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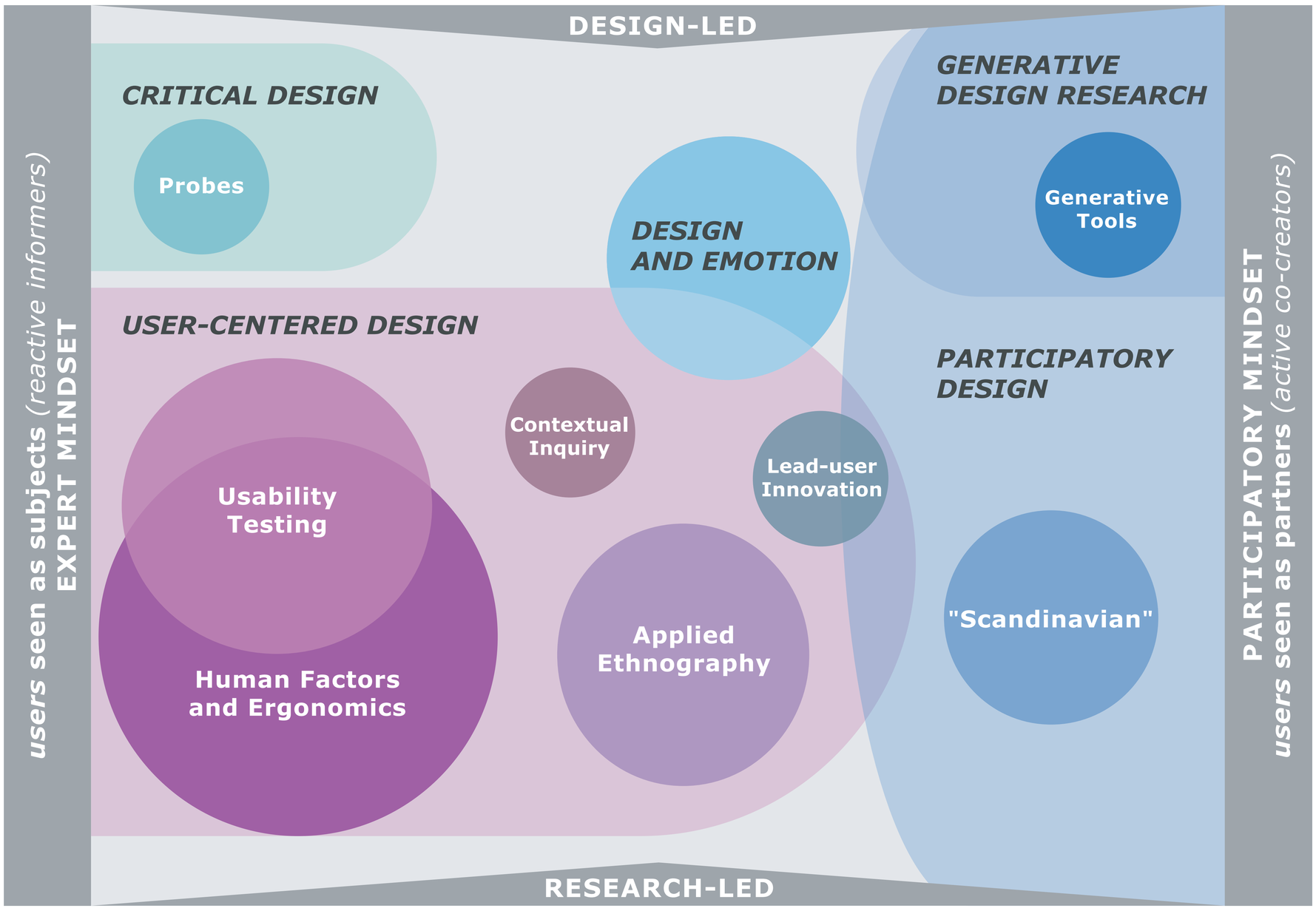
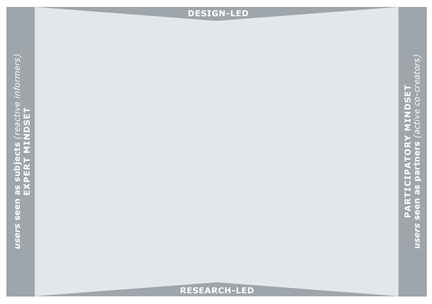
# EMERGING TRENDS IN DESIGN RESEARCH

