Towards a learning economy

SYNOPSIS OF WRR-REPORT NO. 90

WRR

SCIENTIFIC COUNCIL FOR GOVERNMENT POLICY

Towards a learning economy

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Background

This publication is a translation of a summary of *Naar een lerende economie. Investeren in het verdienvermogen van Nederland* (WRR report No. 90) by the Netherlands' Scientific Council for Government Policy (WRR). The conclusions and recommendations presented here are based on in-depth analyses of the policy and academic literature that can be found in the full report. Other sources are the background studies carried out for the report, which are available as web publications at www.wrr.nl.

The report was drawn up by a project group headed by WRR member Peter van Lieshout. The project coordinator was Robert Went. Paul Diederen, Albert Faber, Annemarth Idenburg, Robert Kleinknecht, Arthur van Riel and Wouter Hogervorst were also involved in the project in various phases. They were assisted by interns Martise Dijxhoorn, Michiel de Haas, Conny Hoffmann, Kyriël van der Sloot and Anna Stutje.

The report *Naar een lerende economie* (ISBN 978 90 8964 6316) was presented to the Dutch Government on 4 November 2013 . It is commercially available and can be ordered from Amsterdam University Press. Both a PDF version and an e-publication of the report are available to download free of charge at www.wrr.nl.

Drafted by: Jos Dohmen

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1 INTRODUCTION

For more than half a century, the Netherlands has enjoyed stable economic growth and prosperity. With few exceptions, the Dutch national income (gross domestic product or GDP) has grown year-by-year since the end of the Second World War. That means that more than eighty percent of the Dutch population have grown up in circumstances in which economic growth was taken more or less for granted. But the Netherlands has had a rude awakening in recent years. After the 2008 financial crisis, the European debt crisis, the recession and rising unemployment rates, the future is suddenly looking much less rosy. Consumer confidence has plummeted in the past few years, and growth forecasts have been adjusted downwards.

Nevertheless, there is little point in being sombre about the longer term. In general, the Dutch have it good. Despite the recent crises, the Netherlands is still one of the richest countries in the world. Although unemployment is on the rise, it has one of the lowest jobless rates in the European Union. The Netherlands also has one of the lowest levels of income inequality in Europe, and those on the smallest incomes still enjoy a relatively high standard of living. Even if economic growth grinds to a near halt in the decades ahead, life for the Dutch is still very much worth living.

Even so, it would be naïve to assume that economic progress is more or less guaranteed in the future. It seems likely that the era in which the West dominated global economic growth may be drawing to a close for good. While Western economies struggle, emerging economies on the other side of the globe have been expanding for some time now. The level of expertise in many Asian countries is increasing rapidly. Asia already spends more on R&D than the United States or Europe. The rise of Asia (and South America) will have a huge impact on the world economy in the decades ahead.

There are also worrisome developments in Dutch commerce and industry. For example, the old multinationals are struggling to survive internationally, and only a few of the newer large companies have managed to launch themselves successfully on foreign markets. Whereas other countries have watched mainly low-value activities being outsourced abroad, the Dutch have also offshored many of their knowledge-intensive activities.

The Dutch will therefore have to consider what their role is in this rapidly changing world. At the moment, the West still has a head start when it comes to technology and innovation. Although it is not in danger of losing that lead immediately, its position could be eroded gradually. What the Netherlands

is capable of achieving in the future will be determined in part by the circumstances and policy of today. With the Dutch Government committed to reducing government debt in the mid-term, there will be only limited financial scope for new policy initiatives in the years ahead. On top of this, the Dutch political system is undergoing a transformation. People are less consistent than they used to be in their political preferences; the political landscape is becoming more fragmented; and there are growing doubts about the blessings of globalisation and Europeanisation. As a result, economic policymaking has become subject to a new set of parameters.

One thing is clear: the question of how the Netherlands will earn its keep in the longer term is bound to become more crucial. The era in which growth was taken more or less for granted has come to an end. That means that the political agenda also has to change. It is high time to develop a strategy focusing on the Netherlands' earning capacity. The economic, political and social systems have changed dramatically and permanently. The global role of the West is shrinking and the Netherlands, being only a small part of that whole, is vulnerable to shocks. It must come up with a response that takes these changes into account.

The Netherlands' Scientific Council for Government Policy (WRR) believes that its report *Naar een lerende economie* [Towards a learning economy] will help the Netherlands formulate such a response. It describes how the Netherlands has achieved economic growth thus far and identifies what government can do to promote growth. This leads to an analysis of the way in which policy could take shape in the longer term. The report then describes the challenges that the Netherlands faces in increasing its earning capacity. Those challenges involve dealing with the current process of globalisation, managing scarcities of capital, raw materials and human resources, and coping with shifts in manufacturing and service provision. The report concludes with recommendations that can be summarised by the overarching phrase "towards a learning economy".

