The creative industry bolsters the innovative capacity of the Netherlands, both from the business and the scientific world, which is partly why it is one of the nine Dutch top sectors. It is an important partner in, together with other sectors, generating answers to societal and economic challenges and implementing these through its creative capacity and methodologies. A strong creative industry as a cross-sectional sector offers our country the opportunity to reach innovative breakthroughs. In order to realize this contribution to our economy and society – now and for years to come – a strong knowledge base is needed. This agenda aims to bolster that knowledge base.
The creative professional

The creative professional, from designer to game developer or advertiser, independently working in the creative SME or in a company involved with innovation processes, uses creativity as a tool to create value. She possesses the skills needed to imagine new worlds and design fitting interventions for them. The creative professional centers people and involves many stakeholders in the development process. To arrive at innovative solutions she not only makes use of technologies and insights from various scientific disciplines, but also and especially methodologies. These allow the creative professional to make the difference in a structural and effective manner in numerous domains.

Challenging developments for the creative professional

A sensational innovation in recent years is the Nest thermostat. This thermostat learns your life cycle and preferences, which allows it to optimally adjust the temperature in your house all by itself. It communicates with your smartphone so that it knows where you are and you can program it from a distance. Since 2011, Nest has preserved over four billion kWh worldwide that way. [source: nest.com]

Systems are the future

Digitalization is permeating every product and service surrounding us. Not only thermostats are becoming ‘smart’; clothing, our constructed environment, advertisements and festivals too are provided with sensors, data storage and interactive technology. They react to and learn from their environment and adapt if needed. They communicate with each other and their environment (Internet of Things). Products and services are no longer independent units, but are part of complex socio-technical systems; systems in which humans and technology are geared to each other.

Impact as motivation
At the same, we are becoming increasingly aware of the impact that products and technology have on our values, habits and beliefs, on our society and, for example, on our health, social networks, environment and security. Web shops are changing our consumption behavior and are making high streets disappear; the mobile phone is changing the way we treat appointments and privacy. We can no longer ignore these longer-term effects. Government and industry must take responsibility for this impact and, through new solutions, make active policy on it.

*A new task*
Due to these developments the playing field of the creative professional is radically changing. Where his product previously was ready for commissioning at a certain moment, it now is launched in an early stage and subsequently monitored and modified continually (“permanent beta”). That way the impact can be measured and the system optimized. A reversal is taking place from R&D to D&R: development first, then research. This not only requires digitalization of design and process – a digital transition-, but also a different form of collaboration and new business models: creative professionals have to build lasting relationships with partners from the business world, non-profit sector and government. A new creative infrastructure will arise in which all parties closely work together to get a grip on this new complexity.

*The Knowledge and Innovation Agenda for the top sector creative industry aims at realizing a bolstering of the knowledge base of the creative professional, so that she may tackle the challenges of this new task.*
Knowledge and Innovation Agenda Framework

In the model below the content and structure of the new agenda for the creative industry is briefly and schematically displayed.

To the right a number of sectors are mentioned in which Dutch creative professionals play a critical part internationally, like healthcare, energy and mobility. By applying technology, including a number of the Key Enabling Technologies (KETS’s), creative professionals in these sectors are making numerous innovative breakthroughs.

In order to be able to keep doing this in the future, the creative professional needs new expertise. This will come from the knowledge base of the creative industry that consists of insights and models, mechanisms and principles, innovation processes and business models that empower the creative professional to do an even better job and (permanently) realize her impact. Tools and methods, the so called Key Enabling Methodologies (KEM’s), will play an important role in this.

This desired knowledge base for creative professionals, based on the mentioned developments in the work field, is organized along three thematic lines:
1 - Design for Change: designing at system level, aimed at impact.
2 - The Human Touch: reach, charm and encourage people.
3 - Value Creation: organizing and renewing of value creation in the sector.

Aside from a fundamental side (left column in the model) the knowledge base also has an applied side that is expressed in the realization of concrete societal goals. The outlined goals (middle column in the model) are aligned with the existing agendas (NWA, Horizon 2020) and form the link with the sectors on the right side. The three thematic lines, or roadmaps, comprise a number of subthemes and research questions, which are briefly outlined below.
Roadmap 1: Design for Change
The creative products and services of tomorrow, embedded in socio-technical systems, can make a crucial contribution to societal challenges in the context of, among others, health, security, immigration and energy supply. However, this impact, or transition, will not be easily realized and the effects of interventions with new creative products and services are hard to predict. Values and behaviors of people are not easily influenced and which impact is desired, anyway? Characterizing is the involvement of many parties (stakeholders); synchronizing the varying interests is a challenge for the creative professional.

