



BUILDING INNOVATION TOGETHER

Master Plan for the Berlin-Brandenburg Healthcare Region



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THE GERMAN CAPITAL REGION
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Master Plan for the Berlin-Brandenburg Healthcare Region

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Foreword

The capital region has secured a top position in the German and European innovation landscape with excellent science and research programs and a wide range of business-related research and development activities. In order to safeguard its international competitive advantage in the long term, the capital region intends to expand its position in the future.

Initiated in 2007, a joint resolution of the two state governments anchored the development of the **Joint Innovation Strategy of the States of Berlin and Brandenburg (innoBB)** in 2011. Since then, it has been continuously shaped. A specific contribution of the federal states to intelligent, sustainable and integrative growth, it is reflected as such in “Strategy Europe 2020”. One of innoBB’s key elements is the systematic establishment and expansion of clusters with high development potential.

The master plan at hand, **Building Innovation Together – Master Plan for the Berlin-Brandenburg Healthcare Region**, describes the Healthcare Industries Berlin-Brandenburg – HealthCapital cluster’s strategic goals, focal areas and key measures. It represents a further milestone within innoBB.

ZAB ZukunftsAgentur Brandenburg and Berlin Partner for Business and Technology develop and strengthen Berlin-Brandenburg’s clusters. By supporting cluster players from business and science, politics, chambers and associations and providing professional management structures, they contribute to cluster strategy implementation.

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Introduction

The Healthcare Industries cluster represents one of our region's strongest and fastest growing economic sectors. Over 300,000 employees in more than 5,900 companies ensure that the healthcare industries have a major impact on the Berlin-Brandenburg region like no other region in Germany.

The first "Healthcare Region Berlin-Brandenburg" master plan was created in 2007 with the goal of positioning the capital region as a leading healthcare region in Germany. It was adopted by a joint cabinet meeting of the federal states of Berlin and Brandenburg. Under the brand "HealthCapital Berlin-Brandenburg," the professional cluster management structure was established in 2010.

An external expert evaluated the cluster in 2012. The result was a recommendation to create a leaner management structure and divide the cluster into the four focal areas of Biotechnology & Pharmaceuticals, Medical Technology, Innovative Patient Care & Rehabilitation and Health Tourism & Prevention.

The master plan was adjusted according to the recommendation and supplemented by an implementation plan. Around 100 experts from the four focal areas and many of the players contributed via Internet consultation. In April of this year, the Steering Group of State Secretaries of both federal states approved the new document.

The new **Master Plan for the Berlin-Brandenburg Healthcare Region** takes the adjusted management structure and new and future healthcare developments into account. We invite you actively provide input so we can build HealthCapital Berlin-Brandenburg together.

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The Healthcare Industries in Berlin and Brandenburg: Building Innovation Together

The healthcare industries have a major impact on the Berlin-Brandenburg region like no other region in Germany. An engine for growth and employment, they are a guarantee of healthcare at the highest level. Over 5,900 healthcare companies – and the annual revenues of approx. € 16 billion that the products and services within Berlin-Brandenburg's healthcare system generate – demonstrate the industries' outstanding role in the region¹. The more than 300,000 employees who make an individual contribution to strengthening the healthcare industries and providers in the capital region every day show it as well: in the fields of biotechnology, pharmaceuticals and medical technology, as well as in health tourism and prevention.

The key to the HealthCapital's success is its power of innovation. With its established, sustainable climate of cooperation between research institutions and companies, the region is a magnet for researchers, creative people and company founders from all over the world. They all share a spirit of innovation that, in recent years, has been reflected in dynamic economic development with average annual growth rates of three to five percent and over 100 healthcare industries start-ups in recent years.

One of the world's finest scientific landscapes provides the basis for this dynamic performance. This includes Berlin's 19 and Brandenburg's six universities and the renowned institutes and facilities associated with major national research organizations: Fraunhofer-Gesellschaft, the Max Planck Society, the Helmholtz Association and the Leibniz Association. The region also benefits from the presence of highly sophisticated institutions for high-end medicine such as Europe's largest university hospital, Charité, and Vivantes – Netzwerk für Gesundheit GmbH, as well as cardiac centers, Centers of Excellence, clinics, rehabilitation facilities and nursing homes. In this region, scientific excellence at the highest international level goes hand in hand with a care system characterized by the interplay between regional specifics and structural change.

The federal government, the states and the Helmholtz Association are committed to investing around €300 million euros in Berlin Institute of Health – BIH within the next five years. This context of interconnection demonstrates the capital region's strength and economic potential. It is the basis for innovations that directly benefit the citizens of Berlin and Brandenburg.

¹ Cluster Monitoring 2013

Political Support for the Cluster's Development

The governments of Berlin and Brandenburg have been intensively and sustainably supporting this joint development for years. The healthcare industries have become a key component of economic, scientific and structural development policies in addition to the region's health and social policies. The **Master Plan for the Berlin-Brandenburg Healthcare Region** adopted by the Steering Group of State Secretaries and the heads of the Senate Chancellery in 2007 is Germany's first cross-state strategic development concept for the healthcare industries. It specifically addresses the needs of the region's healthcare industries and underlines its preeminent relevance for the economies and employment markets of both states.

The master plan is being implemented at the federal state level as part of the **Joint Innovation Strategy of the States of Berlin and Brandenburg (innoBB)**. In order to implement specific measures, the "HealthCapital" brand healthcare industries partnership network was founded to coordinate all the players in life sciences and healthcare. This network expanded into a cluster structure in 2010 and "HealthCapital" became the overall brand. At the same time, a cross-state cluster management structure was established as part of a partnership agreement between TSB Innovationsagentur Berlin GmbH, ZukunftsAgentur Brandenburg GmbH and Berlin Partner GmbH. An internationally renowned, honorary cluster spokesperson and the advisory board were appointed to set important strategic courses and undertake representative tasks. A manager with experience in the sector was called upon to lead the cluster management team. The healthcare industries comprise one of the five key innovation sectors that the governments of Berlin and Brandenburg will focus on in the future.

Five years after adopting the master plan, the cluster initiated an evaluation to assess the development in the healthcare industries to that point and recommend which course to take in order to support the region's strengths in the future. The go-ahead for developing a new master plan was given at The Cluster Conference on October 26, 2012 gave the go-ahead for a new master plan based on the evaluating expert's recommendations. Under the leadership of the cluster management, key experts and players from science, healthcare and business joined together with policymakers of both states to agree on the further joint approach to HealthCapital Berlin-Brandenburg.

Strategic Goals

The newly adjusted common strategic goals for promoting the region's healthcare industries on the national and international levels are the basis of the new master plan. They determine all of the current and future measures.

Developing the capital region into Germany's leading healthcare location, marketing it more effectively on the international level and attracting new players and investors

The high level of scientific excellence and the special regional constellation in Berlin-Brandenburg hold the innovative potential for establishing the capital region's healthcare industries as a global brand. Driven by innovation, they present themselves as a common, closely interconnected healthcare region. Situated in an attractive investment location in the heart of Europe, it serves as a model for other regions in the world.

Identifying new trends in key research fields and structural changes within the healthcare industries before competitors, developing innovative solutions, testing them in the region and marketing them globally

Demographic and social change is more visible in Berlin-Brandenburg than in other regions. The local economy perceived this change as an economic opportunity and is already offering a wide range of technical solutions for the next generation of healthcare. The region will leverage its advantages to develop the new products and services of the future. Sustainable growth models will be created on the basis of the new trends identified by foresight activities – some outside the established public medical reimbursement system. These measures are intended to establish Berlin-Brandenburg as an internationally recognized model region for innovation in healthcare.

Strengthening the capital region's excellent, diverse scientific landscape in order to develop new healthcare products and services

Innovation is best when it occurs at the interface between disciplines. With its excellence in medicine, life sciences, engineering, therapeutic sciences, nursing and social sciences, Berlin-Brandenburg is ideal. The region provides the best possible general conditions for technology transfer, translation and cross innovation – in close interdisciplinary cooperation with companies, researchers, doctors, therapists and care providers here are able to develop products and services for the people in the region and for worldwide export.

Boosting the efficiency of the manufacturing, processing and supplying healthcare industries by supporting cooperation along the entire value chain

Today's healthcare industries are a key driver of growth and employment for the Berlin-Brandenburg region. Through close collaboration between large companies, small and medium-sized businesses and the regional scientific community and users in clinics, practices and patient care and rehabilitation facilities, it is possible to develop more effective, efficient products and services and introduce them to the market.

Improving prevention and treatment by strengthening the research-based regional healthcare industries

The capital region is the seat of leading companies, excellent universities, professional associations, research institutions and patient care facilities. The region's healthcare industries players hold enormous potential for the process innovation that makes a major contribution to mastering the challenges inherent in demographic and social change. In conjunction with the region's expertise in healthcare and rehabilitation, the areas of prevention, health maintenance and health tourism can benefit from the healthcare industries' power of innovation.

Improving the health of people in Berlin and Brandenburg

The common mission of all the healthcare industries players in the Berlin-Brandenburg region is to use innovative products and processes to restore people to health and keep them healthy. Their goal is to develop into a model region in which citizens have access to the best possible healthcare services – the services that are necessary and medically useful.