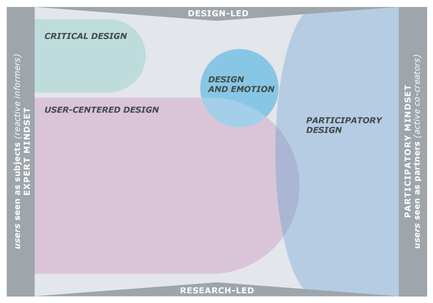
## changes over time in the landscape of design research

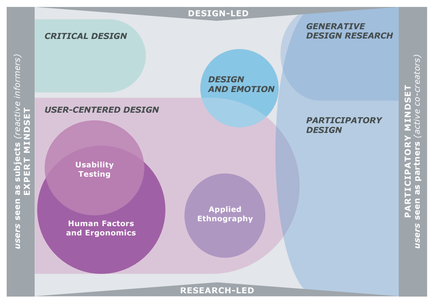
This sequence of diagrams presents a map of the design research landscape in 2007. This space has been the focus of a tremendous amount of exploration and rapid growth over the last 5 years. It is currently a confusing mess of competing and complementary approaches that share common or related goals—to drive, inspire or inform the new product and/or service development process.

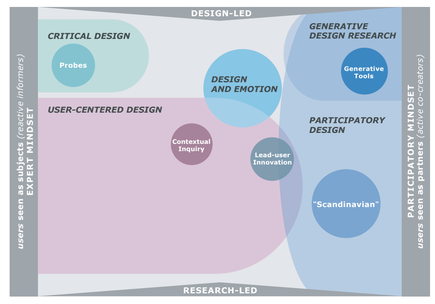
The map is an attempt to position all these approaches into one unifying, visual framework so that we can stop arguing over which is the best approach and begin a dialogue about where to play during all points along the design development process.






Approaches to design research have come from a research-led perspective and from a design-led perspective. The research-led perspective has the longest history and has been driven by applied psychologists, anthropologists, sociologists and engineers. It aspires to being more like science and less like art.

The design-led perspective has only recently come into view. It does not aspire to conform to scientific ways of assessing value or relevance.

The map of design research is also characterized by an east/west dimension. The eastern and western parts of the landscape are vastly different cultures that are built upon radically different mindsets. In fact, many people are not able to cross from one culture to the other.

The west side of the map describes a culture characterized by an expert mindset. Design researchers here are involved with designing FOR people. These design researchers consider themselves to be the experts and they see and refer to the people as "subjects", users", "consumers", etc.

The east side of the map describes a culture characterized by a participatory mindset. Design researchers on this side are designing WITH people. They see the people as the true experts in domains of experience such as living, learning, working, etc. Design researchers having a participatory mindset respect the expertise of the people and see them as co-creators in the design process.

The largest and most developed of the areas on the map is the user-centered design zone. Thousands of people in this zone do design research to help make new product and services better meet the needs of "users". They use research-led approaches with an expert mindset to collect, analyze and interpret data in order to develop specifications or principles to guide or inform the design development of product and services. They also apply their tools and methods in the evaluation of concepts and prototypes.

The participatory design zone spreads across both research-led and design-led perspectives on the eastern side of the map. Participatory design is an approach to design that attempts to actively involve the people who are being served through design in the process to help ensure that the designed product/service meets their needs. Its origins are generally traced back to work done with trade unions in several Scandinavian countries in the 1960s and 1970s. Participatory design attempts to involve those who will become the "users" throughout the design development process to the extent that this is possible. The participatory mindset reflects the Scandinavian way of thinking—that it is obvious that those who will be affected by design be included in the design process.

The design and emotion zone is newer, coming onto existence in 1999 with the first Design and Emotion Conference in Delft. It a global phenomenon, with practitioners from all over the world contributing to its development. It is design-led and sits on the east-west line of the map in that some design researchers practice it with an expert mindset and others with a participatory mindset. The design and emotion zone represents a response to the over-reliance on cognitive approaches by the user-centered practitioners.

