Roadmap Next Economy

In brief

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The Rotterdam The Hague Metropolitan Area (MRDH) is a voluntary association of 23 municipalities in a polycentric metropolitan network with approximately 2.3 million inhabitants. The region comprises two centre cities and various middle-size and small cities*. Since the 1st of January 2015, the 23 municipalities form a governmental network organisation, working in a coordinated manner to improve accessibility and strengthen the economic business climate.

The MRDH has the ambition to be amongst the front runners as innovative, economic strong, sustainable and accessible region. It has all the necessary conditions to be a competitive innovative region: a diverse economic structure connected to the top sectors, strong entrepreneurial tradition, three top universities and various high education vocational colleges, strong international orientation, good balance between the cities and their surrounding open green areas.

The MRDH is part of the urban agglomeration in the western part of the Netherlands. This part of the country is the most densely populated region of the Netherlands with about 3.6 millions inhabitants. Together with its partners such as the province Zuid-Holland, the Economic Board Zuidvleugel and the regions of Holland Rijnland, Drechtsteden and Midden-Holland the MRDH focuses on the further development of the area as an international competitive and economic strong region.

Our world is in transition. We no longer live in an era of change, but are witnessing the change of an era. We see the challenges every day, around us and in the media: climate change, population growth in the cities, digitisation, the emergence of new economies and global powers and the pending exhaustion of our natural resources. Together they pose the greatest challenge to our society since the nineteenth century. That demands a fundamental change to the way we manage our society and our economy.

The Roadmap Next Economy (RNE) is the answer of the Rotterdam The Hague region to that challenge: a long term strategy, combined with trading prospects and projects which lay the basis for the transformation of our regional economy. We want to be a region which forges ahead in Europe in the transformation to a new economy, with an attractive climate for talents, businesses and investors.

We are on the verge of what some are calling the Third Industrial Revolution. Two developments tower above everything: the rapid development of Internet technology and the transition to clean energy. Together they have profound consequences for the way in which our society and economy are organised. From a vertical economy with dominant big manufacturers and distinct economic sectors, we are moving to a more horizontal economy. In such an economy, there is much more cooperation, across borders, between businesses, government and knowledge institutions, and consumers can also be producers. That is visible, for example, in the new ‘sharing economy’ which has emerged on the Internet.

The new economy is also circular: waste no longer exists; residual materials are optimally reused to create new value.

Two important things are a condition for making that economic transformation possible. Firstly, digitisation of the economy: a totally new digital IT and Internet infrastructure, faster, more flexible and more secure than anything we know now. This makes it possible to collect, connect and enrich data on an unrivalled scale, and that makes anything possible: from new services and business models to a smart and flexible energy network, which is required to transition to a clean energy supply. That new energy network is the second condition. Together, they require a huge investment. At the moment, we estimate the costs at 50 billion euros for the whole region.

In principle, the region has a good starting position. We have strong economic clusters (for example the Port of Rotterdam, the Greenport and Peace and Justice), we are strong in research and development and we have a young population. However, we do not make the most of it; we do not translate our potential into added economic value and jobs. And if we fail to act, we run clear risks: the regional economy largely relies on fossil fuels, many people are low skilled and our entrepreneurial climate is not stimulating enough.
RNE's strategy and action programme identifies five transition paths which are required to shape the new economy of the metropolitan region.

**Smart Digital Delta**
Everything that the region needs to increase data productivity and take the step towards a digital economy: better digital connections, networks, platforms and big data.

**Smart Energy Delta**
Everything required to set up an infrastructure for renewable energy: smart networks, new clean energy sources, CO₂ storage, conversion and storage technology.

**Circular Economy**
Everything related to using and recycling resources and residual materials in the region.

**Entrepreneurial Region**
All the building blocks for the good, pioneering entrepreneurial climate required to facilitate the transition to a new economy: new business models, products and services, new cooperative forms, the development and support of start-ups, new legislation.

**Next Society**
The actions required to shape the inclusive society of the (near) future: developments in the labour market and education, cooperatives, popular movements and new forms of social entrepreneurship and ownership.

The goals in this RNE are not easy to achieve. Swift action is needed at many different levels at the same time. The RNE identifies the projects which enable us to achieve the goals we have set. In addition, we certainly wish to use existing enthusiasm and initiative in the region: stimulate and facilitate projects which are already being planned, because they contribute to the greater whole and our future goals.
Transition 1

Smart Digital Delta

Our starting position

The economy is digitising at an unrivalled pace. The next generation networks – 5G – will be faster, more flexible and more secure than anything we know now, opening the door to unrivalled new opportunities and new business models. That also applies to the rapid development of the Internet of Things: the Internet that connects smart devices to each other and enables us to collect, link and enhance data on a whole new scale. As a result of this Third Industrial Revolution, global economic competition is growing. Urban regions which are ahead in that development will be able to capitalise on the opportunities for new economic growth. Regions which are unable to do so will lag behind.