Operational Implementation

Based on the expert evaluation, the 12 existing focal areas were condensed on January 1, 2013. These are now the region's four resulting key focal areas:

- Biotechnology & Pharmaceuticals
- Medical Technology
- Innovative Patient Care & Rehabilitation
- Health Tourism & Prevention

Beyond that, the five integrative topics that play an important role for the further development of the healthcare industries across all focal areas were identified:

- Skilled Specialists
- Inward Investment and Company Services
- Internationalization
- E-Health
- Aging Society

The cluster management coordinates the effective implementation of the master plan, with the support of full-time focal area managers. An expert committee has been established for each focal area to prioritize activities and supervise the implementation of the measures. In an Internet consultation, we have worked out the concrete goals, key subjects and an implementation agenda for the coming years together with experts in the focal areas and other players. They are presented in detail in the following chapters. The cluster management coordinates the concrete measure planning process with the cluster advisory board, which includes the chairmen of the expert committees. The Steering Group of State Secretaries of the departments for economics, science and healthcare in Berlin and Brandenburg and the State and Senate Chancelleries are responsible for steering the overall implementation process.

Networking as an Opportunity

By condensing the focal areas and establishing their professional management, the strengths of the master plan, the cooperation across state and departmental borders, the high level of networking within and between the focal areas and the interconnection of innovative healthcare provision and the healthcare industries can be better leveraged. Against this background, Berlin-Brandenburg can develop its position as a model region for new forms of care, creating new opportunities in all fields of the healthcare industries in the process.

In the future, it will become more and more important to provide the players and the interested public with access to information, for example, via the cluster portal www.healthcapital.de or at Berlin-Brandenburg Health Week, and to encourage their participation in networks, activities, projects and events such as the annual Cluster Conference.



Focal Area 1 – Biotechnology & Pharmaceuticals

1. Current Situation

The biotechnology and pharmaceuticals sectors are important pillars of the healthcare industries and key innovation and growth drivers for the capital region as well. Biotechnology has become essential for the development of new therapeutic and diagnostic approaches. Biotechnologically produced medicine's share of the German pharmaceuticals market has steadily increased in the past few years and is now at 11 percent, according to the Association of Research-Based Pharmaceutical Companies (vfa)². The Berlin-Brandenburg region has benefited from this trend. In the 1990s, it started evolving into Germany's leading biotechnology location and is now home to more than 200 biotechnology companies. There are also 30 pharmaceuticals companies, including several major corporations, with research centers in the region. These companies have become important drivers of employment. Currently, around 4,300 highly qualified employees, 5,500 scientists and around 10,000 employees in the pharmaceuticals sector work in the two federal states³.

The region's competitive edge is its great diversity of internationally outstanding academic, non-university and industrial research activity, which covers all disciplines of the modern life sciences plus key interdisciplinary themes such as IT, photonics, microsystems technology, microelectronics and surface technologies.

² Research-Based Pharmaceutical Companies: "Medical Biotechnology in Germany 2013"

³ BioTOP-Report 2013: "Biotechnology and Pharmaceuticals in Berlin-Brandenburg"

Another important pillar is the diverse hospital and clinic landscape in both federal states – with special mention of the high-performance medicine at Charité. It and the other clinics are the industry in the region's main partners for developing new medical and diagnostic approaches. A quick translation of scientific results into clinical practice is the only guarantee that therapeutic progress can be promptly passed on to patients. The content and structure of Berlin Institute of Health (BIH), established in June 2013, supports this principle. In the future, medicine will be oriented to the molecular signature of a disease rather than classification by disease pattern. Systems biology research using high-throughput technologies, data analysis and the quantitative description of biological processes are growing in significance and becoming essential for the development of the personalized medicine of the future.

On the political level, the state governments provide support for the development of the biotechnology and pharmaceuticals sectors with considerable impact. BioTOP Berlin-Brandenburg, the contact and coordination center established in 1996 which brings together players from biotechnology and pharmaceuticals on a regional level, contributes to this by supporting technology transfer and pooling the activities in this area. In particular, the themes of diagnostics, bioanalysis and regenerative medicine have benefitted from BioTOP. Centers and networks visible Germany-wide have been established in these fields in the past few years.

The Center for Molecular Diagnostics and Bioanalysis (ZMDB) was initiated as a key innoBB project. A regional technology transfer platform, it pools basic research, technology development and industrial applications for developing and producing innovative diagnostics. Around 100 SMEs and 20 research facilities are active in the region. They maintain an intense exchange of information via the DiagnostikNet BB and Bioresponse networks. These networks and the individual network partners implement many cooperation projects with internationally renowned, major companies. By integrating ZMDB into the European Diagnostic Clusters Alliance (EDCA) European diagnostics platform, Berlin is the only German location with access to nine European world-class diagnostics centers representing approx. 500 SMEs and 200 research facilities in this field to date.

In addition, Berlin-Brandenburg has evolved into one of Germany's most important centers for regenerative medicine in recent years. In this field, research-based and clinical expertise on an international level are also the foundation for this positive development and the establishment of many tissue engineering companies during the past ten years as well. Outstanding biomedical basic research and biomaterial research and a critical mass of SMEs are also located in the region. The Regenerative Medicine Initiative Berlin-Brandenburg (RMIB) network and the Berlin-Brandenburg Center for Regenerative Therapies (BCRT)⁴ research center for regenerative medicine, which is partly financed by the federal government, the states of Berlin and Brandenburg and the Helmholtz Association of German Research Centers, are all excellent, established structures in this dynamic growth area at the interface between biotechnology and medical technology.

There is also expertise in the field of active agent development in the region. In addition to the diverse activities in the pharmaceuticals industry, the Screening Unit central unit of the European EU-OPENSOURCE infrastructure at Leibniz-Institut für Molekulare Pharmakologie (FMP) in Berlin-Buch is a major institution. Further internationally visible expertise has been established in individual interdisciplinary technologies such as the glycoscience, bioinformatics, bioprocess engineering, systems biology, synthetic biology and cell-free bio production.

⁴ The BCRT emerged from a 2005 Federal Ministry of Education and Research "Translational Centers in the Regenerative Medicine" call for submissions as a joint project between Charité - Universitätsmedizin Berlin (Charité) and the Institute of Biomaterial Science of the Helmholtz-Zentrum Geesthacht (HZG; Teltow Campus) in 2006.

2. Strategic Goals

Developing the capital region into one of Europe's leading biotechnology and pharmaceuticals locations.

To maintain and expand the Berlin-Brandenburg region's current top position in the life sciences, the innovation power of the primarily small and medium-sized businesses in the sector must be strengthened and the profiles of universities and research institutions must be discussed and developed further. Scouting activities will be employed to identify new technologies and findings and then qualify them for transfer. Suitable instruments must be established for streamlining the cross state funding of research and development and improving the financing environment and start-up climate.

Accelerating the establishment of joint research and development activities between science, clinics, the pharmaceuticals industry and biotechnology companies

In order to leverage the capital region's economic potential in the biotechnology and pharmaceuticals areas and to improve way the existing expertise in science, clinics and business is leveraged, current scientific developments and market requirements must be recognized and implemented at an early stage. To facilitate this process, the existing networks and infrastructure are being expanded and supplemented according to the region's needs (e.g. CoLaborator Bayer). They connect the pharmaceuticals and biotechnology fields on the one hand, and provide a new basis for cooperation between companies clinics and research facilities on the other.

Strengthening the efficiency of the technology transfer

The capital region has an excellent network of academic, non-university, and clinical and industrial research available, particularly in the key subjects active agent development, diagnostics / analytics, regenerative medicine, glycoscience and industrial biotechnology. This means that Berlin and Brandenburg are deeply involved in developing new products and services in the biotechnology and pharmaceuticals areas. Thematically focused centers provide the institutional framework for efficient technology transfer and help to extend the communication between science and business.

Leveraging the new growth areas of the life sciences by developing interdisciplinary technologies and their potential

The existing unique expertise in the region – particularly in interdisciplinary technologies such as glycobiology, bioinformatics, bioanalysis and bioprocess engineering – holds enormous potential for innovation in developing the biotechnology and pharmaceuticals sectors in Berlin-Brandenburg further. For the future, it is important to use the interfaces between these bioscientific disciplines to drive economic growth.

3. Key Subjects and Measures

To achieve these goals within the coming years, the focal area is pursuing the following key subjects and measures:

Maintaining and expanding successful transfer structures

In order to keep the players in the biotechnology and pharmaceuticals sectors in the region interconnected, the focal area aspires to preserve the established structures (e.g. ZMDB and BCRT) for the long term. Based on the established nationally and internationally renowned infrastructure in the capital region, translational research in regenerative medicine must advance and be networked to other innovation drivers such as diagnostics. Improving clinical development will be a major focus of the activities. This includes the establishment of a central platform as a point of contact for SMEs for issues related to technology transfer and the organization and implementation of clinical studies.