II THE ECONOMY

The report *Naar een lerende economie* describes in detail how the Dutch economy has evolved over a longer period of time, allowing readers to immediately grasp the present state of the economy today, in 2013. In order to develop an economic strategy for the future, it is vital to understand what the key features of the Dutch economy are. They include a highly diverse pattern of specialisation, relatively consistent performance across sectors, active pursuit of the international market, a limited level of complexity, and a much more vibrant small business sector than is often assumed.

To begin with, the Netherlands has a *highly diverse economic structure.* On the one hand, it is a service economy, with approximately three-quarters of all jobs and added value being accounted for by service enterprises. Most of these are business-to-business services (trade, transport and financial services), although public and semi-public services (healthcare and education) also make up a considerable share of the economy. On the other hand, industrial sectors also generate a quarter of the nation's jobs and added value. Industrial production is by far the largest of these sectors, with construction, agriculture and raw materials extraction playing a smaller role. The food-processing industry is the most important branch of manufacturing. The agro-food sector accounts for three per cent of the Dutch economy's added value and approximately fifteen per cent of Dutch goods exports. The Netherlands is a major competitor in this area in the international marketplace. The chemicals sector also plays an important role in Dutch exports, accounting for three per cent of the Netherlands' added value. Industrial production remains an important export sector, with approximately three per cent of worldwide exports of industrial products being of Dutch origin. High-tech systems and materials, one of the country's "key economic sectors", is yet another branch of industrial production. The energy sector accounts for five per cent of the Netherlands' total added value, although it does not generate many jobs. Its importance can be attributed to the enormous profitability of the gas extraction and gas export sector.

Dutch economic performance is relatively *consistent across sectors*. With the exception of chemicals, the strongest export sectors have remained similarly competitive over the past four decades. Within the OECD, the Netherlands' services exports have remained stable since the 1990s at approximately five per cent, although there have been fluctuations within that sector. Transport, for example, has seen its share decline, whereas intellectual property rights and royalties now account for a larger share. Communication services are also growing. The fact that the various sectors have retained a fairly stable position across the board is significant: it shows how difficult it is for new sectors to

break through in the export market, and how successful existing sectors are at maintaining their position.

Furthermore, the Netherlands has long been a *great trading nation*. It accounts for more than three per cent of worldwide exports. Imports and exports represent an exceptionally large share of the Netherlands' GDP compared to other countries around the world. Exports and imports of goods and services have grown steadily through the years, making the Netherlands one of the most open economies in the world. It has had a trade surplus since the 1980s. But as important as trade may be for the Dutch economy, the volume of trade is not the deciding factor when it comes to a country's prosperity. The export sector should be stimulated not simply as a matter of course, but because a deliberate choice has been made to do so.

If trade patterns say anything at all, then it is to indicate which sectors a country excels in compared to its competitors. They say very little about an economy's ability to move with the times and to develop new products – an important factor in a country's earning capacity. The *diversity and complexity* of a country's export package are exceptionally important indicators because they say something about human and organisational networks that have the necessary knowledge and can combine that knowledge to create products. In other words, they express how much "productive knowledge" a country possesses. Surprisingly, a study commissioned by the WRR reveals that the Netherlands' export sector is not as economically complex as the country's per capita income would suggest. In fact, compared with other countries the Dutch export sector has actually grown less complex in the past few decades.

Another important indicator is the extent to which an economy is *dynamic*. How many new companies are founded, and how much eagerness is there to start up new businesses? By these measures, the Netherlands has grown much more dynamic in recent years. Entrepreneurship has taken the country by storm. While the Dutch economy does have a number of large and venerable enterprises, it also has a growing number of small businesses and own-account workers.

III WHAT CAN GOVERNMENT DO?

Anyone who looks at the Dutch economy in the light of recent policymaking will come to two conclusions, according to the WRR. First of all, the Netherlands has not pursued a policy of large-scale economic stimulation in the past few decades. Although there was a lot of talk about encouraging business, in reality that encouragement came down to a few funding schemes of limited scope. Second, the ideas underpinning the measures that have been introduced are rather woolly. The list of recent measures meant to promote the Dutch economy is long and fleeting. It consists of a bewildering number of small- and large-scale schemes that, once introduced, were then regrouped and relabelled every few years. The new "key economic sectors policy" is equally questionable. The sectors selected to drive the Netherlands to the top of the world economic rankings appear to be politically dictated. The list of key areas has been upended regularly in recent years, and the sectors that made the cut are not necessarily representative of the Dutch economy.

The Netherlands, then, seems to be wavering between two approaches: general policy, raising concerns that resources are not being deployed efficiently; and specific policy, underpinned by mediocre arguments at best. And in each instance, the financial resources actually being earmarked are far too limited, given the intended objective: to make a serious impact on the Dutch economy. The question is whether this circumspect – some would say half-hearted – policy is fit for purpose, given what the Netherlands is facing in the decades ahead. And in fact, there are alternatives.

There is enough historical evidence that a targeted policy of growth can be successful, and that virtually every country in existence has actively pursued such a policy at one time or another. All the fastest-growing economies of previous centuries had dynamic industrial policies, and the success of many countries in Eastern Asia speaks volumes in that regard. More recent examples of successful government policy can also be found, and they apply to entire sectors: the computer industry, the Internet, the biotech industry and much of the current nanotech industry would not exist if governments had not stepped in to lead the way. Europe's firm position in telecommunications and the growing role of the European aircraft industry can both be put down to government intervention.

