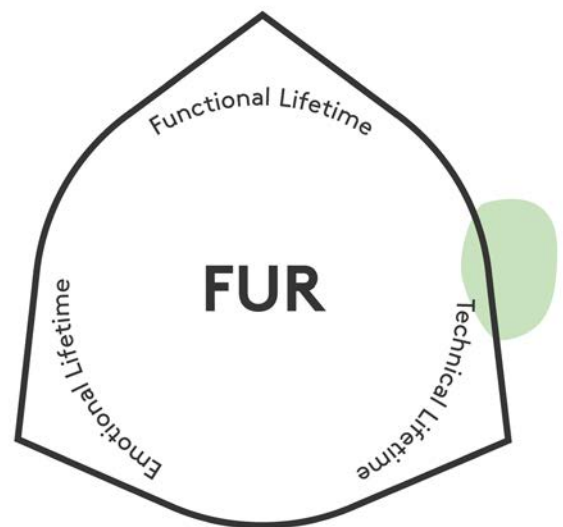
E-Shop



Formal Alteration and Modification



Environmentally Friendly Materials



Formal Sharing and Heritage

WHAT?

Service design systems driven by sharing of products between actors.

WHY?

It speaks into the current sharing paradigm that serves to optimise resource use. These kinds of systems focus on user economic and support user diversity.

CHALLENGES

- It can be difficult to identify 'how?', 'what?', 'who?' a service system is formalised.
- Formalised sharing can require larger data systems to process information on product flows or users.

EXAMPLES

- Systems may focus on optimising the **use-extent of a product**, as seen at textile rental and laundry service company **Berendsen** (www.berendsen.com/our-servicesor).
- Focus on prolonging product lifespan as i.e. the company **Re-second**, which runs on membership and is both a physical 'shop' and an online community for **sharing and swapping products** (<http://resecond.com>).

THIS CARD LINKS TO

/ Formal Alteration and Modification/ Informal Sharing and Heritage / Rental Service / User Understanding

FURTHER READING

Fletcher & Grose (2012). *Fashion & sustainability: design for change*. Laurence King Publishing / Sundararajan (2016). *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*. The MIT Press.

Informal Alteration and Modification

WHAT?

Users adjust and modify products themselves, for themselves and near relations. This is self-driven and un-systematised.

WHY?

To prolong product lifespan and to adapt a product to its own changing needs.

CHALLENGES

- It relies partly on the product's emotional value.
- Many users do not have the necessary skills to make alterations and modifications.

EXAMPLES

- In the project, **Local Wisdom**, British scholar Kate Fletcher, has documented ways in which users adjust and modify garments over time (www.localwisdom.info).
- Blogging and Youtubing about DIY is a growing phenomenon (see e.g. www.stylemotivation.com/24-stylish-diy-clothing-tutorials or <https://changingyourclothes.wordpress.com>).

THIS CARD LINKS TO

/ Formal Alteration and Modification / Repair / User Understanding

FURTHER READING

Fletcher (2016). *Craft of use*. Routledge / Gwilt (Ed.) (2015). *Fashion Design for Living*. Routledge.

Informal Sharing and Heritage

WHAT?

Users that share products in a self-driven and un-systematised manner.

WHY?

It approach taps into the current sharing paradigm that focuses on prolonging the lifespan of a product. Sharing and heritage can be:

1. an economic advantage.
2. a way of passing on/creating emotional value in a product.

CHALLENGES

- Products may not fit new users.
- Unwanted traces of time and use in product may occur such as i.e. smell and stains.

EXAMPLES

- People tend to share products that possess value, either emotional or economic or both, as i.e. is the case with garments made of fur. But also baby clothes are frequently shared due to the short use time and thereby lack of wear and tear. **Swapping 'parties'** are similarly seen as a growing phenomenon. See for example **Copenhagen Fashion Exchange** (www.globalfashionexchange.org).

THIS CARD LINKS TO

/ Formal Sharing and Heritage / Informal Alteration and Modification / User Understanding

FURTHER READING

Fletcher (2016). *Craft of use*. Routledge / Skjold & Ræbild (accepted). *Fur design as mediator of sustainability*. Nordcode conference, Kolding.

Information

WHAT?

Information on active initiatives in relation to sustainable products.

WHY?

Information makes knowledge visible, accessible and transparent to the user.

CHALLENGES

- To make the information comprehensible, attractive and relevant to the user
- To get the necessary information from sub-suppliers

EXAMPLES

- Material information as in the **Swakara** fur from Copenhagen Fur (www.kopenhagenfur.com/da/pelsens-abc/pelstyper/swakara).
- Product information as from the company, **Neutral** selling B2B clothing (www.neutral.com).
- Strategic information as from the company, **Patagonia** (<http://eu.patagonia.com/enGB/environmentalism>).

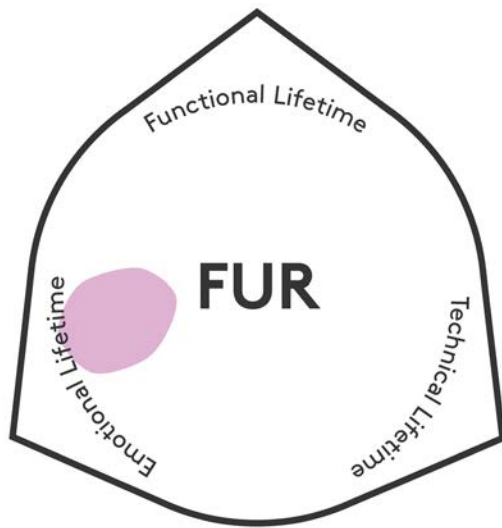
THIS CARD LINKS TO

/ E-Shop / Labelling / Labour Conditions / Product History / Tagging

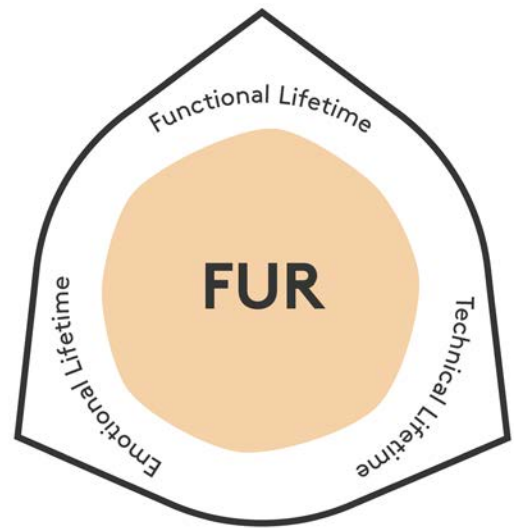
FURTHER READING

Jorij (2014). *Product Information Management: Theory and Practice*. Springer / Wang & Hazen (2016). *Consumer product knowledge and intention to purchase remanufactured products*. *International Journal of Production Economics* 181 Part B, pp. 460–469.