The following measures have been planned:

- Consolidating the Berlin-Brandenburg Center for Regenerative Therapies
 - Establishing a privately financed central platform as an interface for joint product development with the biotechnology and pharmaceuticals industries
 - Intensifying the interconnection between regional and cross-regional players from science and industry
 - Establishing a regional growth core (as defined by the federal government) in order to strengthen the development of cell therapeutics products and technology transfer in this field
- Evaluating and maintaining the Center for Molecular Diagnostics and Bioanalytics (ZMDB) as a regional transfer platform for diagnostics
 - Evaluation of ZMDB
 - Further development of activities with a stronger focus on interdisciplinary scientific fields (e.g. photonics, microsystems technology and microelectronics) and the industry's needs
 - International cooperation between science and industry as part of EDCA

Establishing translational centers with a focus on clinical application

An important step for developing marketable products and services was establishing the Berlin Institute of Health (BIH) as an internationally visible systems medicine research and translational center. A new center for medical bioinformatics that will provide important momentum for molecular research in diagnostics (biomarkers and tracers) and active agents (targets) is also in the planning stage.

The following measures have also been planned:

- Developing BIH into a systems medicine research and translational center
 - Expand the omics technologies
 - Establish a center for medical bioinformatics
 - Increase screening capacity, strengthening the existing capacity at FMP
 - Create an automated biobanking structure
 - Establish a BIH-based technology transfer center and link it to the regionally available structures at Berlin Partner for Business and Technology and ZAB ZukunftsAgentur Brandenburg

The ongoing activities must be usefully networked with the BIH, particularly in the fields of diagnostics and regenerative medicine. Whether or not the establishment of a center for molecular imaging and an automated biobank could contribute to this is currently being evaluated. The partnership between the BIH and regional hospitals will also be actively supported.

In order to integrate the region's existing glycoscience expertise even more completely into the development of new therapies and diagnostic approaches in biotechnology and pharmaceuticals and to simplify the general conditions for start-ups, the focal area will assess the development of a "Glycobiotechnology" translational center that could also be responsible for screening technology-driven spin-out ideas.

In this context, the following measures have been planned:

- Analyzing the needs, equipment and financing options for a "Glycobiotechnology" translational center at the Max Planck Institute of Colloids and Interfaces

The following goals need to be assessed in particular:

- Make technologies available to the R&D departments of SMEs (e.g. glycoanalytics and glyco-synthesis)
- Enable technology (IP) transfer in conjunction with regional structures
- Create interfaces for joint product development with the industry
- Integrate contract research

Tapping the potential of companion diagnostics for personalized medicine

In the fields of diagnostics/analytics, a validation center for the companion diagnostics developed in the region is planned. It will be established in partnership with Charité, Bayer Pharma and the Potsdam location of the Fraunhofer Institute for Biomedical Engineering (IBMT), and involve existing ZMDB expertise. This field will continue to gain more importance in the context of developing new pharmaceuticals and diagnostic approaches in the future. In the context of the advances in knowledge in molecular medicine and the technological progress in diagnostics development, personalized medicine promises customized therapies based on stratified patient groups. It will help to avoid side effects and inappropriate treatments. The focus will primarily be on indications that have promising market potential for the local diagnostics companies.

The following measures have been planned:

- Developing the region into a center for companion diagnostics in personalized medicine
 - Expand the profile of Fraunhofer IBMT
 - Develop a concept for establishing a validation center for companion diagnostics

Using interdisciplinary technologies

Due to the region's areas of expertise, the interdisciplinary interconnection of industrial R&D and glycoscience, bioinformatics, bioprocess engineering and microarray technologies is particularly appropriate for Berlin and Brandenburg. The key content here should be new glycoengineering technologies (interface with bioprocess engineering), new functionalized surfaces (interface with material sciences) and new glycan-based active agents including accompanying diagnostic assays (interfaces with active agent development/pharmaceuticals and microarray technologies).

The following measures have been planned:

- Intensifying the cross-innovation process by consolidating the interdisciplinary dialog between science and business (particularly in the fields of photonics, microelectronics, micro system engineering, materials development and surface technologies)
- Consolidating the existing communication platforms between basic research and industry by developing existing formats further (e.g. bioinformatics status seminars, Glycan Forum and Health-IT interdisciplinary workshops)
- Interconnecting biomarker research and telemedicine by developing appropriate new joint projects

Turning the region into a technology exporter of industrial biotechnology

The Berlin-Brandenburg region has an extensive research landscape in these fields and a series of specialized companies. More than 150 companies and 53 research facilities concentrate on the key subjects that are relevant for the food industry and materials development – for example, for the extraction of biopolymers as reagents for medical technology and other technical application fields.

The following measures have been planned:

- Developing biotechnological applications for healthy nutrition and food safety, with the following key subjects:
 - Additives development for human and animal nutrition
 - “Health/wellness” product development; prebiotic/probiotic products
- Supporting technology platforms and pilot plants for the use of lignocellulose from residual materials with potential for product development or for developing economical processing methods (scaling for downstream processes) with particular regard to interfaces with SMEs

4. Interfaces to Integrative Topics

Skilled Specialists

The leading position of biotechnology and pharmaceuticals in the region can only be maintained in the long term if appropriately qualified specialists are available. A first analysis by a body of experts has identified a need for human resources in the fields of drug research and management, bioelectronics and process engineering. The plan is to encourage more active exchange between industry and the universities in the region, with a particular focus on participation in discussions on curriculum development and overall development of the respective research profile. The goals are to adjust training opportunities in quality management to demand and to facilitate continuing employee education related to the regulatory market environment. The improvement of non-academic vocational training is also on the agenda. Partnerships with vocational training centers, chambers of industry and commerce, labor unions and professional and employers’ associations are of particular significance in this context. Several event formats aimed at inspiring the younger generation’s interest in the life sciences are very successful; these will be continued in the future. The well-established facilities for pupils (pupil laboratories) in the region will also be maintained.

The following measures have been planned:

- Regularly gathering information on human resource needs with regard to the profiles for skilled specialists that start-ups and the industry require through surveys as part of the industry report
- Further developing existing programs and formats for securing the next generation of scientists and engineers
 - Use existing modules at various universities and non-university facilities
 - First key subjects will be industrial biotechnology and bioelectronics
- Expanding continuing education formats in the area of legal framework conditions and other specific subjects depending on need, particularly through regularly tapping the continuing education potential of the social welfare partners, chambers, associations and private providers in the region

Inward Investment and Company Services

The goal is to interest new companies and their R&D departments or production units in the region, thus acquiring necessary expertise and broadening the capital region’s industry base through systematic inward investment.

The following measures have been planned:

- Preparing and updating sector-specific information on hard and soft location factors regularly
 - Develop subject-specific unique characteristics
 - Create subject-specific expertise profiles in science and business (compare “IVD in Berlin-Brandenburg”)
- Expanding the target-region-specific acquisition strategy
 - Develop specific instruments and activities for addressing companies with potential for inward investment according to the conditions and opportunities in the target regions
 - Intensify use of the established platforms and events in the target region
 - Use the broad array of regional technology and service providers to address industrial corporations
- Analyzing regional value chains on a regular basis and identifying expertise deficits in a constant dialog with players from science, patient care and business (as part of events, stakeholder maintenance and in the regular coverage of sector development)

Internationalization

The biotechnology and pharmaceuticals sectors orient their products and services to the needs of a globalized market. The companies in Berlin and Brandenburg generate the majority of their revenues abroad. In order to improve the position of regional business on an international level, the key activities must be strengthening the innovation power of SMEs, expanding international partnerships and developing new markets. The visibility of the regional biotechnology and pharmaceuticals sectors must be increased as part of international trade shows and internationally oriented industry meetings in the region. In this context, subject-related events must be maintained and expanded – particularly in the fields in which the region has demonstrable expertise. An event format comparable to the “Glycan Forum” or the “Berlin-Brandenburg Technology Forum In vitro-Diagnostics and Bioanalysis” must be developed for regenerative medicine and the organization of the “Regenerative Medicine Coalition (RMC)” international network, an international alliance of translational centers and industry partners, must be accelerated.

The following measures have been planned:

- Expanding EDCA by interconnecting regional diagnostics players with (new) European partners
- Interconnecting activities in the field of regenerative medicine
- Expanding concepts for internationally relevant event formats such as the Bionnale with its “Conference,” “Partnering” and “Industry Exhibition” modules
- Integrating international players and networks more thoroughly, for example, from the Council of European Bioregions CEBR, EDCA, ScanBalt (network of Northern European players in the life sciences) and RMC
- Acquiring European projects with increased involvement of SMEs through the intensified use of existing European networks

E-Health

The options for applying innovative solutions from the information and communication technologies (ICT) in the biotechnology and pharmaceuticals area are highly diversified and the potential for new developments is great – for example, in systems biology and systems medicine development. Due to the large data volumes that accumulate during the development of new therapies and diagnostic approaches, there is high demand for sophisticated IT solutions, particularly in bioinformatics. Against this background, the region’s expertise in science, business and patient care must be integrated into the IT sector – by developing and establishing the planned center for applied bioinformatics and implementing a biobank structure within the BIH.

