In the period of emergence of digital technologies in Düsseldorf photography, three major photographers have retouched or constructed their images using these new tools. In the late 1980s and early 1990s, Thomas Ruff has primarily worked with subtractive retouching techniques, digitally removing or altering specific picture elements. Andreas Gursky started creating visually seductive tableaus, sewing together multiple images without any other intervention. In a second step, he started applying subtractive techniques similar to Ruff's, in order to create increasingly generic large-format images. Jörg Sasse produced painterly images, in which digital compression algorithms were visible, reflecting the common aesthetics of image compression formats (e.g., jpegs) used in the early years of mainstream computing, mainly transforming recycled imagery. The ability of the resulting images to address documentary forms, the role of digital retouching tools as either a hindrance or as an asset in the work of photographers commonly associated with the Bechers, thus constitutes one of the key questions of the third chapter of this book.

Another main articulation addresses the critical and scientific discourse surrounding these practices, interrogating the modalities with which the dominant model "Düsseldorf photography" has been constructed and pursued. The common discourse, when it reflects upon them, tends to postulate that digital manipulations are either a way of increasing the documentary value of an image (e.g. Andreas Gursky) or that they do not play a significant role (e.g., Thomas Ruff). Despite the commonly dogmatic position toward image retouching in photography, the use of digital tools to "manipulate" photographs seems in that case to be interpreted according to the predominant paradigm that Düsseldorf photography is analyzed by. Jörg Sasse's case is quite particular in this respect, as his overtly digital images are rather perceived as formalistic experiments. They are commonly connected with interpretative models based on painting, and their relationship with vernacular photography and visual culture often remains unexplored. While the digital is perceived quite differently in the work of these three artists individually, it will be argued that it plays an important role in the inquisitive and self-reflexive approach to photography, which reflects a reconfiguration of photographic representation. A shift toward generic representational forms, engaging with a new relationship to the depicted reality, will thus be explored in correlation with the use of digital tools and technologies, in order to understand the genesis of what we might call new documentary forms.[1]

The early phase of integration of digital technologies in Düsseldorf (1987 – 1998) can be schematically broken down into several technical processes – retouching, image stitching and compositions –, all of which have similar aims: chromatic and formal simplification of the image, tendency toward generic forms and shapes, inclination

1   The not yet defined terminology is to be conceived generically and bears no explicit connection with the eponymous Tate Modern exhibition series (2012), curated by Simon Baker and Shoair Mavlian. See "Focus on Photography at Tate Modern," available at http://www.tate.org.uk/about/press-office/press-releases/focus-on-photography-tate-modern-summer-2011, accessed on June 25, 2018.

toward frontal tableaus, increase of size and change of form factors, and distribution of picture elements on orthogonal grid patterns. In the artistic strategy of Thomas Ruff, Andreas Gursky and Jörg Sasse, these processes are often used to construct images, rather than aiming to depict reality. In that period, their work gradually shifts toward a self-reflexive approach of the medium, considering the observer as a vector of a perceptive act that confronts knowledge with images. As such, their work reproduces, and focuses on *images*, and can be seen as undertaking to question visual culture, much more than as attempting to document the physical world.[2] This apparently trite statement is only formulated by the historiography when addressing particular artists or series (especially Ruff's portraits), but it is never considered a common ground of Düsseldorf photography. The period of emergence of digital tools in Düsseldorf is thus defined by the merging of images showing the real world – a documentary position similar to the original objective in the Bechers' typologies – with images of depictions of reality, in a more conceptual position. This merging is achieved by photographically arranging the real world; it is depicted orthogonally within the picture plane and aligned on picture grids. The chief endeavor is to bring the physical world into line, and to superimpose its depiction and the images of its depiction. In this movement, reality itself is eventually discarded, only to retain its representations, reduced to simplified, generic elements. A further implication of this formal and geometrical translation lies in the rejection of the indexical value of the photographic image, reconstructing an iconic, self-reflexive reality, depending much more on the mnemonic capabilities of the viewer than on the semiotic link to the physical world it refers to. Discursively, this new reality is often even considered superior to a strict record or imprint – as especially Gursky and his commentators argue –, improving photography's limitations: a super-documentary emerges, which clearly marks a shift in the rhetorical (more than theoretical, as these developments only have been hinted at) conception of the medium.

The second phase of uses of digital technologies in Düsseldorf (1999 – 2015) will subsequently address the increasingly complex technologies used by Ruff, Gursky and Sasse and will engage with a newly available technology that yields uncharted visual economies: the Internet. Thomas Ruff's *nudes* (1999), based on recycled pornographic imagery found on the web, thus mark the differentiation of the period of emergence dealt with in the second part, and sustain a confrontation with digital technologies, the implications of which reach far beyond retouching and image composition.

2   Stefan Beyst (a photographer) is for example one of the few commentators noticing that Gursky primarily reproduces images, rather than the real world. See Stefan Beyst, "Andreas Gursky. From a Spirit's Eye View," at *www.americansuburbx.com*, March 2007. Available at http://www.americansuburbx.com/2011/08/andreas-gursky-from-worlds-spirits-eye.html, accessed on June 25, 2018.