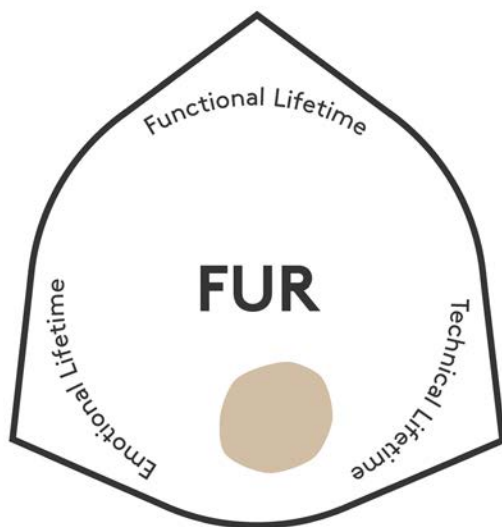
Informal Alteration and Modification



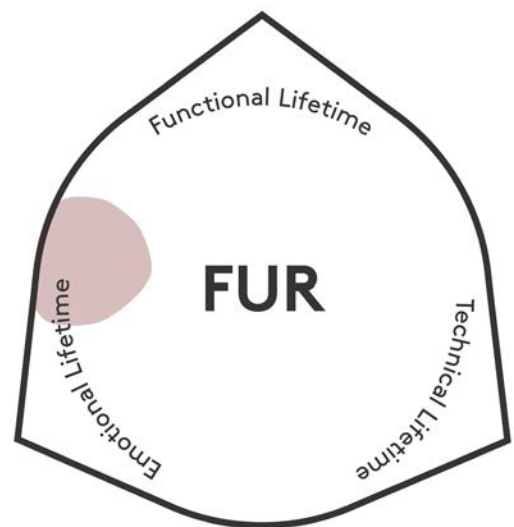
Formal Sharing and Heritage



Information



Informal Sharing and Heritage



Labelling

WHAT?

Formal information provided by labelling systems. Labelling can inform on aspects such as material composition, production and maintenance.

WHY?

Labelling can represent a guaranty from the user perspective and provide guidelines for the users.

CHALLENGES

- The current labelling 'jungle' creates information fatigue.
- Users do not always read the labels.
- Labelling can be costly – especially if the included information is standardized.

EXAMPLES

- In the European Union, there is a regulation, **Regulation 1007/2011**, on which information that should be included on labels for textiles and clothing (https://ec.europa.eu/growth/sectors/fashion/textiles-clothing/legislation_en).
- An overview on eco labels can be found in the **Eco Label Index** (www.ecolabelindex.com/ecolabels).

THIS CARD LINKS TO

/ Environmentally Friendly Materials / Information / Labour Conditions / Maintenance / Tagging

FURTHER READING

Aspers (2008). Labelling fashion markets. *International Journal of Consumer Studies* 32, pp. 633–638. / Hyllegard et al. (2012). Socially Responsible Labeling: The Impact of Hang Tags on Consumers' Attitudes and Patronage Intentions Toward an Apparel Brand. *Clothing and Textiles Research Journal* 30, 51–66. / Krüger et al. (2013). *Guidelines II – A Handbook on Sustainability in Fashion*. Copenhagen School of Design and Technology, pp. 136–141.

Labour Conditions

WHAT?

Initiatives towards responsible labour conditions in a product's life cycle. This is often incorporated in a company's corporate social responsibility (CSR) strategy.

WHY?

Focus serves to ensure that workers involved in a product's life cycle have dignified living conditions taking into ethical concerns of the industry.

CHALLENGES

- Sub-suppliers do not always share a company's values; consequently in some places it is necessary to monitor sub-suppliers, which is time consuming and expensive.

EXAMPLES

- The **Code of Conduct** is based on International Labour Organization (ILO) standards and seeks to protect the workers in manufacturing (www.fairlabor.org/our-work/code-of-conduct).
- The organisation, **Clean Clothes Campaign**, focuses on improving working conditions in the global garment industry (www.cleanclothescampaign.org).
- The **Worldwide Responsible Accredited Production (WRAP)** 12 principles are based on international workplace standards, local laws and workplace regulations (www.wrapcompliance.org/12-principles).

THIS CARD LINKS TO

/ Information / Labelling / Local Production / Product History

FURTHER READING

Crane et al. (2008). *The Oxford Handbook of Corporate Social Responsibility*. Oxford University Press / Moon (2014). *Corporate Social Responsibility: A Very Short Introduction*. Oxford University Press / Ross (2004). *Slaves to Fashion – Poverty and Abuse in the New Sweatshops*. Michigan University Press.

Local Production

WHAT?

Production of product placed locally to either development, material production and/or retail.

WHY?

Local production can:

- minimise use of resources i.e. transport costs, CO₂ emission and logistics.
- enable design innovation in collaboration with manufacturers within production.
- support transparency of production process.

CHALLENGES

Lack of locally situated manufactures in Denmark, Scandinavia and Western Europe due to the general outsourcing.

EXAMPLES

- High-end United Kingdom textiles company **Wallace & Sewell** use their choice of local production as part of the **product history build-up** (www.wallacesewell.com/about).
- Local Production can be used to promote and invigorate a specific geographical area through a **joint platform**, see for example **MINYC** (<http://madeinnyc.org>).

THIS CARD LINKS TO

/ Customisation / Labour Conditions / Product History / Production on Demand

FURTHER READING

<http://ldcluster.com/wp-content/uploads/2016/01/Masterclass-produktion-i-danmark.pdf> / Clark (2008). *SLOW + FASHION—an Oxyoron—or a Promise for the Future ...?* *Fashion Theory*, 12, pp. 427–446.

Maintenance

WHAT?

Motivate users to maintain products with a low level of energy consumption through:

1. Information and guidelines; low wash temperature, zero tumbling, airing.
2. Choice of material.

WHY?

- The energy consumption in the use/maintenance processes can be minimised with the right handling.
- The product lifespan can be prolonged by handling with care.

CHALLENGES

- Users may not read labels and are habit driven.
- Users on average have limited knowledge on materials and maintenance.

EXAMPLES

- Japanese brand **Konaka** has developed a 'shower clean business suit' (www.youtube.com/watch?v=9PUyCqiKKzk).
- Fur does not need to be washed or ironed, but to last, it needs to be stored cool in the summer, which can be energy consuming.