The following measures have been planned:

- Developing and establishing joint electronic patient files for Vivantes and Charité, under the umbrella of an interdisciplinary project between the clinics and the IT industry (and possibly SAP and/or the Hasso Plattner Institute)
- Using biological data (big data) (increasingly available thanks to modern omics technologies) intelligently and systematically for innovations and as a basis for new products, processes and services
- Using new information and communication technologies to expand existing networks
- Establishing and developing a center for applied bioinformatics

Aging Society

When deciding on future projects, the regional strengths in diagnostics and regenerative medicine must be leveraged. The subject of multimorbidity should also receive more consideration at the interface to the other focal areas, for example, by establishing relevant research and study projects. Another promising subject is the development of new products for the food and cosmetics industries. Projects in these fields should be initiated on the basis of existing academic expertise and interconnected with activities in focal area 4 “Health Tourism & Prevention” – with a focus on the systematic support of preventive measures.

The following measures have been planned:

- Initiating and supporting studies on medication and drug interaction among elderly people with multimorbidity
- Initiating joint projects on the following key subjects:
 - Nutrition concepts, preventive foods and probiotics for older people
 - Cooperation with the players in industrial biotechnology and the Food Industry cluster in Brandenburg
 - Predictive diagnostics for age-related diseases



Focal Area 2 – Medical Technology

1. Current Situation

Medical technology in the Berlin-Brandenburg region has established itself as a strong pillar of the healthcare industries. Innovation-driven medium-sized companies, some of which are world leaders in their field, have had a major impact on this sector. In 2011, a total of 280 medical technology companies were active with their own products and services in Berlin and Brandenburg and approx. €1.5 billion was generated with medical technology in the same year. Revenues have grown continuously in the past years: medical technology is a proven driver of employment in the region. The sector employed 10,600 people in 2011, more than twice as many as in 2005. Another indicator of the powerful momentum of the region's medical technology sector is the large number of start-ups.⁵

The companies in the capital region enjoy the proximity of internationally renowned research facilities, universities and clinics. Charité - Universitätsmedizin Berlin, one of the largest university hospitals in Europe, and the largest municipal hospital corporation in Germany are important clinic-related players that support interconnection within the science-business-patient care triangle. All the players of the medical-technology-related value chain are present in the region – from research and product development to their application to patient care. When it comes to training skilled medical technology specialists, HealthCapital Berlin-Brandenburg is well positioned. There are medical-technology-related degree courses at several universities in Berlin and Brandenburg. In comparison to other European locations, the medical technology know-how in the Berlin-Brandenburg region is densely interconnected. The companies here in the capital region benefit from specific structural features that have emerged between the two poles of the metropolitan area and the rural communities.

The sector has also benefited from long-term political support. The regional exchange between the players in medical technology was actively supported and consolidated into the Healthcare Industries cluster under the "HealthCapital" brand. As a result, a whole series of relevant partnership

⁵ For a detailed compilation of information, facts and figures on medical technology in the region, see the "Report on Medical Technology in Berlin-Brandenburg 2012-2013".

and communication structures has been established, now contributing to the growth of the region's medical technology sector. The region has excellent expertise and facilities in geriatrics (including gerontology), cardiovascular diseases, neurology, oncology and orthopedics. The regional medical technology players have also actively participated in the federal government's "Innovations in Medical Technology" National Strategy Process.

2. Strategic Goals

The following goals will be decisive for the development of the medical technology sector in Berlin-Brandenburg in the coming years:

Developing the capital region into the highest-growth medical technology location in Europe by improving the international competitive edge of industry, science and clinics

In order to expand Berlin-Brandenburg's position as an acknowledged center for medical technology and to tap its growth potential, the interconnection of industry, clinics and science in Berlin and Brandenburg must gain momentum. This is specifically the case for the international market environment in which the regional companies are competing. The increasing competition due to me-too products, from Asia, for example, is a special challenge. Cross-state instruments that will reinforce the competitiveness and innovation capacity of the players in the region must be established.

Consistently advancing current cutting-edge technologies across clusters and establishing pioneering new technologies

The characteristic polarity between urban opportunities and specific rural requirements holds special potential for medical technology innovation in Berlin-Brandenburg. Against this background, it is important to further develop technology fields in which medical technology from the region already plays a leading role both nationally and internationally, and develop new future fields via research activity. Medical-technology-related research and development activities that could serve as model processes for the testing of new drugs, for example, must also be expanded.

Identifying and removing translational barriers and linking research, development and patient care more closely

The highly dynamic technology field of medical technology is characterized by short innovation cycles and complex approval procedures and financing structures. The processes in the science-business-patient care triangle are not transparent enough for many players. Therefore, one long-term goal is to intensify the culture of exchange between all players in the medical technology innovation system. Regional products must be translated more quickly.

3. Key Subjects and Measures

In order to achieve these goals in the coming years, the focal area is pursuing the following key subjects and measures:

Expanding expertise and capacities to use for relevant indications and innovations

Today, medical technology products and services from the Berlin-Brandenburg region are focused on the five areas of medical application that cover roughly 80 percent of the indications for ambulatory or stationary treatment and therefore have a high economic relevance:

- Geriatrics, including gerontology
- Cardiovascular diseases
- Neurology
- Oncology
- Orthopedics

The considerable amount of resources in science, business and patient care existing in these fields should be increasingly used for innovation and marketed on an international scale.

Expanding the existing technological base and accelerating the development of highly innovative future fields

The mega trends of the future technological developments in medical technology are miniaturization, molecularization, biologization, individualization and the connection to ICT. These are particularly significant in five technology fields in which the region is home to many excellent companies, research facilities and clinics. The potential in the following cutting-edge technologies must continue to be tapped:

- Medical imaging
- E-health technologies/medical informatics
- Endoprosthetics
- Cardiovascular medical technology
- Minimally invasive medicine

Due to its geography and technical expertise, the region offers excellent conditions for the development of e-health technologies. In the field of telemedicine, for example, trend-setting joint projects for cardiovascular and diabetes patients have already been established and are funded by the federal government, state governments and the EU. Further research and development activities aimed at increasing companies' international competitiveness should build upon this basis. Transfer projects should be developed to increasingly use the region for testing new medical products and medical technology tools, which help old people to achieve higher autonomy and live at home longer. Medical technology is a key factor for the areas of ambient assisted living (self-determined life via innovative technology) and "healthy aging." Here, it is also important to pool the region's expertise and in particular, to strengthen the dialog with the players in the ICT sector.

Nanotechnology and regenerative medicine, which also includes "organ replacement," are two additional, highly innovative technology fields that are already present in the capital region with excellent approaches. They could clearly be developed further, especially with regard to medical technology. The topic of "biologized medical technology" highlights an important interface for this key subject. Appropriate measures must be linked to the Biotechnology and Pharmaceuticals focal area, in which regenerative medicine, red biotechnology (e.g. organ replacement) and diagnostics (e.g. contrast agents and tracers) also play outstanding roles.

Accelerating and establishing more effective exchange between science, business and patient care

Translational research, in which the players in academic research and companies work together in a clinical environment to develop applications, is a pioneering field for medical technology. Translational centers acquire both scientific and regulatory know-how, which makes them a promising concept for the HealthCapital. Berlin-Brandenburg already has corresponding centers in tangential fields such as regenerative medicine. The focal area should assess the extent to which a center for biologized medical technology – which would interconnect the region's existing expertise in medicine, biology and biomaterial research – can contribute to improving the general conditions for the development of innovative medical technology solutions.

Unlike a translational center, which pools the input of different players from science and business as an organizational structure, start-ups and spin-offs require space for their new companies in form of an incubator, for example. Ideally, they should be located in close proximity to a scientific institution or a clinic to make joint projects and mutual support convenient. Existing or new buildings can be used for this purpose. The innovation parks already operating in the region only meet the required criteria to a limited extent, since they usually lack the subject-specific connection to a clinic or a research facility.

In order to strengthen medical technology in Brandenburg, the teaching and research in the health professions at the Senftenberg location of Brandenburg University of Technology Cottbus-Senftenberg is going to be expanded. Creating a major in medical informatics is part of the plan, as is giving the existing degree program in medical technology a stronger focus on research by establishing and enhancing existing resources while involving mechanical engineering, electrical engineering and computer science more directly.

New event formats, networks and partnership opportunities will also create improved communication and support structures in which the exchange between science, business and patient care will be intensified. In order to become successful in the market, a medical product must often overcome (sometimes confusing) regulatory barriers. The competent employees of Berlin and Brandenburg's respective economic development agencies, Berlin Partner for Business and Technology and ZAB ZukunftsAgentur Brandenburg, provide the players with targeted information on the current general conditions and inform them of financing opportunities, funding conditions, inward investment opportunities and company services within the regional science-business-patient care triangle. This makes it easier to identify and overcome the barriers to innovation.

Leveraging cross-cluster projects

The players from science, business and patient care can make their potential and expertise more competitive by taking advantage of cross-cluster partnerships and participating in a broad context of regional added value to achieve international importance. The medical technology focal area within the Healthcare Industries cluster is closely connected to the ICT/Media/Creative Industries (e.g. e-health) and Photonics (e.g. medical imaging) clusters, as well as the plastics/chemistry sector (e.g. polymers and bio-compatible materials). The transfer of know-how and the innovation development resulting from cross-cluster projects lead to the creation of new jobs and markets and enhance the profile of the capital region as a modern, internationally attractive location.