The question of how to shape a successful growth policy is therefore much less a matter of theoretical principles than a practical examination of which measures to deploy and how. It is a complicated question with no easy answers. The two main challenges are to identify clear priorities and to find the appropriate measures.

The first problem is how to set priorities. Some countries have developed specific strategies and, in some cases, even established institutions for that purpose. But how does a country make these kinds of choices? Many governments today tackle the problem through a subtle combination of hands-off and hands-on policymaking. The idea is for strategic cooperation and coordination to emerge between private and public parties with the aim of identifying the biggest problems. But even if they succeed in organising the decision-making process in some way or another, the subject matter remains far from straightforward. After all, how do we seek out the best opportunities? And once we have managed to identify priorities, the question is which measures are best suited to achieve them.

Many countries have explored a whole range of possibilities in the past few years, which have been described in *Naar een lerende economie*. Some countries have prioritised specific sectors or technologies, while others have targeted regions, or supply chains, or societal challenges. The most striking thing about these strategies is that policy practice and theory have diverged. Policy practice tended (and still does tend) to concentrate on setting priorities and making specific resources available. The interventions – funding and tariffs – were mainly intended for specific products or specific enterprises or sectors thought to be promising. In addition, a practice emerged based on a rationale of market failure. Underinvestment in R&D had to be compensated for by tax incentives and the lack of available credit for new businesses by special start-up facilities.

Gradually, however, the theory shifted. Instead of focusing on specific products or sectors, or on individual forms of market failure, it now considers the innovation system as a whole. According to the theory of innovation systems, there is little point in prioritising a specific technology or sector without simultaneously asking what that will mean for education, foreign relations, the institutions that regulate the labour market, the physical infrastructure and spatial planning. It is becoming increasingly clear that it is the interplay between these factors that determines whether a growth policy is successful.

IV EARNING CAPACITY IS KEY

In deciding how best to stimulate their country's economy, many governments prefer the strategy of linear forecasting. Here, the aim is to use the past to extrapolate interesting future markets, sectors and/or technologies and to develop policy accordingly. It is a risky strategy, however, certainly in the somewhat longer term. After all, the most accurate forecast of all is that things will happen differently from the way we think they will. There is another strategy, however: that of boosting the country's *earning capacity*. That capacity is the sum of its ability to exploit future opportunities and overcome future threats. The aim is to build infrastructure, institutions and human capital to the point where they can adapt smoothly to changing circumstances.

The second strategy is the most obvious one for the Netherlands, according to the WRR. In the long run, it will give it the most robust chance of economic growth; it is appropriate in a world that is growing ever more complex; and it also offers the best opportunities for independent policymaking. After all, macro-economic policy is increasingly becoming the province of Frankfurt and Brussels. The Netherlands has largely exhausted all the options for improving the way markets operate. It is easy to overestimate the impact of further intervention in this regard. For example, an overhaul of the social security system is not expected to lead to many long-term improvements, especially if the reforms already being planned are carried out. The only option that remains is to improve the Netherlands' earning capacity.

The key concept when it comes to organising earning capacity is *responsiveness*. Responsiveness is the ability to adapt rapidly and effectively to new circumstances. Responsiveness can be broken down into three components. The first is resilience: are there enough buffers to absorb shocks; are there enough "firebreaks" to keep shocks from spreading throughout the system; and is the system sufficiently redundant, so that some parts can take over the work of others if necessary? The second is adaptive capacity: can the system adapt smoothly to new circumstances; is there enough scope for variation, selection and experimentation so that specific solutions can be quickly devised when circumstances change? The last component is a proactive attitude: does the system learn from its mistakes, anticipate future problems and search for future opportunities? In other words, are feedback mechanisms properly organised and is consideration given to what could happen in the longer term?

Responsiveness is not something that can be organised in a vacuum; it has to be created in a context born out of the past and encompassing the challenges of the future. The report *Naar een lerende economie* describes three challenges that

will be very important for the Netherlands in the decades ahead. The first is the challenge of productivity. The Netherlands' labour force will start to shrink in 2020. To compensate for the resulting loss of man-years, it will need to become more productive. The labour shortage will not be the only problem, however. Shortfalls are also likely in raw materials and – given the need to reduce public and household debt – capital, at least to a certain extent. All this implies that the Netherlands will have to do more with less.

The second challenge has its roots in the increasingly interlinked international economy. Production chains are growing longer and more fragmented, with countries becoming more dependent on one another, and enterprises (and, to a certain extent, employees) being less tied to a specific country. It is therefore becoming more important – but also more difficult – for enterprises to coordinate their activities with those of other businesses in the same production chain. The Netherlands will have to find ways to cope with this. Enterprises are also much less loyal to a particular country nowadays, begging the question of how they – but even more importantly, how people – can be persuaded to commit to the Netherlands.