The critical design territory has emerged recently in the top left corner. It is design-led, with the designer in the role of the expert. The emergence of this territory can be interpreted as a reaction against the large user-centered zone with its overwhelming focus on usability and utility. Critical design is best understood in the words of its originators.

*Design can be described as falling into two very broad categories: affirmative design and critical design. The former reinforces how things are now; it conforms to the cultural, social, technical and economic expectation. Most design falls into this category. The latter rejects how things are now as being the only possibility, it provides a critique of the prevailing situation through designs that embody alternative social, cultural, technical or economic values.... Critical design, or design that asks carefully crafted questions and makes us think, is just as difficult and just as important as design that solves problems or find answers. (Dunne and Raby, 2001, p. 58).*

The generative design research territory has been growing recently in the top right corner. It is design-led and fueled by a participatory mindset. Generative design research has been used and been found useful across all the design domains, although its rate of adoption varies greatly across the domains. Generative design research is the third broad category of design in addition to affirmative design and critical design. Unlike affirmative design, generative design does not "reinforce how things are now" or "conform to cultural, social, technical and economic expectation". Both critical design and generative design aim to generate and promote alternatives to the current situation. Critical design evaluates the status quo and relies on design experts to make things that provoke our understanding of the current values people hold. Critical design "makes us think".

Generative design research, on the other hand, focuses on the creation of tools that non-designers can use to express their dreams (or fears) for the future. These expressions inform and inspire designers to make things that people really need (and at many levels of need). Some designers become inspired to make tools that the people can use to make their own things. Generative design makes us see how things could be. It empowers everyday people to generate and promote alternatives to the current situation.

The three large areas of activity in the user-centered zone come from the applied social and behavioral sciences and/or from engineering.

~ Human factors/ergonomics, the study of how humans behave physically and psychologically in relation to particular environments, products, or services (and which borrows from physiology, psychology and engineering)
~ Applied ethnography, the qualitative description of cultures and cultural practices, which is based on observational research (and borrows from anthropology)
~ Usability testing, i.e., measuring how well people can use something for its intended purpose (and which borrows from cognitive psychology and cognitive engineering).

The areas are large because they represent a lot of activity. There is some overlap (of people, methods, tools, etc.) between the human factors/ergonomics zone and the usability testing zone, but the applied ethnographers see themselves as being quite different from the others. There is a lot of disagreement between these clusters of "experts".

A key characteristic of the participatory design territory is the use of physical artifacts as thinking tools throughout the participatory design process, a practice emanating from the research-led "Scandinavian" tradition.

Generative tools is the primary bubble in the generative design research zone. The name "generative tools" refers to the creation of a shared design language that designers/researchers and the stakeholders use to communicate visually and directly with each other. The design language is generative in the sense that with it, people can express an infinite number of ideas through a limited set of stimulus items. Thus, the generative tools approach is a way to fill the fuzzy front end with the ideas, dreams and insights of the people who are to be served through design.

There are also two smaller zones within the user-centered territory: contextual inquiry and lead-user innovation. They are smaller because they are not yet supported by professional organizations.

Contextual inquiry is most often used in software development. It is interesting to note that the contextual inquiry zone has been migrating toward the participatory, design-led corner of the design research space in the last few years as design-led methods such as visioning and storyboarding have been added to the contextual design repertoire.

Lead-user innovation is a zone that sits on the very small overlap between the user-centered design and the participatory design zones. This approach, introduced by von Hippel, is participatory in principle, but it is based upon the assumption that only a specific type of user is capable of participating. von Hippel's "lead-users" are those few who are already innovating in the domain. Lead-user innovation is very effective for highly specialized domains of expertise, but it is not able to address the needs and dreams of the large number of "everyday" people.

Probes is a small bubble in the critical design zone. Probes are ambiguous stimuli that designers send to people who then respond to them, providing insights for the design process. No attempt is made to understand or to empathize with the people probed; the objective is design inspiration.

*A more complete description of the map can be found in -*
Sanders, E.B.-N. (2006) Design Research in 2006. Design Research Quarterly, V.1:1, Design Research Society, September 2006.

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