This is why the roadmap addresses the following subthemes/questions:

Design for Behavioural Change
▪ Which universal strategies and mechanisms of behavioral change are effective?
▪ How do you map an existing system and determine where and when you need to interfere in order to achieve the desired effect?
Towards Transition
▪ Under which circumstances are disruptive changes embraced and how do we migrate from an old to a new system?
▪ How do we treat ownership of a system and what does that mean for the business models?
Prediction & Adaptation
▪ How can we predict, continually monitor and measure societal impact?
▪ What role does data play in developing and continually updating a system?

Resistance to Change
▪ Why do we encounter resistance to change from government, public and industry?
▪ How do we defy this resistance?
This theme also seamlessly fits and comes to expression in the following societal goals:

Circular Economy – How can we stimulate desired behavior and develop new value propositions for a circular economy? How can systems stimulate the transition from possession to use? (NWA-route Circulaire economie, gamechanger 2.3 Consument en maatschappij; en route S mart Industry, gamechanger 1B S mart S ervices).

Healthy Behaviour – How can we make use of smart systems to encourage and guide people in behavior that contributes to a healthy lifestyle? (NWA-route Personalized health en route Duurzame productie van gezond en veilig voedsel).

Resilience in society – How can socio-technical systems contribute to self-reliance of the elderly, (re-)integration of people in society and participation in the labor market? (NWA-route Veerkrachtige samenlevingen, gamechanger 2 Naar nieuwe vormen van werk en waarde creatie).

Energy & Behaviour – How can we stimulate people to make economical use of energy and fuels and/or search for clean(er) alternatives? (NWA-route Energietransitie).

Roadmap 2: The ‘Human Touch’
With the shift of the scope of societal issues to the system level and long-term impact, the individual threatens to be lost from sight. Socio-technical systems are often hard to comprehend for people. Within that growing complexity it’s important to (permanently) shift back to the human experience, the significance for a culture or community and the personal or user experience. A countermovement is needed from global to local. What makes people happy? What moves them and what challenges them? And what degree of autonomy do they want to preserve or give up? With the growing (technological) possibilities, more and more often the questions arises of what we want to measure and know (‘quantified self’) and what we can do with all that data in varying domains such
as e-health, education and museums. Examples of themes and questions that are central to this line are:

Data-driven design
▪ Which data from our lifestyle and behavior are needed for personal customization of products and services?
▪ How do we treat cultural diversity in our propositions?

Value of Systems
▪ How do users understand and experience systems and what relationships do they form with them?
▪ What are the boundaries of autonomy and privacy in our interaction with systems?

The Mechanism of Meaning
▪ How do people assign meaning to the world and technology surrounding them?
▪ What mechanism cause a story (a TV-format, a game) to work for an individual or group?

Free Riders
▪ Which kinds of services are people willing to pay for, and which types of services do they expect to be available for free?
▪ What do/don’t people want to decide and/or choose themselves, and at which moments do they prefer hands-on guidance?

Said theme connects to and comes to expression in the following societal goals: Quality of life & well-being – What role can big data play in the quality of life in healthcare, traffic and smart cities? (NWA-route Big Data, gamechanger 1 Kwaliteit van leven, and route S mart, liveable cities).
Trust & Security – How can we make sure that people keep trust in smart systems and guarantee an acceptable level of security and privacy in a digital world? (NWA-route Big data).

Smart Products & Services -- How do we create value for the end user through digitalization in content creation, gaming and design? (NWA-route Smart industry, gamechanger 1A Smart products).

Human Empowerment – How can we empower people to take care of themselves and make the ‘right’ decisions? (NWA-route Levend verleden, gamechanger 2 De burger als Expert, over ‘citizen science” en veranderende rollen in de samenleving, and route Veerkrachtige samenlevingen).