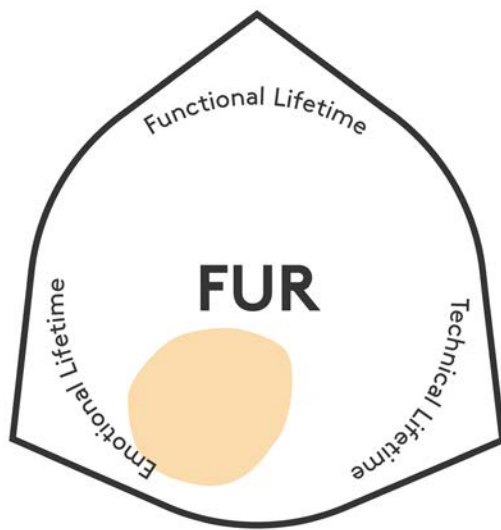
THIS CARD LINKS TO

/ Labelling / Rental Service / Repair / Tagging / Technical Durability

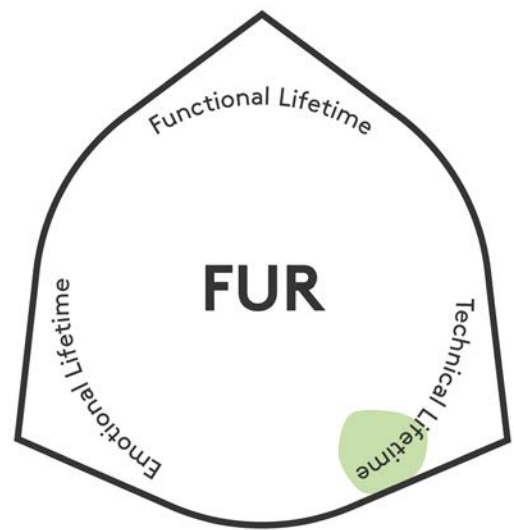
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Laitala et al. (2015). Making clothing last: A design approach for reducing the environmental impacts. *International Journal of Design*, 9(2), pp. 93–107 / Skjold & Ræbild (2016). Investigating fur as mediator of sustainability. *Nordcode Conference 2016*, Kolding (Accepted) / Jack (2013). *Fashion Use: A polemic to provoke pro-environmental garment maintenance*, in: Gardetti & Torres (Eds.), *Sustainability in Fashion and Textiles: Values, Design, Production and Consumption*. Greenleaf Publishing, pp. 125–133.

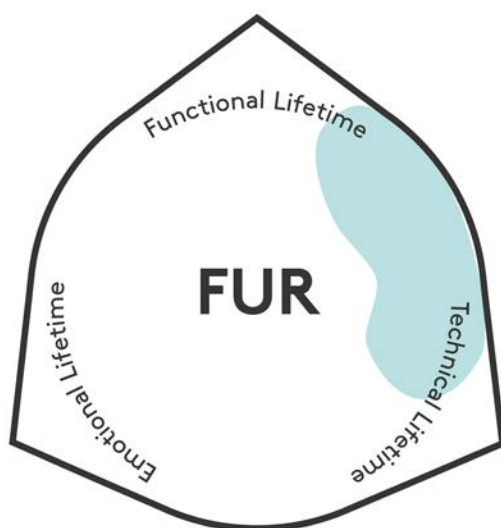
Labour Conditions



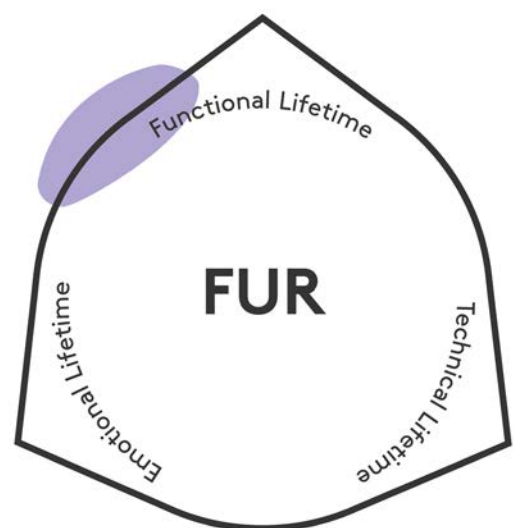
Labelling



Maintenance



Local Production



Modularity

WHAT?

Design that is based on a modular approach. A product contains several separable pieces that can be assembled in different ways by the user or a series of individual products that may be purchased and used alone, or collected and assembled in different ways over time by the user.

WHY?

Modularity can support the functional lifespan and overall product longevity. Users can choose to buy products according to individual resources (economy), and users can build up their own selection in their own time. Components can be shared and swapped as well as changed to new ones if they become defect or broken (flexibility).

CHALLENGES

- Users may find it challenging and complicated in use.
- Product continuity is needed to secure user satisfaction.

EXAMPLES

- Modularity understood as bits to be built together by the user. See garment experiment by Berber Soepboer (<http://en.refnity.eu/fragment-textiles.html>).
- Modularity understood as items that can be used alone or together: a coat may consist of a vest, a cape, a hood/hat, cuffs etc. See for example the Fishing jacket.

THIS CARD LINKS TO

/ Customisation / Design for Disassembly / *Functional Lifetime* / Modularity / Production on Demand / Rental Service / *Technical Lifetime*

FURTHER READING

Niinimäki (ed.) (2013). *Sustainable Fashion: new approaches*. Aalto University, Helsinki / Ribeiro et al. (2014). *Mass customization: modularity in development of fashion products*. International Journal of Management Cases 16 (2), pp. 41-45.

Mono-Material

WHAT?

A product that is composed of a single type of material or a product with components that each are made of a single type of material and that can be split apart.

WHY?

Mono-materials can ease material re-use and recycling of a product.

CHALLENGES

- There are limited possibilities for re-utilisation due to lack of facilities that process into new high value materials.
- Compromises on for example functionality and quality of the product may be necessary.

EXAMPLES

- Mono material can be a creative constraint and concept, see for example *Pleats Please* (100% polyester) by Issey Miyake (www.isseymiyake.com/en/brands/pleats_please.html).
- Clothing designed without fusing and lining, such as fur coats.

THIS CARD LINKS TO

/ Design for Disassembly / Modularity / Re-use / Up-Cycling

FURTHER READING

Gwilt (2014). *A Practical Guide to Sustainable Fashion*. A&C Black / Kappelgaard et al. (2011). *Living Lightly – Sustainable Fashion*. Design School Kolding, Kolding, pp. 51-63 / Vezzoli & Manzini (2010). *Design for Environmental Sustainability*, Chapter 8: *Extending the Lifespan of Materials*. Springer, pp. 171-180.