The Rotterdam The Hague region has great potential to lead this development. In Europe, we are in fourth place in research and development in this field. On the other hand, we do not sufficiently capitalise on these opportunities in our real economy. That must change: we therefore want to improve how we manage and coordinate innovation activities in the region. Only then will we be able to fulfil our potential and be what we want to be: the Digital Gateway to Europe.

Our goals

In short, the Smart Digital Delta is the digital integration of the metropolitan region. Such digital integration also enables the physical integration of the region: businesses can make smarter and more efficient use of each other’s infrastructure and possibilities. The port of Rotterdam and the Greenport will function better and be able to open up new growth opportunities. Strong economic sectors will have unprecedented possibilities to work together on new initiatives (cross-overs) and opportunities will be created for a new Dutch (3D) manufacturing industry. New digital platforms also make it possible for our residents to develop and implement social initiatives together: the new, social sharing economy.
What do we need?

In order to achieve the goals of the Smart Digital Delta, we need several things:
- a secure, robust digital infrastructure where businesses and organisations can share data (extranet);
- secure, controlled digital marketplaces where entrepreneurs can do business and trade digitally;
- a sound legal foundation for the new digital economy: legislation, possibilities to settle disputes;
- possibilities to arrange digital tax and customs formalities.

What are we going to do?

Five important facilitating projects enable the development into a Smart Digital Delta:

Connect MRDH
Improve and connect the existing network and IT infrastructure within the region to support new services and the Internet of Things. A secure, open and future-proof ICT environment makes economic growth possible.

3D Data MRDH
Access to all available (open) government data within the region makes it possible to analyze and enhance data. The results will (also) benefit our infrastructure, the quality of our urban planning and our business climate. Think for example of a comprehensive 3D map of the metropolitan area.

Secure Digital Data Exchange & National Cyber Testbed
More IT capacity in order to facilitate rapid and secure exchange of Internet of Things data, also between sectors. Plus a national test location where such a new digital platform can be extensively tested for security, flexibility and shock resistance.

Secure Digital Marketplace
More IT capacity to facilitate digital marketplaces and the development of new forms of digital services, also among different economic sectors.

Digital Dispute Resolution
Online platform where interested parties — organisations, government and businesses — can work together on conflict settlement, using the latest technology and knowledge and without the mediation of a judge.

Besides these large scale projects which enable the development of the region into a Smart Digital Delta, there are numerous important, support projects which have a direct impact on important economic pillars of our economy, such as:

- **Digital Port**: digitisation of the Port of Rotterdam, optimisation of port management (logistics; infrastructure);
- **Port as a Service**: development of new automated port services (unmanned ships and trucks, smart maintenance, automatic delivery, etc.);
- **Automated/connected mobility**: an Internet of Things portal for mobility (including self-driving vehicles and public transport);
- **Smart Agri Logistics**: better control of the agricultural production chains, cleaner and more efficient transport;
- **Growing as a Service**: development of digitised growth programmes, whereby the Greenport operates as a knowledge portal and control tower for crop cultivation elsewhere;
- **Digital Virtual Factory**: the region as leader for the new digital (3D) manufacturing industry;
- **My Data Our Health**: secure online platform for sharing health data, as a basis for new services.
A revolution which is equally important as the digitising economy is taking place in energy supply. Over the coming decades, fossil fuels will increasingly give way to clean, renewable energy sources. That is a massive change, particularly for the Rotterdam The Hague region: the Port of Rotterdam, one of the great drivers of the economy, is the biggest petrochemical industrial complex in Europe. And while we want to reduce CO₂ emissions, it is an important material for the horticultural sector, another economic pillar of the region. Equally significant are the challenges in the built environment: The province of Zuid-Holland, with a population of 3.6 million – and within that the MRDH with 2.3 million residents – is the most densely populated region of the Netherlands. The built environment is responsible for 30 percent of the region’s total energy demand. Important for all these sectors is the way in which we move: electric or hydrogen driven transport makes a great contribution to achieving the goal.