4. Interfaces to Integrative Topics

Skilled Specialists

In order to maintain and extend the region's leading position as a location for medical technology in Europe, its appeal to skilled specialists from Germany and abroad must be increased. Permitting innovative degrees and developing new health professions – some with an international orientation – are two ways of achieving this goal. Today, regional medical technology companies already have a deficit of engineers and technicians with interdisciplinary training that cannot be adequately made up at present.

The following measures have been planned to improve the situation:

- Increasing the region's appeal to skilled specialists from Germany and abroad by establishing innovative degrees and new health professions (e.g. study nurse and surgical technologist) with an international orientation, as well as supporting their effort to overcome bureaucratic barriers (e.g. residence permits for international skilled specialists) and remove language barriers
- Providing more interesting incentives to help acquire well-educated skilled specialists and managers and retain them in the region for the long term
- Taking the interdisciplinary character of medical technology more strongly into account in qualified training and continuing education (and in other professional fields as well)

Inward Investment and Company Services

One of the primary goals here is to acquire companies for inward investment that could fill the gaps in the cluster's value chain. Start-ups and relocations of medical technology SMEs should be promoted and supported appropriately. At the same time, existing companies also need support. The capital region's inward investment strategy must include the inward investment of major enterprises with manufacturing sites and/or in-house R&D departments. The region's overall appeal should be featured at trade shows, conferences and official visits.

Internationalization

Medical technology has traditionally been a sector with exceptionally high export strength. Developing international markets is a prerequisite to winning the global competition. The international visibility of the capital region is decisive for this strategy. The international profile and appeal of medical technology in the region must be significantly expanded, and systematic information and consulting services must be established to support the regional players and enhance their competitive ability. The capital region must be promoted as an attractive location for inward investment on the national and international levels. The regional players must be informed of the projects and programs (e.g. Horizon2020) with an international reach funded by the federal government, the states or the EU and use them. They can serve as the basis for initiating more international R&D and transfer projects. Regional personnel must become qualified to work abroad and international skilled specialists need to experience the region's appeal through exchange and internship programs, for example.

The following measures have been planned:

- Boosting the visibility and enhancing the profile of the focal area
 - Presence at and effective use of domestic and international trade shows and conventions
 - Reception of international delegations in Berlin and Brandenburg, particularly by the joint business-science-patient care presentations
- Developing international markets and increasing exports by concentrating on growth markets and easily accessible markets
 - Support players in initiating and establishing international partnerships
 - Develop the region's foreign trade expertise
 - Create information and qualification programs
- Integrating players from science, clinics and regional companies more frequently into EU projects and accelerating international R&D cooperation
 - Encourage SMEs to intensify their use of funding measures
 - Communication via the access to international network partners
 - Networking between the cluster players and international R&D partners
- Improving the international network of the Medical Technology focal area
 - Identifying new partners and networks
 - Establishing and extending partnerships
 - Using the existing networks for the formulation of programs for regional players

E-Health

E-health, telemedicine and medical informatics hold great potential for medical technology innovation (e.g. home monitoring, medical informatics and differential medical technology). They provide starting points for managing the special demographic challenges arising from the polarity existing between metropolitan Berlin and the rural areas of Brandenburg. Here, both process and product innovations need to be accelerated. Examples of the process innovations that should be addressed include:

- Standardization
- Interface compatibility
- Smooth interaction of different modalities and devices with hospital information systems

This especially applies to the interaction between ambulatory and stationary care. Product innovation also provides regional companies – particularly in the area of home monitoring – starting points for

- Sensors
- Transmission technology and
- Storage technology.

In acute care, for example, a connection between medical technology and e-health (telemedicine) can improve the healthcare of the population. Together with the state administrative bodies, BPBT and ZAB supervise the implementation of important projects: for example, the Stroke Emergency Vehicle (STEMO) by Berlin's health administration and the FONTANE federal telemedicine project by Brandenburg.

Aging society

Medical technology products and services are indispensable when providing age-appropriate ambulatory or stationary therapeutic and nursing care. Concepts such as ambient assisted living, gerontechnology (self-determined living through innovative technology), healthy aging and telemonitoring must be further developed and implemented. Close cooperation between providers and users is essential for the development and establishment of technical aids, for example. Due to its diversity, medical technology from Berlin and Brandenburg also holds great potential for providing solutions to the complex issue of multimorbidity, i.e. the co-occurrence of multiple chronic diseases in older people (for example, devices for the early detection of rheumatoid arthritis, Alzheimer's or Parkinson's disease, endoprostheses, implants, pacemakers, defibrillators and stents).



Focal Area 3 – Innovative Patient Care & Rehabilitation

1. Current Situation

The Berlin-Brandenburg region features outstanding, high-performance patient care in over 130 clinics with approx. 35,000 beds, 70 rehabilitation centers and around 9,500 registered doctors. They are supplemented by around 770 nursing homes and approx. 1,200 mobile nursing services. At the same time, the region's situation is polarized with regard to differences in demographic development and healthcare. For example, the new requirements of rural areas are linked to a population decrease, an increasing number of elderly, multimorbidity patients and a deficit of general practitioners and specialists. While the metropolitan region is also confronted with increasing multimorbidity, its population is growing and it has an excess of general practitioners and specialists, as well as an uneven distribution of medical practices. This heterogeneity is one of the significant characteristics of healthcare region Berlin-Brandenburg. For the Innovative Patient Care and Rehabilitation focal area, this is not only a special challenge, but also a special opportunity. The healthcare providers in the region must take up the challenge in order to continue to deliver high-quality patient care in Berlin-Brandenburg in the long term. The region's specific general conditions also provide the starting point for the development of new forms of patient care and rehabilitation concepts.

In the past, Berlin-Brandenburg was able to demonstrate this "prototype" character with new, cross-sector approaches. Overcoming the boundaries between the ambulatory and stationary sectors was perceived as an opportunity to make patient transitions as easy as possible and to tap efficiency reserves. By providing comprehensive care and intensive care, the "Berliner Projekt – die Pflege mit dem Plus" project structures the medical treatment of patients in stationary care facilities in an exemplary fashion and is able to avoid hospitalizing them. Numerous community health centers (MVZ) have been established in Berlin-Brandenburg; another indication that this is the proper course. Cooperation between resident doctors and clinics or rehabilitation centers is also an area in which the region is breaking new ground. Integrated patient care models have already been established for individual sectors in the region, for example, in cardiology patient care management, mental health networks and the coordination of courses of treatment in neurology. In addition, numerous national

and international reference projects in telemedicine have shown valuable first results on how to implement IT-supported patient care for certain indications, particularly for chronic diseases or specific geographic conditions.

On the political level, the state of Brandenburg has answered the challenge of a shrinking, aging population with its “Ensuring Healthcare in Brandenburg in the Future” strategy. The testing of “AGnES” (an e-health-supported systemic intervention project relevant to the municipality with the aim of lightening the burden on doctors) and the comprehensive introduction of “agnes zwei” as part of the “Innovative Healthcare in Brandenburg” (IGiB GbR) initiative of the Association of Statutory Health Insurance Physicians (KV) Brandenburg, AOK Nordost and BARMER GEK illustrate the high potential the region can tap to retain its role as a trendsetter for new patient care concepts in the future. Another good example is KV Brandenburg’s KV RegioMed program, which offers solutions for ensuring ambulatory patient care in Brandenburg based on a modular system (KV RegioMed Centers, KV RegioMed Practices, KV RegioMed Emergency Practices and KV RegioMed Patient Bus). The key nature of the KV RegioMed program is generally acknowledged – it is an expression of the cooperation between KV and clinics, statutory health insurance companies, the Ministry of Environment, Health and Consumer Protection (MUGV) and the districts and municipalities.

2. Strategic Goals

The following strategic goals for the further development of patient care and rehabilitation with a focus on region-specific requirements and the demographic change will be significant for Berlin-Brandenburg in the coming years:

Creating optimized patient care structures in a coordinated, interlinked Berlin-Brandenburg healthcare region

The capital region’s patient care and rehabilitation landscape is characterized by high structural diversity with a large number of heterogeneous players. In order to meet the upcoming challenges, cross state cooperation must be established and Berlin-Brandenburg must be viewed as a homogeneous healthcare region.

Initiating innovative, cross-sector patient care concepts and assuming a pioneering role as a prototype region

The different initial situations in the metropolitan region on the one hand, and the rural area in Brandenburg on the other, must be perceived and seized as an opportunity for developing and establishing new patient care strategies with a reference character – both nationally and internationally.

Ensuring equally high quality, region-specific healthcare in Berlin and Brandenburg

In view of the Berlin-Brandenburg region’s specific requirements for healthcare, a dialog between all players must be encouraged and cross-state cooperation should be established. The demand for new patient care models can be jointly analyzed on the basis of scientific knowledge. This knowledge can, in turn, serve as the basis for the development of new patient care concepts that will be implemented with the participation of the players.

Consistently leveraging the economic opportunities of new forms of patient care by improving efficiency and quality

Patient care is part of a healthcare system that is publicly funded for the most part. As such, it is subject to increasing pressure to minimize costs and is challenged to constantly optimize and increase efficiency. New products and services from the information and communication technology and medical technology sectors can make a key contribution to this process. Against a background of regional expertise in these fields, research activities in the science-business-patient care triangle must be initiated and all players encouraged to enter into dialog.