The final challenge is how to key into the rapidly changing, multifaceted nature of modern innovation processes. Innovation can result from good R&D, but also from more efficient production methods developed while the work is under way, from better organised production chains, from original marketing, or from a much-needed service. The knowledge required for these various forms of innovation can come from many different sources and anyone who is involved can drive them forward.

V CHALLENGE NO. 1: CONTROLLING AND RESPONDING TO DEPENDENCIES

The Netherlands is a small actor on the global stage, and that has certain consequences. For example, the Dutch budget will never be able to compete with those of large countries like China or the United States. Much of the Netherlands' earning capacity therefore depends on factors that lie outside its national borders. It is part of a world that is growing ever more closely intertwined. The barriers that once prevented transnational flows of capital and labour mobility are being dismantled; cross-border networks and dependencies are increasing; a growing number of countries are being drawn into a more diffuse international division of labour; and information is being shared and processed at ever-increasing speeds.

As emerging economies grow and develop and their middle class expands rapidly, and as the output of more and more goods and services is organised into cross-border production, the West will increasingly find that it cannot take economic growth for granted. On the one hand, there will be growing opportunities for enterprises in the West to export to emerging markets. On the other, advances in technology and globalisation will make it possible to automate and/or offshore not only simple production work and a few high-end knowledge-intensive jobs, but also, increasingly, many middle-class positions. Not only will sincere reflection on national policy be required, but also international cooperation and coordinated economic and social policy leading to sustainable and *inclusive* globalisation. This will not be easy in today's confusing, multipolar world.

Cooperation is not getting any easier; at the same time, countries are more vulnerable than ever to destabilising external shocks. The dependencies are numerous and complex. An iconic example is the recent banking crisis, which began with the fall of Lehman Brothers and eventually disrupted the entire global financial system. And there are many other examples: the 11 September 2001 terrorist attacks, which permanently altered the geopolitical landscape; the combined peaks in food and energy prices in 2008; the floods in Thailand, which brought the world production of hard disks to a halt; the savings surplus in China, which led to a liquidity glut around the world; and so on.

In a world in which news or goods take a long time to travel round the world, shocks in one place can be compensated for by favourable developments elsewhere. But when only a second elapses before an event or piece of information is splashed across every news site, shocks may be all the more intense because everyone reacts in the same way and at the same moment. The

growing interconnectedness of the economic system has also made it more complex and, as a result, inherently more vulnerable. On top of everything else, many shocks are impossible to predict in advance. In that respect, we are evolving from a world of risks into a world of uncertainties.

Governments are only now beginning to understand that they need a strategy to deal with the uncertainties associated with these growing international dependencies. The financial crisis served as a wake-up call for many of them. Some countries have spent the past few years tracking their dependencies in such areas as energy, raw materials and, in some cases, water and food. At this point, these are often nothing more than finger exercises, with very few governments actually producing any real policy on mutual dependencies. But that is something that the Netherlands will need to attempt if it wants to maintain its long-term earning capacity at a reasonable level. That is why the first challenge that the future will bring in terms of earning capacity is to control and respond adequately to dependencies.

VI CHALLENGE NO. 2: PRODUCTIVITY

The Netherlands' earning capacity cannot be viewed separately from the way in which the globalisation process is unfolding. Equally, however, that capacity depends on the availability of the necessary factors of production: capital, natural resources, and people. There will be a scarcity of the latter two factors, however, and it is impossible to predict the availability of capital. That will have consequences for the Netherlands' earning capacity. Because it can do little to achieve economic growth by increasing the labour participation rate and the number of hours worked a year, its latest challenge will come down to investing in productivity growth, or doing more with less. That will mainly involve being smarter about how it tackles things and developing new products and services.

The Netherlands still compares very favourably with other countries when it comes to labour productivity. Nevertheless, the productivity growth rate slowed in the final decades of the previous century. In fact, many other countries have achieved higher rates of productivity growth in the past decade, and they are gradually gaining on the Netherlands' lead. The slow-down is even more striking when we consider the massive changes that have been introduced in recent decades (i.e. the deregulation of the labour market and the social security system), all of which were intended (in part) to increase productivity. And there are in fact other changes that should have resulted in an improvement in productivity, for example the way competition policy was given shape and the revolution in information and communication technology. It is of course possible that these changes have been negated by contrary trends. For example, the Netherlands has long lagged behind when it comes to investing in knowledge, and there are signs that its educational system falls down in quality on a number of points.

While it remains difficult to pinpoint the reasons for the Netherlands' substandard productivity growth, the importance of that growth is patently obvious. To counterbalance the shrinking labour pool, policymakers will have to focus more on increasing productivity in the decades ahead. Where can this best be achieved? The standard answer is: the service sector, because it has a low rate of productivity growth. In reality, however, it would be quite difficult to simply improve productivity in the service sector. For one thing, its market is much more local or national in nature than the market for many industrial products, making it less competitive. Competition could indeed drive up productivity in the service sector, but it is faulty and looks set to remain that way.