The ultimate goal of the Smart Energy Delta is clear: in 2050, the region will have a clean energy supply. In order to achieve that goal, we will need all hands on deck, because this is not developing fast enough. There is no simple way to get there. The solution consists of many elements: energy saving, efficient use of energy and residual heat, more use of clean energy sources like sun, wind and tidal energy, clean fuels like green power and hydrogen and the capture and storage of CO₂. Using all these building blocks, the Smart Energy Delta wants to make that possible: a reliable, flexible, clean and affordable energy supply. We believe that the transition to a clean energy supply offers great economic opportunities: opportunities for innovation, new forms of services in a new energy sector, and thus a stronger region which can provide a better response to the global competition.
What do we need?

- **A hyper flexible, reliable energy supply**: enough solar and wind energy is not always available, so we need an energy network which uses different sources and which can switch between these sources;
- **A new, connected energy market** in which many more suppliers can participate than now and where energy can flow freely;
- **An industrial, large scale approach to renovate homes and make them energy efficient**.

What are we going to do?

Achieving the goals we have set requires a great effort from nearly all layers of society: from the government, which facilitates the energy transition with consistent policy, incentives and measures; from network administrators, who together must work towards a new, shared network; from housing corporations and home owners who must cooperate in making their homes energy efficient.

If we want to fulfil our ambitions for a clean, flexible, reliable and affordable energy supply, then one project is very important:

**Smart Multi Commodity Grid**

The Smart Multi Commodity Grid is the next generation energy network: a totally new, smart energy network, supported by ICT, which makes it possible to connect all future energy suppliers and to switch between different energy suppliers and sources. This is one of the essential pillars of our future society. It means that not only will big energy suppliers deliver to the grid, but also households, businesses and energy cooperatives. It links all conceivable energy sources and enables us to use our energy as efficiently as possible.

The RNE also identifies four support projects, which can force a breakthrough in a specific important domain and stimulate other projects:

- **Industry/port**: "Core to the Core Business" grid. Port industries share infrastructure, logistics and energy and exchange products and materials and residual materials. Together they therefore operate more efficiently, they save costs and improve their competitive position;
- **Greenport**: Geothermal energy. At least twenty new wells for geothermal energy in 2020;
- **Urban built environment**: Next Generation Residential Areas. Develop an approach for the large scale renovation of existing residential areas and for making them energy neutral, even the difficult ones;
- **Mobility**: Hydrogen for Zero-Emission Public Transport. In 2025 all new buses will be emission free.

In order to achieve the goal, much more is necessary. Dozens of other projects in the region will contribute. Some examples: a virtual energy plant in the Merwe-Vierhaven, solar panels on the roofs of public transport locations and on Maasvlakte 2 and connecting street lighting to direct current as an intelligent network that also delivers energy back to the grid.
Circular Economy

Our starting position

With a growing world population and ever increasing demand for energy, we risk exhausting the Earth’s natural resources. The answer to that threat is a circular economy: an economy which only uses renewable resources: energy, organic and technical materials, water, earth and air. That means: optimal reuse of materials and minimising the harmful substances we return to the environment.

The transition to a circular economy creates new economic growth opportunities. For the Netherlands, it is estimated that the circular economy can generate 80,000 new jobs. In a local business park in The Hague like the Binckhorst, this development can yield 20 million euros in extra value.

Our region has a good starting position: the people, materials, production and knowledge required for the circular economy are in close proximity to each other. Although the circular economy is still in its infancy, there are already many initiatives in the region: for example start-ups via YES!Delft and projects like Cirkelstad and Blue City 010. An initial exploration in the context of the RNE also produced many projects.

Our goals

The Rotterdam The Hague region wants to be one of the first fully circular regions in the world. This is essential to secure our future on this planet, but it is also necessary for our own future as a prosperous, leading region in Europe. The transition to a circular economy offers opportunities for innovation and economic growth and new future prospects for important economic sectors in our region, which are still based on fossil fuels.
What do we need?

In order to transition to a circular economy, we need:

• a change in attitude: waste does not exist, waste is a renewable material and has value. We need education and an infrastructure which reflects this;
• the knowledge and the people to take the step to the circular economy, from intelligent design to effective collection. This is an important task for secondary vocational, higher professional and university education;
• analysis of our own use of resources and materials: what do we have, where can we find it, what is the quality, when is it ready for reuse? That demands things like sensor technology, material passports and a resource bank.

What are we going to do?

At the moment, the many circular initiatives in the metropolitan region are often still small. Upscaling is required. We want to make an extensive and in-depth analysis of the business opportunities, so that we can start as soon as possible with concrete business cases. We also want to quickly improve our indicators for circularity. In order to make the circular economy possible, a uniform set of definitions is necessary.