Multi-Functionality

WHAT?

Product that can serve multiple functions for one or for several users:

1. Transformation of function.
2. Transformation of function to context.
3. Transformation to body-type.

WHY?

Multi-functionality can minimise use of resources by optimising product usability.

CHALLENGES

- It demands user friendly design.
- It creates a risk of low product functionality overall.

EXAMPLES

- Multi-gender, like *Weekday's S(HE)* product line (http://shop.weekday.com/dk/Weekday_i_d/News/mtwtffs_he) or the garment subscription service *Good Practice* (<http://goodxpractice.com>).
- Multiple wearing options, such as *Donna Karan's infinity dress* or the *Twelve Way dress* (<http://twelveways.com>).

THIS CARD LINKS TO

/ *Functional Lifetime* / Repair / User Understanding

FURTHER READING

Fletcher & Grose (2012). *Fashion & Sustainability: design for change*. Laurence King Publishing, London / Kunha & Broega (2009). *Designing Multifunctional Textile Fashion Products*. Proceedings of the AUTEX 2009 World Textile Conference, Izmir, Turkey.

Product History

WHAT?

Articulation to create transparency on product history regarding development, production and potential former use.

WHY?

Visible and transparent product history supports emotional attachment between product and user.

CHALLENGES

- Information must be sorted and selected and who decides what is relevant?
- Credibility can be challenged on how to avoid, or inform on, information biases.

EXAMPLES

- Production: High-end United Kingdom textiles company *Wallace & Sewell* use their choice of local production as part of the *product history build-up* (www.wallacesewell.com/about).
- Material origin: *The Wild Concept* as the story of fur design based on hunted fur bought of local hunters made by *Marita Huurainen* (<http://maritahuurainen.com/about.html#wild>) or the company *Petits Morts Fur* that tells the story of fur sourced from roadkill accidents (<http://petitemortfur.com/about/>).

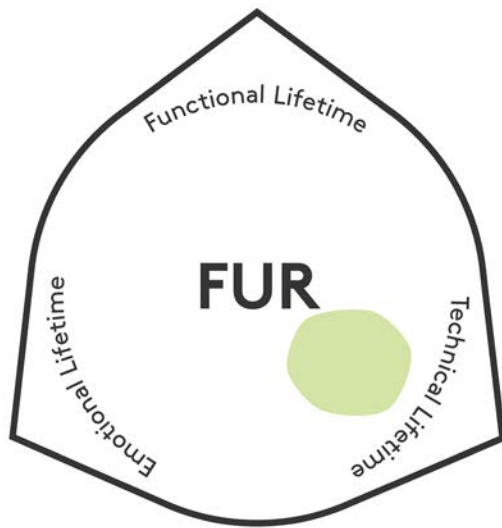
THIS CARD LINKS TO

/ Embedded Storytelling / Information / Labour Conditions / Local Production / Tagging

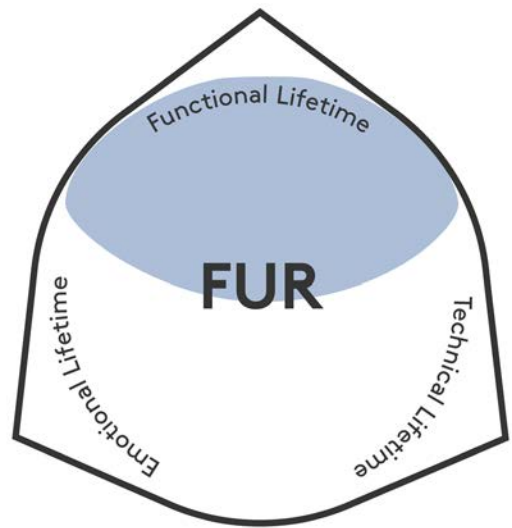
FURTHER READING

Niinimäki (2013). *Ethical design*. In: Niinimäki (ed.) *Sustainable Fashion: new approaches*. Aalto University, Helsinki, pp. 44-45 / Clark (2008). *SLOW + FASHION—an Oxymoron—or a Promise for the Future ...?* *Fashion Theory* 12, pp. 427-446.

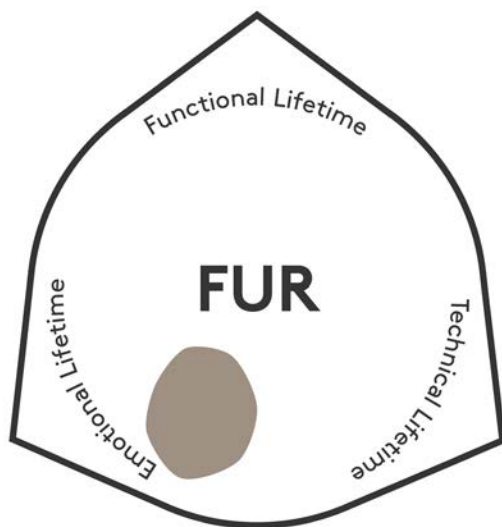
Mono-Material



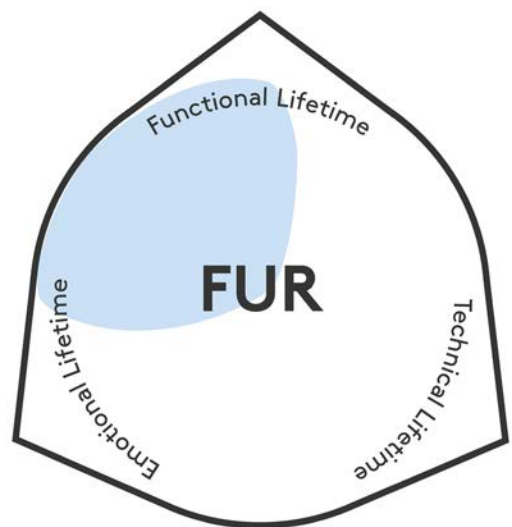
Modularity



Product History



Multi-Functionality



Production on Demand

WHAT?

Production of product only takes place after a user has placed an order. The concept is also called Manufacturing on Demand (MoD) and Demand-driven Manufacturing (DDM).

WHY?

Less over-production can reduce overall resource wastage.

CHALLENGES

- How does the user meet the product in the first place?
- Users must be patient due to increased time between purchase and possession for user.

EXAMPLES

- The Danish Company EE12 produces garments to order and have minimal stock (www.ee12.dk/sustainability).
- The British company Unmade produces on demand knitwear (www.unmade.com).
- Fur garments are often produced on demand due to the high cost level and subsequently relative few potential users.