The Dutch service sector performs well in international productivity rankings, but not across the entire board. Transport is in first place worldwide when

it comes to added value per hour worked, and trade is also a front-runner. However, the picture changes dramatically when it comes to business services, the most important segment within the services sector. The segment most in need of improving is the public sector. Studies have shown that government services are actually less productive than business services. There are all sorts of obstacles here, however. For example, it is hard to define the "products" as such. Do we measure productivity in education by the number of pupils who finish school for a certain amount of money, or by the cleverness of those pupils? Cleverness is a difficult trait to assess, so we generally fall back on the first measure. And we have not even mentioned that the purpose of education is not only to teach children, but also to train them to be socially adept, engaged and active citizens. Things get even more difficult when the product is "prevention". If having more police officers lowers crime levels, the statistics will show that as a drop in productivity because there are more officers on the beat catching fewer criminals.

Even taking all of this into account, productivity levels in some segments of the service sector are simply doomed to fall behind the average rate of productivity growth for the overall economy. Since the Industrial Revolution, most industrial sectors have undergone spectacular labour-saving increases in productivity, allowing the cost per product unit to drop as earnings have risen. But automation is not always possible to the same extent in personal services (this does not apply to all segments of the service industry), and labour-saving productivity increases happen at a slower pace. Because wages have risen along with the average rise in productivity – if they do not, no one will want to do the work – the costs of these services have also increased but since productivity growth has been minimal, more and more people are needed to do the work.

It is proving difficult to get productivity improvements off the ground in the public sector. To begin with, there are very few genuine incentives. The financing, regime legislation and market regulation have all been designed in such a way that they seldom challenge those involved to be more productive. There are no automatic rewards for teachers who fine-tune a curriculum, for nurses who help more patients, or for public servants who attend more meetings. Secondly, there are only limited innovation drivers in the public sector. The health care system spends a reasonable amount on R&D, but the amount of money earmarked for research in the education sector is considerably smaller.

The first point we can make is that these efforts are miniscule compared to the relative importance of the service sector. The second point is that many of the measures are aimed, theoretically, at the entire service sector and do not allow for the highly heterogeneous nature of that sector. After all, innovation in the

hospitality industry differs considerably from innovation in financial services, specialist research, or the film industry. Third, the relevant measures still closely resemble those deployed in the traditional manufacturing industry. The biggest problem is that there is little qualitative and quantitative insight into how to develop a sound policy that focuses specifically on the service sector. Innovation is therefore still in its infancy in that sector.

The second challenge for the coming years is therefore: to invest in productivity growth – and by that we mean not only labour productivity, but also the productivity of capital and natural resources. The focus should be on productivity trends in the service sector, in particular in the public sector. That implies developing a specific innovation strategy for both the health care and education sectors.

VII CHALLENGE NO. 3: TOWARDS A LEARNING ECONOMY

The Netherlands will soon be facing specific challenges, as productivity becomes more important and dependencies increase. But the changes will not stop there. The way goods and services are produced will gradually change as well. The transformation process will be subtle, but needs to be thoroughly understood if the aim is to improve the earning capacity of the Dutch economy in the decades ahead. With innovation undergoing a metamorphosis, the question is how government can best intervene.

Let us begin by analysing the new concept of innovation. First of all, it no longer matches the linear concept of knowledge generation that long held sway. In the linear model, knowledge generation (in the form of R&D) was regarded as the main driver of economic growth. However, that idea long longer fits in with how innovation in largely practised at present, now that the emphasis is on much more complex networks. In open innovation systems, ideas may come from external parties, for example suppliers and customers. In addition, R&D is much less relevant in the service sector, which now accounts for most of the Dutch economy. In the new concept of innovation, knowledge can be generated anywhere in the production chain, whether that be design, business case, marketing, distribution or production. By the same token, new ideas can be drawn from other companies, sectors or countries. Increasingly, then, the emphasis is shifting to circulating and absorbing existing knowledge.

In the WRR's view, government's main task is to develop organisations, relationships and career patterns in a way that maximises knowledge circulation. The focus cannot be on knowledge generation alone; it will be just as important to see that that knowledge is properly absorbed and circulated. The question, then, is whether a country (especially a small one like the Netherlands) should seek to remain in the lead by investing only in knowledge generation. In many cases, it is not necessary for a country to top the world science rankings, as long as it understands developments in science well enough and is connected to networks in which new knowledge circulates. On the other hand, knowledge will become more important as a basic attitude. People have to be able to absorb new knowledge quickly and make it productive. The Council looks more closely at this in the recommendations made in its report *Naar een lerende economie*.

Another conclusion is that innovation policy must be context-specific. Requirements vary, and good policy is tailored to meet specific requirements. Typically *science-driven* enterprises may need nothing more than a traditional

regional innovation structure (commercial and public R&D institutions), whereas businesses that depend on multiple sources of knowledge – and most businesses do – require a different type of network that prioritises sharing and long-term relationships. Small businesses also have different knowledge requirements from large ones. It is much more difficult for SMEs to take decisions covering a four-year period or even longer, but that is precisely the time frame that offers a huge potential for innovation.