3. Key Subjects and Measures

In order to achieve the above-mentioned goals in the coming years, the focal area is pursuing the following key subjects and measures:

Developing innovative forms of patient care

The primary objective of these new measures is to find new solutions to safeguard the basis for equally high-quality medical care for the citizens of Berlin and Brandenburg. To achieve this, the region’s existing potential in health economics, public health and health services research will be tapped, enabling it to take on a pioneering role in these areas. In line with the above-mentioned prototype projects for cross-sector networking along the value chain, the next steps are to draw up a list of locations for flagship projects and create a focused, feasible plan. New political momentum for easier implementation of integrated patient care models must be generated with regard to flexible contract design, for example. The varied effort and reference project experience gained in cross-sector patient care should also be inventoried to provide a basis for discussing the outlook for possible further developments. The subjects of interface and discharge management should be included in the stocktaking process, because here the interfaces between the sectors are being optimized and revised from the patients’ point of view.

Overcoming the deficit of skilled specialists

To ensure high-quality healthcare in Berlin-Brandenburg, a sufficient number of skilled specialists must be available to potential employers. The impending skilled specialist deficit will intensify in the coming years against the background of the demographic change – affecting both medical staff and trained personnel in all nursing areas and the rehabilitation sector. This poses an enormous challenge. The varying structural conditions in the Berlin-Brandenburg region impose highly differentiated requirements on the skilled specialists, adding to the magnitude of the problem. In order to meet these special requirements and initiate new measures to meet them, the data on the need for skilled specialists must continue to improve. Currently, a survey of the facilities in selected healthcare professions in Berlin and Brandenburg is being created. The survey intends to identify scenarios for developing the quantitative and qualitative supply and demand for skilled specialists in selected healthcare professions. The study itself is designed to generate recommendations that will help identify and implement new measures and project approaches over a long period of time.

Based on existing activities such as the doctors' campaign for the state of Brandenburg or the Health as a Profession trade show in Berlin, cross state initiatives that respond to the shortage of skilled specialists must be launched. Careers in the nursing sector should be given a new outlook by establishing innovative qualification and continuing education programs – through new BA degree programs in therapy and nursing studies at Brandenburg Technical University in Senftenberg, for example. An independent evaluation of the measures initiated must also be provided. These activities can succeed only if the existing regional structures are well interconnected (professional and employers' associations).

Driving IT-based optimization processes and telemedicine projects

When applied systematically, IT-based optimization and telemedicine applications are appropriate instruments for increasing healthcare effectiveness and efficiency. The technical opportunities provided by ICT can play an important role in supplementing the doctor-patient relationship, for example, in expert consultation via telemedicine. A key component of modern healthcare, ICT is particularly useful for surmounting long distances in rural areas. Against this background, the expansion of IT-based optimization processes in patient care facilities must be accelerated in the future. Other telemedicine approaches should also be pursued – based on the expertise gained from existing reference projects in the region. The relevant activities in the Medical Technology focal area should also be taken into account. And it is important to support and supervise the implementation of structures for electronic patient administration (electronic patient charts). From the patient care perspective, it will become crucial to focus more on aspects of health economy evaluation and collecting evidence-based data. This is the only way of establishing sustainable solutions for comprehensive healthcare coverage.

Integrating rehabilitation into new forms of patient care

Alongside acute care providers, the region has many prevention and rehabilitation facilities. They all must be involved in the development of new forms of patient care and the establishment of new partnerships along the entire value chain – in indication-specific networks, for example – at an early stage.

4. Interfaces to Integrative Topics

Skilled Specialists

Skilled specialist availability is a particular challenge for the patient care and rehabilitation sector. Based on the general conditions described in chapter 3 "Overcoming the deficit of skilled specialists", the Skilled Specialists integrative topic is of key importance for the focal area. This is why it is addressed with appropriate measures as an individual key subject within the chapter.

Inward Investment and Company Services

The intention is to attract inward investment by the central administrations of national and international clinic, nursing home and rehabilitation facility operators, as well as medical service providers and providers of new forms of patient care. In order to do this, the cluster management will be present at the key trade shows and conferences for the "decision-makers in healthcare" target group. The existing marketing material is being updated and revised to specifically address these players. The goal here for the coming years will be to ensure that existing facilities are maintained while establishing a culture of dialog between all the players in both states.

Internationalization

Patient care and rehabilitation are primarily aimed at providing local patients with the best possible treatment. Considering the high level of regional expertise in this area, Berlin-Brandenburg can establish itself as a prototype for innovative solutions and play a pioneering role on the national and international levels. To achieve this, the pace of integrating regional players into EU-funded projects, e.g. on the subjects of "healthy aging" or "quality assurance in healthcare," must be accelerated. Furthermore, Berlin-Brandenburg's Brussels office will be increasingly involved in planned projects on the European level and used for establishing contacts. New trade show and conference formats are being explored to provide the region's healthcare players access to other international markets.

E-health

From the patient care viewpoint, "e-health" stands for networked medical processes and structures. From the procedural perspective, it stands for networked medical technologies. Against the background of the demographic change, more and more healthcare-related services are required on the one hand, while on the other, the human resources that deliver them are increasingly limited and distributed heterogeneously. In view of the particular significance of e-health to the focal area and as with the subject of skilled specialists, it has been treated as a separate key subject and supported with appropriate measures, as detailed in chapter 3.

Aging society

The "aging society" is characterized by an increase in chronic diseases, multimorbidity, age-related diseases such as dementia and increased demand for nursing. The improvement of stationary geriatric care structures and the expansion of ambulatory ones are keys to adapting the healthcare system in the Berlin-Brandenburg region to the changing general conditions. Adequate healthcare for immobile patients and people with dementia must be taken into account, along with developing minimum standards and quality criteria, further developing reference projects on geriatric networks and specialized practices and improving the geriatric know-how of the disciplines concerned. In order to meet the increased demand for nursing, programs that allow care recipients to stay in their environment of choice as long as possible should be promoted. This includes making ambulatory nursing services more flexible and combining them with technical aids such as age-appropriate assistance systems.



Focal Area 4 – Health Tourism & Prevention

1. Current Situation

This new focal area features prevention and promoting health and health tourism as key subjects which are described separately at this point.

Prevention and promoting health

The Working Committee for the Promotion of Health (Arbeitsgemeinschaft für Gesundheitsförderung) was founded in Berlin in 1993. In association with Brandenburg since 2009 (Gesundheit Berlin-Brandenburg e.V.), it has been the main cross state player in the region, focusing on prevention and promoting the health of people in difficult social situations. For years, the two state governments have actively pursued a joint healthcare, employment and economic policy that prioritizes the subjects of prevention and health promotion. The State Health Conference Berlin, which was initiated in 2004, has defined two healthcare goals for strengthening prevention and health promotion: increasing healthcare-related opportunities for children and youths and maintaining independence and quality of life in old age. Each year, the state of Berlin provides €5 million as part of the Integrated Healthcare program.

Brandenburg has supported the State Quality Conference Oncology (Landes-Qualitätskonferenz Onkologie) for optimizing the quality of prevention, early detection and treatment of cancer patients since 2000 and the State Addiction Conference (Landessuchtkonferenz) for the prevention of addiction since 2002. The state's health promotion programs have been constructively expanded by initiating additional processes for promoting health – such as the “Alliance for Growing Up Healthy in Brandenburg” in 2004 and the “Alliance for Growing Older While Staying Healthy in the State of Brandenburg” in 2012 – and the establishment of comprehensive regional projects such as the 18 Healthy Children networks at 30 locations. In 2009, the state of Brandenburg became a member of the WHO Safe Communities network, with the goal of long-term support of injury prevention caused by accidents, violence and self-injury (Safe Region - Safe Brandenburg).

Prevention and health promotion for employees also have key roles to play. The cross state health report for Berlin and Brandenburg⁶ published in 2012 revealed that musculoskeletal disorders cause the majority of sick days and mental illnesses are the top cause of early retirement and reduced earning capacity of the employees in Berlin-Brandenburg. The Berlin Initiative for Healthy Work (Berliner Initiative Gesunde Arbeit) and Healthy Work in Brandenburg (Gesund arbeiten in Brandenburg) were founded in Berlin and Brandenburg respectively in cooperation with social-welfare-related partners and chambers in order to pool diverse workplace health promotion activities.

The two states have also implemented a number of concrete measures in the field of health promotion under the aegis of the cluster management. These include a cross state health report whose third edition was published in 2012, as well as a prevention atlas⁷ that was compiled in both print and online versions (www.atlas-praevention.de). There is also an extensive program of subject-specific studies and workshops. As members of the Germany-wide Healthy Cities Network, the city of Berlin, several Berlin boroughs and cities and communities in Brandenburg have committed themselves to the principle of a healthy city/municipality and minimizing health inequality.

Health tourism

The market for healthcare services is booming, not in the least because private expenditure for healthcare services has risen disproportionately in recent years. Since 2000, private health expenditures as a supplement to health insurance have increased at an annual rate of over 6 percent. The “second healthcare market” in Germany now has an annual volume of €60 billion. Health tourism is currently one of the most dynamic tourism sub-markets and offers excellent growth opportunities for Brandenburg and Berlin. Well-developed health awareness, the demographic change, innovative products and services and an extended range of treatment methods are all driving this trend.