THIS CARD LINKS TO

/ Customisation / Local production / Modularity

FURTHER READING

Smith & Smith (2013). Demand Driven Performance. McGraw-Hill Education / Walter, Kartsounis & Carosio (2009). Transforming clothing production into a demand-driven, knowledge-based, high-tech industry: The leapfrog paradigm. Springer London.

Rental Service

WHAT?

Re-use of products through rental services such as subscription services and leasing. Rental services as a concept is part of the sharing economy societal paradigm.

WHY?

Rental service models can minimise use of resources by potentially extending the product lifespan.

CHALLENGES

- Products should be designed for extensive use, which can be a design challenge.
- Users may not want to pay for used products.

EXAMPLES

- Rental services can offer complete solutions, like the subscription based baby clothing company Vigga (www.vigga.us).
- Rental services may provide single items such as designer bags from rentabag.dk (www.rentabag.dk).
- Belgian company Mud Jeans leases jeans for a monthly fee. Organic and recycled cotton (www.mudjeans.eu).

THIS CARD LINKS TO

/ Formal Alteration and Modification / Functional lifetime

FURTHER READING

Fletcher & Grose (2012). Fashion & sustainability: design for change. Laurence King Publishing, London / Petersen & Riisberg (in press). Cultivating User-ship? Developing a circular system for the acquisition and use of baby clothing. Fashion Practice / Schor & Fitzmaurice (2015). Collaborating and connecting: the emergence of the sharing economy. In: Reisch & Thøgersen (eds.). Handbook of Research on Sustainable Consumption, Edward Elgar Publishing, pp. 410-425.

Repair

WHAT?

Self-driven product repair carried out by users can be supported via the product.

WHY?

Repairs can prolong the product lifespan. This can be motivated by user economy, ideology and/or emotional attachment to a product.

CHALLENGES

- User skills might be limited.
- It be difficult to get hold of spare parts.
- Users might experience lack of motivation.

EXAMPLES

- Online communities for all types of repair is a growing phenomenon such as ifixit.com (www.ifixit.com/).
- Websites where users share very basic craft skills for repairing clothes, such as on Lifehacker (<http://lifehacker.com>).
- Youtube tutorials on for example how to repair a fur coat yourself (www.youtube.com/watch?v=-VO3J5UOKb0).

THIS CARD LINKS TO

/ Emotional Lifetime / Functional Lifetime / Information Alteration and Modification / Information / Maintenance / Technical Lifetime

FURTHER READING

Barnatt (2012). Seven ways to fix the world. CreateSpace Independent Publishing Platform / Fletcher & Tham (ed.) (2015). Routledge book of sustainable fashion and textiles. Routledge / Fletcher (2016). Craft of use. Routledge / Gwilt, (2014). Fashion and sustainability: repairing the clothes we wear. In: Gwilt (ed.) Fashion design for living. Routledge.

Re-Use

WHAT?

Re-use of products and materials based on a deposit system.

WHY?

Re-use can minimise use of resources as they will be used again instead of becoming waste. Re-use can also prolong a product lifespan.

CHALLENGES

- It requires systems that are easy to engage with for users in everyday life.

EXAMPLES

- Re-use of a product in its original form, similar to the Danish bottle deposit system, Dansk Retursystem (www.dansk-retursystem.dk).
- Re-use of a product material, similar to H&M in collaboration with I:CO-Systems; bring a bag of clothes to the store and get money off (<http://about.hm.com/en/About/sustainability/commitments/reduce-waste/garment-collecting.html> and <http://www.ico-spirit.com>)

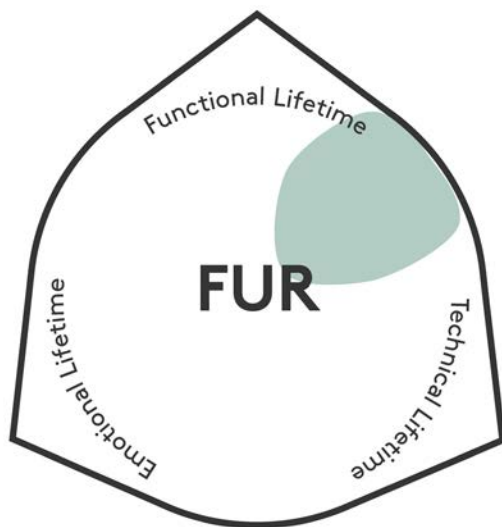
THIS CARD LINKS TO

/ Functional Lifetime / User Understanding

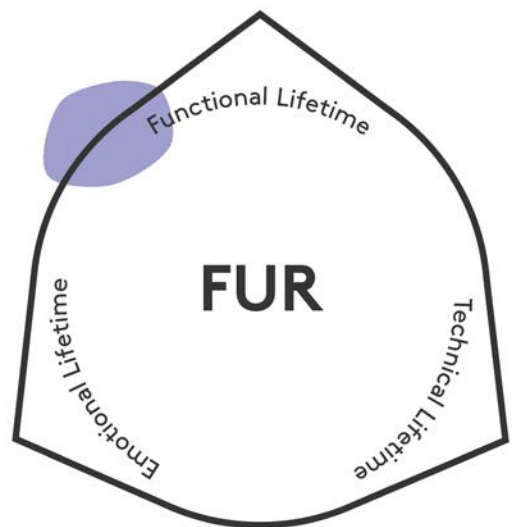
FURTHER READING

Niinimäki (ed.) (2013). Sustainable Fashion: new approaches. Aalto University, Helsinki / Palm et al. (2014). Towards a Nordic textile strategy: Collection, sorting, reuse and recycling of textiles. Nordic Council of Ministers.

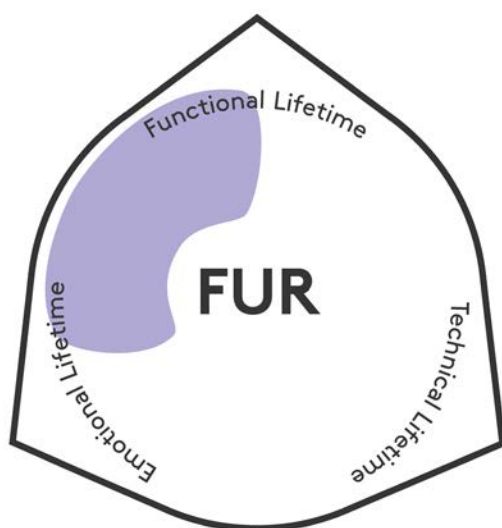
Rental Service



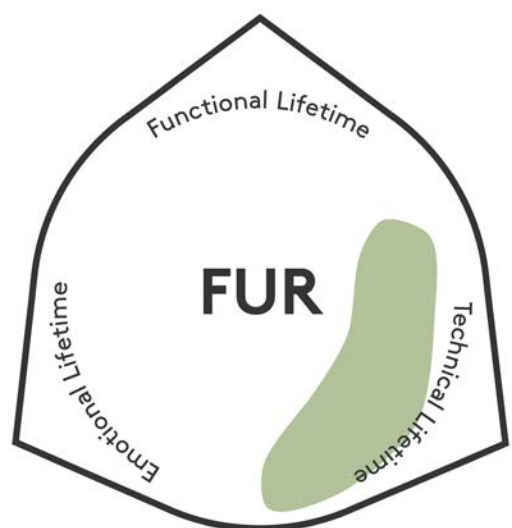
Production on Demand



Re-Use



Repair



Tagging

WHAT?