Roadmap 3: Value Creation
As outlined, creative professionals, independent of the context they work in, will face changes that are the result of their new tasks, role and responsibility. They will have to learn to deal with the digital transition, with thinking in systems while considering the human experience, and with the fact that their ‘products’ are to be permanently monitored and modified. Additionally, there is a growing collection of considerations and stakeholders that they have to involve in their design. These challenges are echoed in the demands we place on their competencies, the way they realize value and leverage (unconventional) resources to achieve their goals. The following meta-themes and questions therefore arise, which can also be used to form a link between Roadmap 1 and Roadmap 2:

New Design Capabilities
▪ Which roles and capacities are required for designing within the new ecosystem and which role is relevant when?
▪ What degree of insight in the (im)possibilities of technology is vital for the creative professional?

Business Models for Creative Professionals
How do you turn the new role of the creative professional into the creation of value?
What determines the value of the creative professional in the ecosystem?

Evidence-based Design
Which knowledge is needed to increase the predictability of systems, on people and society?
Which type of knowledge doesn’t impair the creative professional’s autonomy and rather strengthens his creative potential?

Art and Innovation (see NWA-route, especially gamechangers 1 en 2)
What’s the essence of design-driven innovation and how can this form of innovation demonstrate its unique value?
What role can art and creativity play as (alternative) source of knowledge production?

General knowledge
The three roadmaps together form the foundation for the agenda, with the primary goal of bolstering the knowledge base of the creative professional. This knowledge base is generic in nature, useful in all sectors of the creative industry and can be applied in varying domains. Important part of this knowledge base is the continued development of the so-called key enabling methodologies of the sector, which we can subdivide into four types:

(1) methodologies to determine direction and design goals, such as the ‘reframing’ method;
(2) methodologies that help to systematically walk through the process and involve stakeholders, such as the ‘lean start-up’ method;
(3) methodologies that help realizing the solution, such as ‘rapid manufacturing’ (e.g. 3D-printing);
(4) methodologies that support testing and validating ideas and/or solutions, such as ‘information acceleration’.

**Linked to application, foundation for innovation**

The execution of the agenda will take place by means of knowledge and innovation programs set up along the lines of the roadmaps. These programs will be set up in such a way that the to be developed general knowledge (column 1) will have an impact on and be fueled through application in 7 societal challenges such as health, circular economy and quality of life, (column 2) which will allow for the realization of innovative solutions in sectors such as nutrition, the city, energy or transport (column 3). In setting up the programs there will therefore be searched for an optimal combination and interaction between short-cycled innovation projects or practical cases, where possible tied to field labs at knowledge institutions, and to long-term research activities.

**Partners**

Partners in the programs are researchers from knowledge institutions (universities, HVE’s), creative professionals from the creative sector and business world and ‘clients’ from the industry, non-profit institutions and government. In short, all parties that have a strong sense of engagement and have a great interest in an incisive creative infrastructure. The agenda in its entirety and the three roadmaps in particular are especially multidisciplinary in nature and therefore ask the knowledge world for contributions to and connections with varying areas of expertise: from culture and media studies to business administration, from behavioral sciences to ICT, and from designing disciplines to health sciences.

**Building a community**

Following the positive experiences from previous programs in the creative industry, a lot of attention will be paid to the shaping of a community of the parties involved. Ingredients for the community program will be: half-yearly
gatherings, close collaboration, and a lot of attention for communication of achieved results and insights, in comprehensible language and imagery.

Why the Netherlands
The Netherlands is one of the five most innovative countries in the world, according to the recently published Global Innovation Index 2015. The Netherlands not only has a prominent creative industry, we are also one of the best organized countries when it comes to research in design and innovation. Through previous programs of a comparable scale (CRISP, COMMIT) and thanks to the top sector policy, we have gained a lot of experience with public-private collaboration in the creative sector. This has led to creative professionals understanding the value of knowledge and to researchers that are open to the interests of that professional. We want to secure and expand this position and head-start.

A new creative infrastructure
With this program we will build a creative infrastructure that is necessary for finding innovative and complete solutions for the world of tomorrow, an infrastructure characterized by long-term and close collaboration between creative professionals and other knowledge workers. This infrastructure will give the Netherlands an international forerunners position when it comes to creative innovation for economic and societal impact. “Every single social and global issue of our day is a business opportunity in disguise.”