The term “health tourism” includes medical tourism, meaning the medical treatment of patients from abroad, health resort tourism with medical aspects and wellness tourism. Ultimately, the areas of the healthcare and tourism industries whose services contribute to preserving and restoring the health and the overall wellbeing of the respective target group are involved.

As a location for high-end medicine with many internationally renowned clinics that implement innovative treatment approaches, the capital region is highly attractive for patients from abroad. Medical tourism in Berlin has an annual growth rate of over 12 percent. The region's presence at international trade shows such as Arab Health (Dubai) or Zdravookhraneniye (Moscow) and official visits have contributed to the development of international markets and expansion of the region's profile abroad. Alongside medical tourism, spa and wellness tourism play an important role in the capital region – with eight health resorts and spas and almost 20 resort towns, a wide range of wellness and recreation programs and renowned rehabilitation facilities. The combination of proximity to nature, rest and relaxation and proximity to a major city creates a special incentive for health tourists from Europe – especially England. Brandenburg has also initiated a platform for barrier-free health tourism programs: www.barrierefrei-brandenburg.de. It is a national pioneer in this area.

⁶ Health Report 2012

⁷ Prevention Atlas: www.atlas-praevention.de

The VisitBerlin tourism portal and TMB Tourismus-Marketing Brandenburg, are responsible for health-tourism-related marketing activities in the region. VisitBerlin has hosted the online platform for health tourism programs, www.health.visitberlin.de, since 2011. By establishing the “Health and wellness tourism in the state of Brandenburg” (Gesundheits- und Wellnesstourismus im Land Brandenburg) cooperation network and the www.brandenburg-entspannt.de portal, steps have been taken towards networking the players in the two states.

2. Strategic Goals

In order to improve the health of the people in the Berlin-Brandenburg region and tap its economic potential at the same time, the health promotion, prevention and health tourism players of both federal states must work together more closely. With regard to future activities, accelerating the development of structural and process innovations and creating the basis for new products and services should have priority. The focal area is pursuing the following strategic goals:

Improving and expanding prevention and health promotion in the capital region based on the federal states' healthcare targets

The federal states of Berlin and Brandenburg have already developed, reviewed and made regional adjustments to their own goals as part of the healthcare targets process. Berlin is committed to healthcare opportunities for children and youths and to the theme of healthy aging. Brandenburg has also taken up these topics the alliances for “Growing up Healthy” and “Growing Older, Staying Healthy.” The Healthcare Industries cluster is guided by these healthcare targets and aspires to interconnect the cooperative efforts of the players in both states more closely.

Reinforcing prevention at companies and accelerating the development of employee health promotion

The Berlin-Brandenburg region will focus on addressing the subject of workplace health promotion, including preventive measures related to behavior as well as interpersonal relationships at work. In order to support employee health in the region, various isolated workplace health promotion solutions need to be combined and the various players – including employers, employees, statutory health insurance companies, pension providers, labor unions and professional and employers' associations – must be interconnected.

Developing the region's economic opportunities in health tourism

In order to systematically expand medical, health resort and wellness tourism in Berlin-Brandenburg and fully tap the existing potential, an overview of the existing structures must be created first. An improved database will create the basis for developing customized, innovative and appealing health tourism programs. They will address the potential guests' willingness to prioritize their health and well-being while on vacation, thereby acting as a springboard for targeted marketing.

Establishing closer cooperation and coordination between Berlin and Brandenburg with regard to health tourism

In both Berlin and Brandenburg, there are many health tourism offers on the market. In order to achieve optimal transparency, these offers and activities must be pooled more efficiently so that their individual strengths can be used jointly, in a coordinated manner. The interconnection of medical and tourist-oriented programs will play a major role in this process. For this purpose, marketing concepts that are coordinated with providers – including clinics, health resorts, hotel industry, etc. – and that are based on the respective state brands need to be developed.

Shaping the capital region's image as an attractive destination for health tourism

The capital region's appeal as an attractive destination and a location for health tourism depends on appropriate presentation and joint marketing efforts on the international level. In order to develop innovative health tourism products in Berlin and Brandenburg, it is not only necessary to support interdisciplinary cooperation in a common space while maintaining quality standards, but to train and retain skilled specialists as well.

3. Key Subjects and Measures

In order to achieve the above-mentioned strategic goals, the following key subjects and measures will be implemented:

Prevention and health promotion

Growing older, staying healthy

Considering the demographic change and its consequences for the healthcare system, the theme of “Growing older, staying healthy” plays a key role for the Berlin-Brandenburg region. Prevention and health promotion need to address the many aspects of a healthy lifestyle, including nutrition, exercise and stress prevention, so that all generations keep the development of chronic diseases at a minimum. Targeted outreach and the definition of measures play important roles in the process. The focal area will make an effort to reach hard-to-access target groups with prevention measures and deal with transitional situations such as going from professional life into retirement or from school to professional life. Gender aspects and the varying degrees of accessibility in urban and rural areas will also be taken into account. The region's expertise must be used systematically and further developed, especially with regard to the closer interconnection of science, business and practice.

Creating and maintaining a healthy working environment

The promotion of employee health is becoming more and more of a focus. Action is required in view of the increasing number of early retirements and the impending shortage of skilled specialists. In a first step, the existing activities must be coordinated more closely and the expertise in the region must be pooled. For this purpose, a network consisting of science, companies, statutory insurance companies and social welfare partners is being established. Based on this network, new prevention measures will be developed and evaluated properly, and outreach to hard-to-access target groups will be improved. The diseases that result in the highest number of sick days among the employees in the Berlin-Brandenburg region will be in the spotlight: back disorders and mental illnesses. The individual benefits and positive effects of workplace health promotion will be made more transparent for companies in order to motivate them to integrate these programs into their operations. The process can take advantage of the coattail effect: workplace health promotion issues can be combined with topics from daily business to increase their impact.

Targeted promotion and networking of innovative strategies

Innovations in the field of prevention and health promotion must be systematically supported and interconnected in the region. The focus of the effort should be on topics such as IT-supported prevention: mainly web-based prevention measures and prevention research. The pace at which companies and research facilities active in this field are being networked and new business models are being established is accelerating. In IT-supported prevention, this includes the joint initiation of innovative reference projects for the development and marketing of individual products (e.g. health apps or health-related serious games). Health promotion in rural areas will remain a challenge. Here, the aim is to adapt existing concepts while developing and testing alternative ones based on mobile offers, for example.

Health tourism

Creating a meaningful database

Health tourism in Berlin-Brandenburg urgently requires a meaningful database. This data pool will provide information on actual use, demand and the target groups that existing offers in the region attract. The target groups will benefit from being addressed more specifically and the offers will be more precisely tailored to their needs. Gaps can be detected via secondary analysis and the pooling of existing data, which indicates where additional data must be collected. In addition to an improved database, a potential analysis is planned so that the region's unique selling points and the different segments of health tourism can be pinpointed. Based on the results of the potential analysis, the future course can be set for the focal area's strategic orientation.

Pooling target-group-specific offers

To make the Berlin-Brandenburg region even more attractive for health tourism, the existing offers and activities in the fields of medical, health resort and wellness tourism of both federal states must be better coordinated and networked. The potential analysis and a meaningful database will provide good starting points from which existing offers can be better coordinated, enabling existing cooperation and process chains to become visible and new partnerships to develop. Attractive packages and pooled offers for special target groups can contribute to improving the region's visibility on the national and international levels and conveying a joint image of Berlin-Brandenburg.

Training and securing skilled specialists in health tourism

In medical, health resort and wellness tourism, physicians, nursing staff and case management professionals (administration, organization, processing of the hospital stay, etc.) are subject to different yet equally challenging requirements. Skilled specialists with proven experience in different cultural and ethnic milieus will also be required, something that the established training curricula does not yet cover. In addition to coordinating with representatives of clinics, rehabilitation facilities, universities and companies to identify the relevant areas, it will be necessary to establish supplementary modules and advanced and continuing education programs. The guiding principle of "Good work" makes it important to develop new, innovative models for organizing working hours and the workplace itself.

Identifying and coordinating mutual quality standards

In health tourism, quality plays a central role – also in view of the planned potential analysis. Only quality offers can engender the trust required for creating patient loyalty and strengthening the region's expertise. Against this background, the different quality criteria appropriate for the different areas (clinic, rehabilitation and wellness) need to be identified and coordinated. For example, clinics that are active in medical tourism can agree to common criteria with a view to quality-assured medical treatment and the issuing of admission notes in the relevant national language.

4. Interfaces to Integrative Topics

Skilled Specialists

In addition to the key subject "Shaping and maintaining a healthy working environment," another important approach is to prevent an increase in the number of health-related early retirements – which will soften the impact of the skilled specialists deficit – by workplace health promotion in companies. New models for organizing working hours and the workplace itself play a central role here.

Inward Investment and Company Services

In prevention, health promotion and health tourism, activities that will increase the players' awareness of inward investment are planned. Particularly in the field of prevention, companies and services providers are wanted for inward investment.