The circular projects in the RNE which we definitely want to tackle are mainly concerned with the efficient use of resources and materials:

• **Industry/port:** Carbon Capture Usage (use of captured CO₂ as a material for industry and horticulture), Waste to Chemical (convert residual substances into materials for the chemical industry), Bio Refinery (use of wood waste as a material for ethanol and butanol);
• **Greenport:** add value by switching from traditional crops to high quality products for the pharmaceutical industry, food industry and agrochemical sector; reduction of energy consumption by overseas greenhouses and growing as a service (move traditional horticulture to places with a better climate, the knowledge and digital technology in the metropolitan area);
• **Urban built environment:** better and more efficient collection of waste (collection stations for products and devices for recycling or reuse, financial compensation, urban mining); effective linking of suppliers of waste to manufacturers for whom waste is a material.
Transition 4

Entrepreneurial Region

Our starting position

Nearly all the economic top sectors in the Dutch economy have a firm foundation in our region. In the new economy – strongly based on intensive networks and innovation across the sectors – that diversity is a huge bonus. The metropolitan region has a lot of talent and new companies, but they are unable to sufficiently fulfil their potential. We fail to get the most out of them. Our investment climate needs to be improved, as must our network structure. Regulations must not hinder entrepreneurship but encourage it. Furthermore, we are not well enough known as an innovative region. Positive developments are visible, however. Think of new network organisations (for example Clean Tech Delta and The Hague Security Delta), organisations which stimulate the development of start-ups (such as YES!Delft), new investment funds and the already visible increase in venture investments in the region.

Our goals

We want the regional economy to develop into one that is at the forefront of the new economy, with a matching business climate: an environment that stimulates innovation across economic sectors. An environment where government, knowledge institutions and financiers have an entrepreneurial attitude. An environment where young entrepreneurs thrive and start-ups can grow fast.
What do we need?

Globally, we see that successful enterprising regions have a number of characteristics in common:

- **entrepreneurial culture**: tolerance for risks and creativity, strong leadership, connecting high potential initiatives with the right people, name familiarity of the region;
- **entrepreneurial structure**: intensive networks so that cross fertilisation is possible between sectors, presence of good institutes and infrastructure;
- **entrepreneurial practice**: entrepreneurially friendly markets, positive incentives and financing opportunities, regulations which stimulate enterprise.

What are we going to do?

The RNE presents four action programmes:

- **Stimulate scale-ups**
  Programme to promote the growth of start-ups; stimulate networks; organise crossover events which bring together the worlds of research & development and entrepreneurs.

- **Field lab-ecosystem**
  *Field labs* are the practice laboratories of the new economy: testbeds for trialling and developing new technology. Goal: create a cohesive and collaborative network of *field labs* to stimulate innovation and cooperation. Construction of the Dutch Wind Wheel in Rotterdam: a *field lab* as an icon, landmark and trademark of the region.

- **Prototyping programme**
  For a growing number of makers, creatives and grassroots movements, the new economy is already a reality. The metropolitan region wants to be one of the first regions to actively stimulate this movement in order to optimally use the potential of these pioneers. The *Prototyping programme* scouts, initiates and stimulates innovations in this movement. Trial with a *prosumer lab* as a testing ground for the sharing economy.

- **Entrepreneurial government**
  Setting up a legal intervention team to work on new legislation and regulations which facilitate and stimulate the new economy: where necessary adjust and replace laws which hamper the transition, make new laws, adapt existing ones as practically as possible. Use the MRDH as a testing ground for these new regulations.
Transition 5

Next Society

Our starting position

The transition to a new economy inevitably has far-reaching consequences, for society, for the way we study, work and do business. The contours of those developments are already visible. For entrepreneurs, constant innovation is increasingly becoming a condition. Instead of a steady job, more and more people are in looser assignments: a short term contract or working as a self-employed contractor. The emerging sharing economy, whereby digital platforms are the basis for a new form of social and communal enterprise and new economic growth, will only accelerate that development.

As a region, we want to be leaders in the next economy and in Europe. That is vital. Pillars which are traditionally important for our economy are becoming smaller. There is less employment in traditional industry as well as in government. And digitisation will mean the disappearance of more and more administrative jobs.

Our goals

In order to successfully compete with other European metropolitan regions, we need people with the right skills to contribute to the next economy. It is therefore important to study what the developments mean for how we learn and work, for education and the labour market. Because everyone must be given the chance to contribute and participate.
What do we need?

- Vision regarding the skills required in the new economy; development of education in that line, and funding of that development;
- Vision regarding the development of the labour market in the new economy, with special attention for low or medium skilled workers, and link this vision to social policy;
- View on how the new economy works in practice for households.

What are we going to do?