As innovation increasingly takes the shape of a network, it will also need an appropriate form of governance. For example, the problem of climate change cannot be tackled in the same way as the Apollo space programme, by a major quest to develop the technology of the future. Instead, the strategy for the coming decades will be to refine a wide range of existing techniques and develop new ones that will eventually be assigned their place. Government policy is crucial, however. It can effectively channel the demand for energy towards the best technologies so that new technologies quickly become viable (i.e. by means of regulatory measures and by pursuing a dedicated pricing policy in which it makes funding available for desirable technologies and imposes extra taxes on undesirable ones).

What is emerging is a view of how the Netherlands' earning capacity can be improved: by developing a form of knowledge circulation that suits the specific nature of the Dutch economy. The challenge is to come up with models that will function satisfactorily in the decades ahead and that are based on services, made-to-measure work, rapid change, multiple types of knowledge, and open networks. This task goes beyond an approach based on the model of knowledge generation that takes R&D as its frame of reference. That applies for the Netherlands even more than for many other countries. The Netherlands has broad-based sectors in which R&D accounts for only a very small share of innovation.

For innovation policy to fit in with the Dutch context, it has to recognise differing sources of knowledge, acknowledge the importance of skills, and view innovation largely as a learning process. That means making sure that the economy responds adroitly to new knowledge and new developments. A good innovation policy therefore primarily involves making the innovation ecosystem stronger, and that in turn means encouraging knowledge generation and circulation, improving connections between actors, offering support where useful, and posing challenges where possible.

VIII THE LEARNING ECONOMY: RECOMMENDATIONS

Managing dependencies, stimulating productivity and focusing on knowledge absorption: according to the WRR, these are the most important challenges that the Netherlands faces in developing its earning capacity. The Netherlands is part of a globalising world and it will have to learn to manage the shocks that may ensue from that process of globalisation. The Netherlands also faces another challenge: doing more with less. Scarcity of human resources, raw materials and (for the time being) capital will require innovative solutions. In a world in which a growing body of knowledge is becoming available, in which innovation can be achieved in many different ways (from good R&D to smart marketing) and in which products and production processes are subject to continuous adaptation, the ability to absorb knowledge and make it available is crucial.

The key task arising from these challenges is to create a *learning economy*. Whereas the *knowledge economy* focused on generating new knowledge and on a small group of outstanding individuals, a learning economy covers a broader spectrum. A learning economy is not one in which everyone necessarily continues attending school; it is one in which knowledge and skills are able to circulate. The learning economy concentrates on the need to investigate which types of knowledge may develop, how that knowledge is shared, and how learning can take place in the broader sense (learning from consumers, analytical learning, technical learning, skills learning, learning in organisations, institutional learning, policy learning, and so on). Everyone, no matter what their station in life, must be able to adopt new ideas and handle changing circumstances.

This means that, when it comes to boosting the Netherlands' earning capacity, the added value lies in improving the institutions that generate and circulate knowledge. It is here that the country has the most to gain. The group is not restricted to formal knowledge institutions such as research institutes and schools, but includes other relevant institutions, including employing organisations. Below, the Council outlines how such institutions should evolve in the light of the challenges described above.

Knowledge institutions
If we want our policy to be geared towards promoting knowledge circulation, then our knowledge institutions will need to be seriously repositioned. To begin with, the relationship between those institutions and the rest of society

will need to change. So far, there has not been any meaningful dialogue between the two; in fact it is more of a monologue: either researchers come up with clever inventions and try to publicise or peddle them, or society asks science to give it what it actually needs. In either case, neither the knowledge institution nor society tries to understand what is relevant or possible for the other. What we must try to achieve is knowledge generation based on consensus, with issues relevant to society inspiring scientific enquiry, and with prevailing scientific knowledge being made available to a variety of parties in society, and with all possible disciplines playing a role, from materials science to social psychology.

Achieving this will require a new relationship between society and knowledge institutions, with both looking beyond their own interests (i.e. more funding for knowledge institutions, and pure efficiency gains for society). Instead, both should make knowledge circulation a priority. Knowledge institutions should be inspired by commerce and industry and public institutions in regional or other partnerships, and should inspire them in turn. The question then is what role the various types of knowledge institution ought to play. Research universities should leave scope to ask their own questions and to address new issues, but they must also enter into long-term relationships with relevant parties in their networks. Universities of applied sciences are viewed all too often as mere schools, but they too will have to transform themselves into knowledge institutions and strike a new balance between transferring knowledge, generating economic activity, and helping to solve problems.

Other knowledge institutions will also have to carve out a place for themselves, with the spectrum preferably being as broad and diverse as possible. One of the problems with the current system is that too much pressure is put on universities. They are expected to excel in research, in education and in valorisation, if possible in every imaginable discipline and field of study. If we allow for more variety in the system of institutions that carry out research, that could go a long way towards deepening our knowledge and improving knowledge circulation.