Information on product attached to product and the possibility of using a QR code or link to webpage.

WHY?

Tagging provides easily accessible information on the product, for example how it has been produced, how it should be handled post-use.

CHALLENGES

- It can be difficult to find the right place to put the tag in order to reach the user.
- Tagging requires limited amount of information.
- Tagging demands credibility.

EXAMPLES

- The IOU Project uses a smartphone app to connect users with garment journey (www.iouproject.com).
- Burberry uses tags which, when scanned by use of smartphones, prompt a short film that shows how that item was made (www.burberry.com).

THIS CARD LINKS TO

/ Information / Labelling / Maintenance / Product History

FURTHER READING

Cofino (2014). Can barcodes make fashion more transparent – and will consumers care?. The Guardian – Guardian Sustainable Business (5 March, 2014)

Technical Durability

WHAT?

To align a material's durability with the intended product lifespan with respect to functional properties such as abrasion, tearing strength and ageing.

WHY?

- To prolong the product lifespan and thus minimise use of resources and to ensure the right material choice for type of use. One example could be that for disposable products (like a paper plate) a criteria may not be long lasting but compostable.

CHALLENGES

- It can be difficult to estimate wear and tear in use contexts.
- It can be costly and troublesome to perform standardised tests.

EXAMPLES

- Product and material specifications that define performative properties, such as abrasion and tearing resistance, dimension stability and colour fastness (e.g. ISO 12947-1:1998 (abrasion), ISO 105-B01:2014 (colour fastness) and ISO 6330:2012 (dimension stability)).

THIS CARD LINKS TO

/ Maintenance / Technical Lifetime

FURTHER READING

Annis (2012). Understanding and Improving the Durability of Textiles, Elsevier / Fan & Hunters / Engineering Apparel Fabrics and Garments. Woodhead Publishing / Hatch (1993). Textile Science. West Group / Saville (1999). Physical Testing of Textiles. Woodhead Publishing.

Up-Cycling

WHAT?

To inject new and higher value to a used, and possibly discarded, product through design.

WHY?

Cradle to Cradle considerations to minimise use of resources.

CHALLENGES

- It can be difficult to ensure clean material fractions.
- Access to and development of up-cycling supportive technology are limited.
- It can be difficult to define that 'higher value' is.

EXAMPLES

- Patagonia's fleece jumpers made of old plastic bottles (<https://www.patagonia.com/recycled-polyester.html>).
- A blog entry from Danielle L. Vermeer on fashion companies working with upcycling (<http://daniellelvermeer.com/blog/upcycled-fashion-companies>).
- The web platform, Horovitz that sells recycled furs online (<http://www.horovitzonline.com>).
- The material Newspaperwood from Vij5 made out of old compressed newspapers (<http://vij5.nl>).

THIS CARD LINKS TO

/ Design for Disassembly / Mono-Material / Re-Use

FURTHER READING

Cassidy & Han (2013). Upcycling fashion for mass production, in: Gardetti & Torres (Eds.). Sustainability in Fashion and Textiles: Values, Design, Production and Consumption. Greenleaf Publishing, pp. 148–163 / McDonough & Braungart (2013). The Upcycle: Beyond Sustainability—Designing for Abundance, North Point Press.

User Understanding

WHAT?

To understand intended and/or a potential user regarding:

- Values, economic resources, physique (age and body shape) and or practical life/product use context.

WHY?

Understanding the user can prolong product lifespan through:

- Enhanced product/user match.
- Meeting diverse user needs.

CHALLENGES

- It can be a challenge to incorporate users and user understanding into design processes.

EXAMPLES

- Employ user-centred design methods before, during and after design development (www.usability.gov).
- Danish baby clothing company Vigga bases their business model on in-depth user understanding and community building (www.vigga.us).

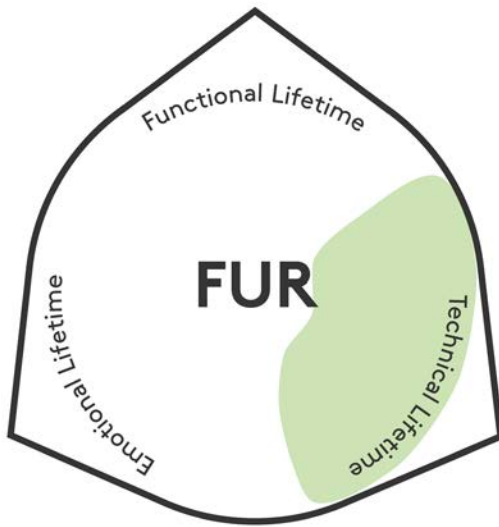
THIS CARD LINKS TO

/ Co-Creation / Customisation / Embedded Storytelling / Emotional Lifetime / Formal Alteration and Modification / Formal Sharing and Heritage / Functional Lifetime / Informal Alteration and Modification / Informal Sharing and Heritage / Multi-Functionality / Re-Use / Technical Lifetime

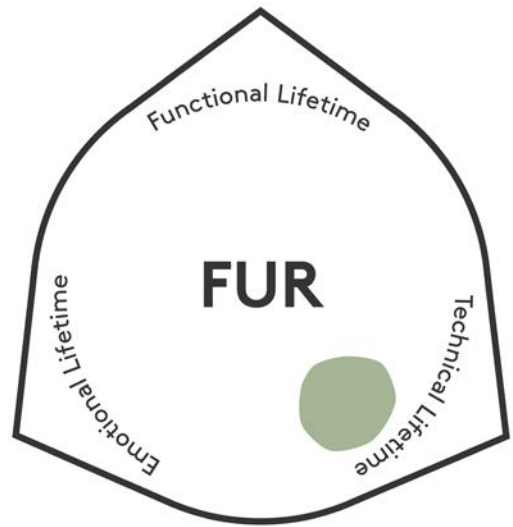
FURTHER READING

Gwilt (Ed.) (2015). Fashion Design for Living. Routledge / Laitala et al. (2015). Making clothing last: A design approach for reducing the environmental impacts. International Journal of Design 9(2), pp. 93-107 / Lamb & Kallal (1992). A Conceptual Framework for Apparel Design. Clothing and Textiles Research Journal 10(2), pp. 42-47 (The FEA model).