Labour market
The new economy, with its new business models and new employment relations, makes it necessary to look at employment and work at different levels. For example, we need to focus especially on elaborating our social system, which is now very much linked with a steady job. Furthermore, the existing legislation and regulations do not accommodate the new phenomena like the emerging ‘sharing economy’. Everyone must be given the opportunity to participate, to prevent inequality in society becoming greater.

In practice, the following developments will be key in the coming years:
- Better opportunities for low skilled workers: how do we link innovation to social policy, talent development and better opportunities at work?
- Permanent education for medium skilled workers.
- Attention for talent: what is required?
- Transparent digital platform for the labour market.

Education
The new economy needs a new attitude to education: people learn new skills throughout their life, will have to learn to recognise opportunities and adopt an entrepreneurial attitude. And education will have to reflect practice more closely: reflect what entrepreneurs want and the practical problems of society. For that reason, the RNE identifies three important reforms in education:
- New skills (new ‘make education’, learn to look across borders, multidisciplinary approach to work, entrepreneurial attitude); new education methods (new learning environments in which the boundary between school and workplace becomes blurred); sufficient and qualified teachers.
- More education in society: education as partner in the district, so that society immediately benefits and students can immediately obtain lots of practical experience. The city is the learning environment.
- More partnerships with businesses: students in a new learning-working environment where they can immediately use their working and thinking skills, better support for students going into business, shared facilities.

Ten education institutions in the region have already taken an important step which contributes to this development: together they form the Next Education Group. In this group, they can share projects, activities and campuses and start up new projects to contribute to solutions for complex problems in society. In the coming years, the Next Education Group also wants to build the RNE Campus Network: eight campuses where education and business work together on innovations in service provision, products and education in their own sector.
Next Steps

The Roadmap Next Economy details the rapid technological changes and the urgency of achieving clean energy management and a circular economy. But the rapid changes which the world is now undergoing also have a geopolitical dimension. The RNE must make our region, our economy and our residents resistant to such changes; strong enough to deal with shocks, flexible enough to adapt fast.

The transition of the Rotterdam The Hague region to a new economy is a complicated process, in which the developments are all interrelated. We identify five transition paths, but these constantly overlap. It is therefore important to ensure that they do not start to lead their own lives. Our working method is based on that: in the coming years, we will have to work flexibly — the developments are continuing fast — but at the same time monitor cohesion.

We can only achieve the goals of the RNE if government, business and education continue to work well together. In the implementation, businesses and education institutions are leading. Above all, the government must facilitate progress. In that partnership, we seek a management model that finds a good balance between public and private interests. We want to give that management shape in the same networks which recently also shaped the RNE.

The transition is capital intensive, for governments, businesses and knowledge institutions. For that reason, we will continue to work on new and better financing options to facilitate the transition.

- An accessible regional investment platform where investors are linked to initiatives (investment between €25 million and €100 million);
- Framework loan instrument to improve access to European loans (EFSI, JESSICA, investments up to €25 million);
- Agreements with Europe about better support for programme development on themes like energy, climate, biobased and circular;
- Research into financing options for education (new skills for the new economy).

The RNE is already proving to be an excellent instrument for presenting our region at European level. EU vice president Maroš Šefčovič has endorsed the Rotterdam The Hague Metropolitan Area along with the Haute-de-France region as a textbook example of how to achieve European objectives. That endorsement offers excellent opportunities for our region and our businesses.
Finally

Is our region ready for the next economy? The answer is yes and no. We have everything in house to successfully manage the transition to a new economy: the business, the institutions, the people, the knowledge and the talent. But we need to use that potential much better than before and translate it into innovation, growth and jobs. Drivers of our economy, the Port of Rotterdam and the Greenport, are still based on fossil fuels and this must change so that they can also be vehicles for the new economy in the future.

The opportunities are there. It is estimated that the transition and development into a European top region can generate around 125,000 jobs until 2025, and even 250,000 until 2050. It is important to remember here that success not only depends on technological innovation. Ultimately it’s about the people, and whether we succeed in becoming the European top region very much depends on whether we are able to translate innovation in society too; whether people are given the opportunity to contribute and benefit from renewal.

A great deal is required to make the transition a success: money to build up the new data and energy infrastructure that is required; new legislation and regulations which stimulate innovation and thus facilitate the new economy; connecting existing industry and start-ups in order to promote innovation and convert it into new economic activity. And perhaps most importantly: a change in attitude which stimulates entrepreneurship. That requires us to look beyond our municipal boundaries, see the region as one cohesive entity and act accordingly. We thus form a region with a strong story that links inspiring long term visions to concrete projects which everyone can see and from which everyone can benefit.
Colophon
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