Education

The Netherlands' earning capacity depends on education in a variety of ways. To begin with, the Dutch economy has every interest in dealing conscientiously with people. The relative scarcity of human resources and the associated challenge of improving productivity mean that the Netherlands will have to do more with less. But it can only do so if it makes the most of everyone's talent and skills. On top of this, the Dutch economy – small in size, hugely diverse, and with a relatively large service sector – depends heavily on its own absorption capacity, which in turn depends on the level and type of education

that people have had. Countries that have a large-scale manufacturing sector can rely on a more R&D-driven innovation strategy, but the strategy that best suits the Dutch economic structure is one that focuses on widespread educational opportunities. After all, "everyone" is involved in generating innovation. Education can also be a good way for individuals to learn responsiveness.

The Netherlands' attitude towards education is complex and ambivalent. There is broad consensus that education is important, but the Dutch do very little to show support for this idea. Although the importance of the knowledge economy has been widely discussed since the 1980s, it is precisely from that period onwards that the Dutch began to curtail their investment in knowledge transfer. Viewed internationally, the Netherlands is relatively isolated in this regard. There have been no new major educational strategies in recent decades; on the contrary, the very idea has become suspect. And in the meantime, the education sector continues to feel the pressure.

A serious investment is needed in the quality of primary and secondary education. Much of that investment can be achieved by means of innovation and the use of ICT, by re-evaluating the existing inflexible system of classroom hours, and by turning teacher training into a university-level programme. The Netherlands needs a system in which schools are offered enough incentives to work effectively, in which teacher training is outstanding, and in which the knowledge and skills that schools impart are much more obvious. A further boost in quality is needed to lift pre-vocational and secondary vocational education out of the danger zone. The main task facing higher education is to offer a wide range of educational programmes that take account of what the students want and can do, and not what the institutions have to offer. That means much more differentiation in subject matter and form, including two-year Master's programmes and universities that once again concentrate on teaching (rather than research or valorisation). Institutions must force themselves out of the comfort zone of their safe cost structure and have more leeway to generate their own income and to set themselves apart. That also means tailoring their programmes and courses to full-time students again. There is almost no other country in the world that gives students as much freedom as the Netherlands, but we have to question whether we are really doing our children a favour.

A transformation of the kind described above is not a question of mere budgetary measures. Ultimately, it means reassessing the way in which the Netherlands intends dealing with education, something that demands commitment from both the Dutch government and the educational institutions. It is, in effect, a new social contract, one in which mutual expectations, obligations and commitment are identified and there is the

prospect of achieving a specific goal in the longer term.

Learning while working

A country's earning capacity depends largely on the knowledge of its population. Formal institutions generate knowledge and circulate it, but the way the work is organised also plays an important role. In the best-case scenario, people continue to learn even after they enter working life. They are encouraged to make the most of their abilities, and there are schemes that encourage organisations to invest in their workforce. Workplace learning requires interaction between employing organisations and educational institutions. The two must be closely matched; after all, no one benefits if large groups of students graduate without any hope of finding work, or if businesses are unable to find people with the right skills. But it has proved difficult to create a suitable linking mechanism between education and the labour market. For example, it is not easy to predict how many graduates of a specific educational programme will be needed in the future.

While it is helpful to match educational institutions and employing organisations, it is not enough to improve the link between learning and working. People should feel sufficiently challenged during the course of their working lives to continue building their knowledge and skills. They acquire knowledge and experience, but the added value of this investment declines at an ever-faster rate with the passage of time. Despite all its good policy intentions, the Netherlands pays little attention to post-initial education and gets poor marks when it comes to lifelong learning.

The Netherlands faces the task of breaking through the lifelong learning impasse – which has now lasted several decades – in its own way. The most obvious answer in the Dutch context would be to give employees an individual entitlement to training that can be transferred to each successive employment situation. Social security reform would be the most fundamental way to achieve this. The entitlements that people can claim in order to maintain their skills should be separate from their employment contract. At present, existing facilities to promote learning are largely sector-specific in nature, for example the Education & Training Funds (*O&O-fondsen*), but very little use is made of them. Company life cycles are growing increasingly shorter, businesses are becoming more international and people change jobs more frequently, whether by choice or involuntarily. The right to training should therefore not depend on employment terms (or a period of employment) and the employer's willingness to invest in training. Instead of jobs, the point of departure should be to offer people protection, so that employees feel both supported and motivated to maintain their own employability. The nature of the employment contract must not be the defining factor for access to training. Employees should be encouraged to update their level of knowledge continuously.

Increasingly, learning and working take place simultaneously – and it is in the interest of both employees and employers to facilitate that process. To some extent, it is up to individual employees, businesses and institutions to tackle that task, but it will also place demands on the way in which the Netherlands regulates work and social security. Starting in the 1980s, the Netherlands did an impressive job of transforming its social security system and labour market institutions. It succeeded, more than many other countries, in turning a passive system into a system of activation while maintaining a good measure of protection. The task that the country faces in the coming decades is to move from activation to prevention. People should feel that they are being invited to switch jobs and embark on a new course of study – that is the new social security.