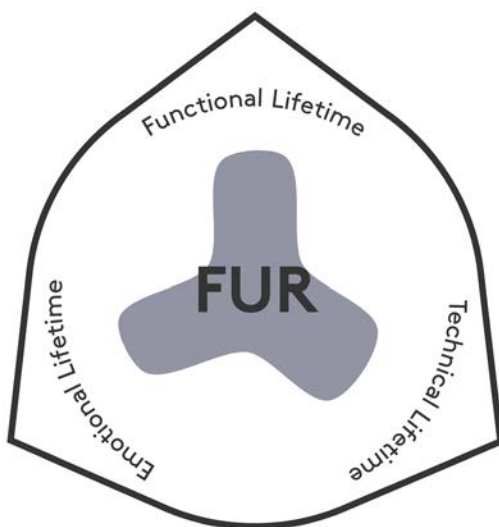
Technical Durability



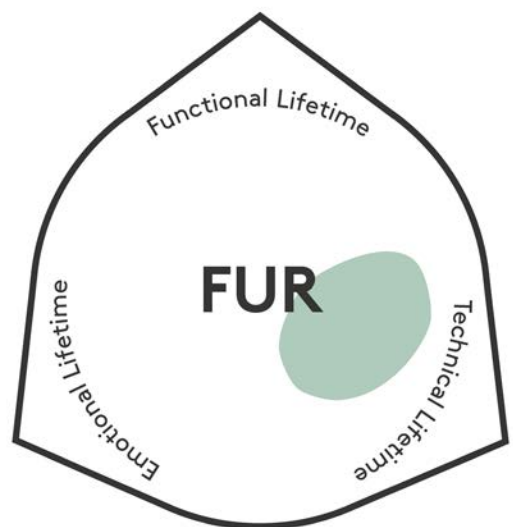
Tagging



User Understanding



Up-Cycling



Zero-Waste

WHAT?

To optimise the use of material in production and use. In the apparel industry this can correlate to optimising material usage through pattern construction.

1. Placing of pattern construction on fabric.
2. Full use of own or others material scraps for other purposes.

WHY?

- Working with a zero-waste approach can minimise material waste.

CHALLENGES

- It may demand aesthetic compromises.
- It can be difficult to get access to material 'left overs'.

EXAMPLES

- Fashion designer and researcher Timo Rissanen investigates the concept on his blog (<http://zerofabricwastefashion.blogspot.com>).
- Fur is a material that motivates zero-waste usage due to: **high material price-level** and a **material strength** that allows even minor parts to be sewn together.
- From a user perspective, zero-waste can be identified by the **5 R's** defined by **Bea Johnson**: Refuse, Reduce, Reuse, Recycle and Rot.

THIS CARD LINKS TO

/ Modularity / Mono-Material / Multi-Functionality / Re-Use

FURTHER READING

Johnson (2016). Zero Waste Home: The Ultimate Guide to Simplifying Your Life. Penguin Books / McDonough & Braungart (2002). Cradle to Cradle: Remaking the Way We Make Things. North Point Press / Rissanen & McQuillan (2016). Zero waste fashion design. Bloomsbury.

WHAT?

WHY?

CHALLENGES

EXAMPLES

THIS CARD LINKS TO

FURTHER READING

WHAT?

WHY?

CHALLENGES

EXAMPLES

THIS CARD LINKS TO

FURTHER READING

WHAT?

WHY?

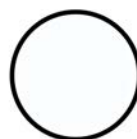
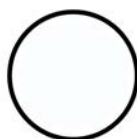
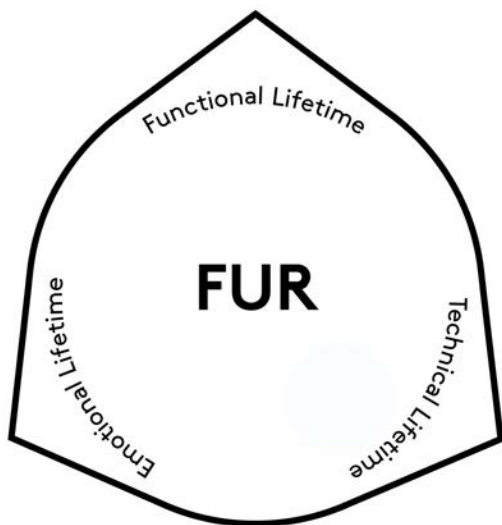
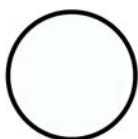
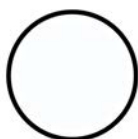
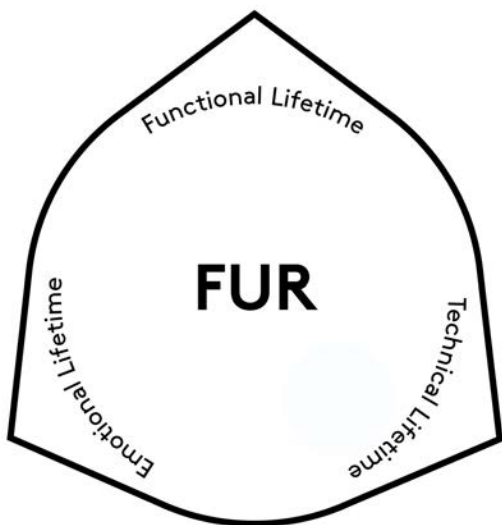
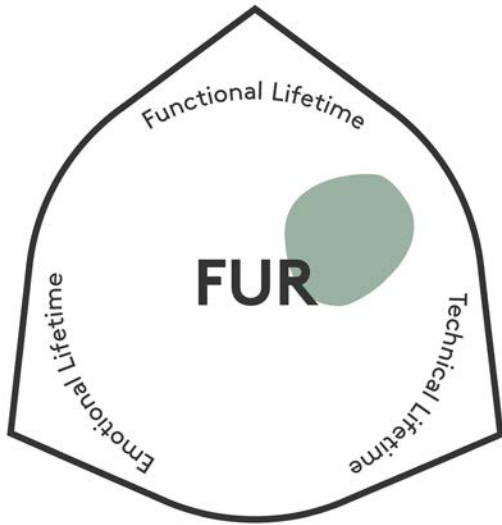
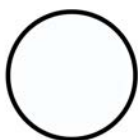
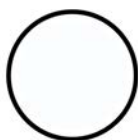
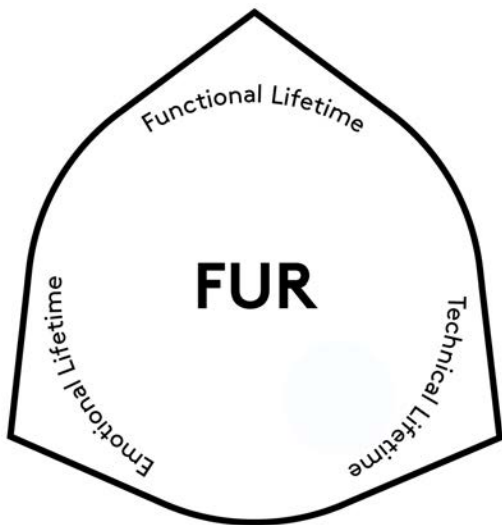
CHALLENGES