Responsive institutions

The Netherlands' earning capacity depends largely on the way in which knowledge is allowed to circulate, people are able to improve themselves, and working and learning are connected. All these matters are, in turn, regulated by institutions that either block such changes or channel them in the right direction. What should Dutch regulatory institutions do in terms of responsiveness? The WRR answers this question by identifying four top priorities: create more leeway at regional level; develop a more strategic innovation policy; turn national institutions into ones better suited to the challenges that will emerge in the period ahead; and develop an international strategy in which responsiveness plays an important role.

First of all, oversight of economic development will have to shift to a lower level. It is often easier at regional level to communicate with stakeholders, move things in the right direction, and stay on top of new developments. In addition, there are major regional differences within the Netherlands and it would be sensible to allow for such differences. National policy should support this process.

Second, it is important for national policy to focus more on improving the innovation system as a whole. If possible, government should not subsidise products or support enterprises that it deems destined for success. It must also refrain as much as it can from correcting the market by introducing isolated measures. Instead, it should focus on getting the innovation system as a whole to perform well by promoting good networks, supportive regulations and helpful institutions, and by developing strategic agendas that parties can use as a signpost. The transition will be a difficult one. It is much easier to explain product and market interventions to the public than system interventions, which take more time and are less visible – but more effective.

The third step is to create a new "polder model". The consultative model that the Netherlands has inherited was devised to tackle the traditional issues of income redistribution and employment. The Dutch Government's policy of promoting key economic sectors has given rise to various innovation-related consultation systems, but they are isolated, do not have a clear public mandate, do not embrace all sectors of the Dutch economy, and lack a transparent strategy – it is, for example, unclear what role societal challenges play. The Netherlands needs a broad governance structure in which it tackles old and new social and economic issues alike, the underlying question being how to promote a learning economy. This calls for an appropriate system of "intelligence" – as opposed to the present policy, which is often measured against parameters focusing mainly on the short term, such as the budget deficit. It would be well to also develop parameters showing the Netherlands' performance on longer-term issues, for example human capital.

Fourth, we must acknowledge that the Netherlands will only be able to secure its own economic future to a certain extent. By building a welfare state in a globalising world, the Netherlands did away with small (domestic) dependencies but received large (global) dependencies in return. The implication is that policy must go beyond managing domestic risks and instead focus more on building responsiveness to cross-border risks – many of which are unpredictable. That means searching for forms of managed globalisation and a pragmatic policy on Europe.

IX FINAL COMMENTS

It is never easy to push through changes. The Netherlands has long depended on a model in which the elite – within employers' associations and trade unions, and within political parties – negotiated trade-offs with one another. Their decisions mainly concerned the redistribution of current prosperity, with long-term prospects playing an important role. That model relied on the ability of the elite to secure a long-term mandate from their rank-and-file. But people have less confidence in leaders these days, and they also want faster concessions to their demands. The question is whether major long-term changes are still possible. Perhaps emerging economies will always have an advantage because their institutions are younger and easier to adapt to new situations.

When it comes to structural transformations, however, the Netherlands compares favourably with other countries, even if it does not always see itself that way. Ultimately, its long "polder model" tradition has made it relatively flexible. Although stakeholders may have felt that change was a long time in coming, in retrospect – and compared with other countries – the Netherlands has succeeded in adapting many of its institutions, especially those operating in the field of social security and the labour market.

Today, five years after the start of the financial crisis, the consultative Dutch economy has not produced any notable advantages. The task that the Netherlands now faces also differs from that of the past. Then, the main struggles were against unemployment and a low labour participation rate. Now, the aim is productivity growth, and that calls for a different consultation and governance model. The Government's key economic sectors policy is, to some extent, an attempt to create new institutions that will facilitate growth and earning capacity, the latter by means of a human capital agenda. But that policy has nothing to do with the traditional process of social and economic consultation, science policy, or education policy. All these areas need to converge in a new governance structure for the Netherlands' innovation and growth policy. It is not enough simply to stress that the Netherlands has a knowledge economy; it will be necessary to work towards becoming a learning economy.

X HOW TO ORDER

The report *Naar een lerende economie* (ISBN 978 90 8964 6316) is commercially available and can be ordered from Amsterdam University Press. A PDF of the report can also be downloaded from www.wrr.nl.

Naar een lerende economie,
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Over the last half century, the Dutch economy has grown at a steady pace. However, it is anything but certain that that situation will continue. The global balance is shifting rapidly and, while that offers new opportunities, it also means that established positions are under permanent pressure.

The Dutch economy will have to equip itself for a world in which countries are more closely intertwined and in which commodities and skilled labour are scarcer. It will also have to learn to cope with the speed and diversity of modern innovation processes.

The WRR formulates a number of recommendations in this report, based on more than two hundred interviews with experts in the Netherlands, case studies in several countries involving an exchange of views with a further six hundred individuals, and an extensive literature review. The Council devotes particular attention to the need for knowledge circulation and the development of responsive institutions.

The Scientific Council for Government Policy (WRR) serves as an independent think tank for the Dutch government. It provides the government with solicited and unsolicited advice focusing on the longer term. The subjects it addresses are cross-sector in nature and concern social issues that the government is likely to be facing in future.

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