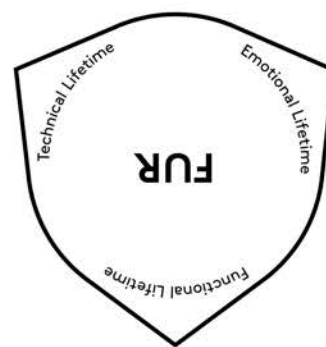
EXAMPLES

THIS CARD LINKS TO

FURTHER READING

Zero-Waste





DESIGN FOR LONGEVITY – COMPASS

On one side of the card, there is a visual compass showing how the individual card links to three overall approaches to design for longevity:

- Technical lifetime refers to the length of time a product stays in use before it breaks or wears out.
- Functional lifetime refers to the length of time a product stays in use before its functionality no longer meets the user's expectations or needs.
- Emotional lifetime refers to the length of time a product stays in use before the user stops having any emotional attachment to it.

The visual model, shown on each card, builds on these three lifetime definitions and positions each card within the overall knowledge area contained in the deck. This is illustrated with a coloured area. The colour of the area is defined by the orientation of the card:

- Technical lifetime is green.
- Function lifetime is blue.
- Emotional lifetime is red.

Cards that are positioned between different kinds of lifetimes will have blended area colours.

Fur and Sustainability Cards

Design for Longevity

... is all about influencing and extending product lifetime in order to reduce environmental impact. The cards are intended as a navigation tool to inspire designers and furriers to work with longevity as a sustainable strategy.

LONGEVITY AS A SUSTAINABLE STRATEGY

Sustainability is a vast-ranging concept, and this set of cards focuses particularly on ways of supporting longevity of fur. The cards can be used as a way to:

- Guide, inspire and create awareness.
- Frame processes and strategies.
- Communicate knowledge and values and create shared understandings in multidisciplinary teams.
- Look back and reflect in the last stages of a process.

ABOUT THE CARDS

This deck of 29 cards sets out from the idea of product longevity as a strategic way to work with fur and sustainability. The background for the deck is the report Fur & Sustainability – a Design Perspective (Skjold et al 2016), which was the output of a research project carried out within the framework of a larger collaboration agreement between the raw fur company and auction house Copenhagen Fur and Design School Kolding during 2014-16.

FURTHER READING

In case you would like to know more about similar cards, you can find inspiration in:

- Daalhuizen (2014). Method Usage in Design – How methods function as mental tools for designers (PhD dissertation). Delft University of Technology, Delft.
- Friis & Gelting (2014). The 5C Model. Presented at the DesignEd Asia Conference, Hong Kong.
- Sanders & Westerlund (2011). Experiencing, exploring and experimenting in and with co-design spaces. Presented at the Nordic Design Research Conference, Helsinki.
- van Boeijen et al. (2013). Delft Design Guide. BIS Publishers.

FUR AND SUSTAINABILITY CARDS – DESIGN FOR LONGEVITY

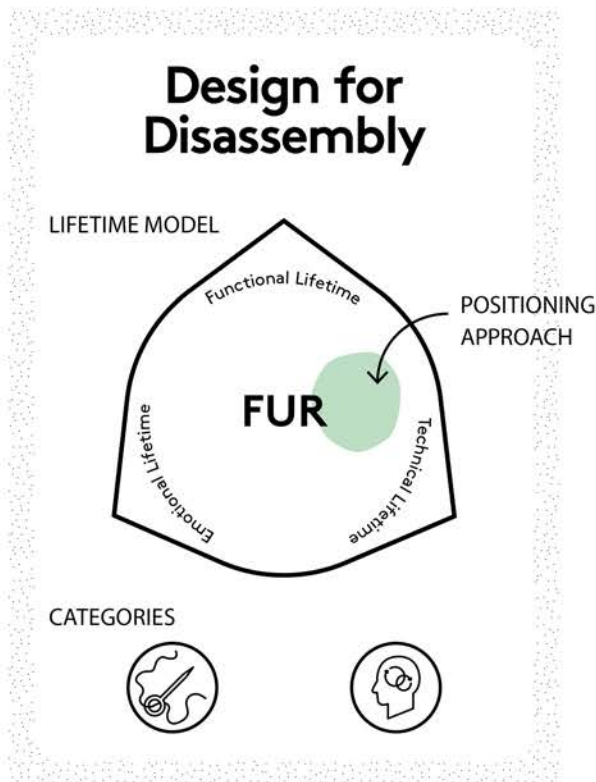
Ulla Ræbild and Karen Marie Hasling
© Design School Kolding & Copenhagen Fur 2016
Layout: Atlant
Print: Rosendahl
ISBN: 978-87-93416-05-5



On the fact side of the card, you will find information on how to use the individual approach, including possible challenges, examples, links to other cards and further readings.

LIFETIME COMPASS SIDE

FACT SIDE



HOW TO USE THE CARDS

As ways to inspire:

- Choose one card and use this as the starting point for a brainstorm session.
- Choose 2 to 4 cards and use these as a frame for developing concepts. How do the cards correlate? How do they differ? Are they contradictory? Is it necessary to make compromises?

As ways to mediate knowledge and values in multidisciplinary teams:

- Choose one card and discuss knowledge and values that relate to the specific card. What are the shared characteristics? Where do/don't you agree? Why/why not?
- Choose 2 to 4 cards and use these as a frame for developing concepts. How can the use of the cards create a synergy? How can the use of the cards create a holistic approach?

As ways to reflect and create analytical awareness:

- With point of departure in a finished or almost finished process, which cards have been used in the process? What have their effect been? Were they the best choices?
- With point of departure in existing products or companies, identify the cards that have been applied. How many cards can you identify? How are the cards connected?

EXAMPLES OF CARDS