Internationalization

The international visibility of the Berlin-Brandenburg region is the key to expanding health tourism. The intention is to increase the participation of regional players in international trade shows, to accelerate the export of health services and to increase the number of international health tourists in the region. New target markets must also be developed. In addition, the companies and institutions in the area of prevention and health promotion will be encouraged to participate in EU funding programs.

E-health

Web-based services such as apps, reminder programs and information portals hold significant innovation potential for prevention and health promotion. E-health technologies give prevention programs a high reach in both cities and rural areas, which makes them particularly interesting for the situation in the Berlin-Brandenburg region. These technologies can be applied at work or in private environments. In view of the region's expertise in e-health – represented by research facilities as well as a number of start-ups and companies – the further development and use of products and services from the e-health sector must be supported and the various players interconnected.

Aging society

Considering the rise in multimorbidity and chronic and age-related diseases and as a supplement to the key subject “Growing older, staying healthy,” prevention and health promotion measures should contribute to maintaining quality of life and independence until old age. Care recipients in particular should benefit from the support for their existing skills and ability to master everyday life. As part of the key subject “Shaping and maintaining a healthy working environment,” measures aimed at the growing number of elderly employees – such as setting up age-appropriate workstations, measures to avoid early retirement and reintegration management – should also be supported. Particular focus should be placed on the occupations that are most affected by demographic change – such as the nursing professions. Relatives who provide care to family members should also be supported by systematic prevention measures, since they are often exposed to the double burden of career and nursing and therefore have a higher risk of burnout. In addition, the growing number of elderly people who are interested in barrier-free offers is an important target group for health tourism providers.



Integrative Topic: Skilled Specialists

Background

The Berlin-Brandenburg region has a sustainable, differentiated basis for expanding the existing healthcare industries as a driver of employment for the future. This includes a well-established network of ambulatory and stationary healthcare centers, as well as a large number of certified research and education facilities, a variety of small, medium-sized and large healthcare and life sciences companies and an appropriate infrastructure. The regional healthcare industries obviously have the potential to consolidate to become an economic factor in the coming years. However, they will only succeed if there are enough qualified skilled specialists available to work for them. It is already clear today that the region's special geographic characteristics – a high-density metropolitan area on the one hand, and rural regions on the other – and the ongoing demographic change add up to a special challenge: the demand for skilled specialists varies significantly depending on the regional conditions. To overcome this challenge, it will be necessary to leverage the national and international appeal of the capital region as a location for work, life and events – and include the peripheral areas of the state of Brandenburg.

The Skilled Specialists integrative topic pools the varied tasks related to cross-focal-area human resources themes such as recruiting and retaining skilled specialists. The cluster's activities are particularly directed toward trained and qualified skilled specialists from Germany and abroad, as well as students. The “Academic Professional Guide” online portal (www.wegweiser-bb.de) is a source of initial information. It covers all of the degree programs in the capital region and enables cluster-specific searches and requests. The work related to this integrative topic is aimed at achieving the goals of each focal area and developing cross-focal-area synergies.

Key subjects

Creating a database for measures targeted toward retaining skilled specialists in the region

In order to identify synergies and improve the interconnection of strategic activities within the focal areas, it is necessary to update and significantly improve the data on the severity of the shortage of skilled specialists in Berlin-Brandenburg – also considering their respective qualification level. Needs assessments like this are an important basis for developing and prioritizing region-specific measures.

Initiating new training programs to support the use of innovative technologies for the healthcare industries in Berlin-Brandenburg

The diversity and interconnection of its scientific facilities and companies is a recognized strength of the region. It results in improved patient care quality and high-performance, innovative products and services in the healthcare industries of Berlin-Brandenburg. This expertise is also an opportunity for the region as a location for education and business. However, skilled specialists must be qualified accordingly to make this development sustainable. Against this background, the existing degree programs and training courses⁸ in the region must be reviewed and adjusted as required, with the participation of all the parties involved.

Reflecting new key subjects in the regional healthcare industries in appropriate training programs

Today, specifically qualified human resources are still not available for all of the development opportunities and needs of the regional healthcare industries. For example, this is the case in diagnostics, nursing, medical tourism, the wellness and health resort areas and addressing and supervising customers from different cultural and ethnic backgrounds. Important components for the future success of business location Berlin-Brandenburg include identifying corporate and regional needs, as well as developing and implementing appropriate training programs.

Creating, retaining and expanding the knowledge and skills of employees in the healthcare industries

In the context of training and continuing education, the dialog between regional universities, vocational training centers, chambers of industry and commerce, labor unions and employers must be further developed. Since the healthcare industries are a highly regulated working environment and hold the potential to become an international business activity, up-to-date knowledge of the regulatory requirements is particularly important and must be consistently present. Candidates for entry-level jobs and career opportunities require confirmation of their professional qualification in the form of certified degrees. Professionals in all occupational groups in the healthcare industries should be systematically introduced to new technologies and informed of current scientific knowledge on an ongoing basis.

Activate interest and enthusiasm for the healthcare professions among high school students

It is increasingly obvious that high school students need to be informed about specific training options and professional opportunities in the healthcare industries so that they can take regional options into account when making their career and educational choices. Becoming directly familiar with the work in nursing facilities, hospitals and clinics, laboratories and companies results in practical knowledge and a notion of possible professions. It is necessary to continue to provide appropriate events for high school students as a target group in the future.

Tapping the total applicant potential for jobs in the healthcare industries

Getting more young people interested and willing to work in the healthcare professions is closely linked to improving the conditions for their integration into the world of work. And all sectors are turning to new applicant potential in the form of older employees, migrants and part-time workers more often. The healthcare industries can provide attractive job opportunities with career prospects for individuals. These opportunities must be supported and made visible by customized offers relating to the region or one specific location. The offers must be targeted with great accuracy to make this detailed effort pay out in the long term.

Reinforcing the autonomy of employers in the region

Being a good employer is an advantage in the competition for good personnel. Retaining skilled specialists not only means in-house training, but also securing the loyalty of well-educated employees, avoiding high fluctuation rates and improving the work-life balance with the help of working-hour-related measures. The factors of compensation and income development outlook, as well as opportunities for advancement and personal development are of key importance. Of necessity, employers are increasingly developing options for familiarizing their employees with the technical and scientific innovations in the sector for the long term. Openly communicating these key subjects can contribute to improving the sector's image. Workplace health promotion will also play an increasingly important role in this context. Workers' councils must also actively participate in these developments.

Improved networking and increased visibility of regional players

Many players deal with the subject of human resources/skilled specialists, but from different perspectives. In order to leverage the region's existing expertise and resources to achieve its goals, the individual players must cooperate more closely. Presenting the options in a well-structured, clear manner and making them easily accessible to interested parties will increase the probability that job opportunities and support programs are noticed and regional points of contact are involved. Sector-related measures such as specific job exchanges, publications on training topics and study locations⁹ and databases on employers complement each other and convey a variety of information to users in a way they can understand. Networks for acquiring apprentices and skilled specialists provide support and establish connections between regional companies. This in turn supports employees in identifying the career outlooks that can be implemented regionally and helps to convince them that the professional opportunities that involve staying in the region are worthwhile.

⁸ The "Academic Professional Guide" online portal provides an up-to-date overview of the cluster-relevant degree programs in the region (www.wegweiser-bb.de).

⁹ The professional guide provides a current overview of cluster-relevant degree courses in the region (www.wegweiser-bb.de).



Integrative Topic: Inward Investment and Company Services

Background

In the past few years, the local healthcare industries have proven to be a driver of employment and growth. New jobs have been created in all focal areas through inward investment and increasing the number of companies in the region. This trend must continue. Therefore, creating new jobs via inward investment, developing existing companies and promoting start-ups remain the key objectives of business and innovation support in Berlin and Brandenburg.

Key Subjects

Consistently compiling and communicating location benefits

The capital region is the seat of the German federal government and various parliaments, associations and embassies. It boasts a constantly improving infrastructure and attractive costs of living and doing business. In addition, the four focal areas within HealthCapital Berlin-Brandenburg have their own specific strengths. The region's unique selling points are continuously compiled in an approach that includes both federal states and many themes and aimed at specific target groups. The result is the optimal marketing mix for Berlin-Brandenburg as a common healthcare industries region. All of the cluster players must also be made aware of the way in which the region is marketed. Full-time personnel alone cannot realize this task, so it becomes everyone's responsibility. Renowned companies and research facilities must be recruited to promote the region and act as its ambassador.

Intensifying the effort to attract new companies

Small and medium-sized companies have a great impact on the business landscape in the Healthcare Industries cluster. Only a handful of large, multinational corporations are present in the region, but large manufacturing and research companies in biotechnology, pharmaceuticals and medical technology play a key role here. Inward investment by large companies with marketing and distribution centers, production facilities and/or a research and development department not only creates jobs, but also attracts supplier industries and service providers who enrich the location and create more jobs. As a result, existing companies have greater potential for cooperation, which in turn leads to innovation and growth. Due to its proximity to the policy makers, the capital region is an attractive location for the central functions of the hospital and clinic, nursing home and retirement home operators who will be systematically recruited for inward investment. Service providers in the prevention area are also recruitment targets.

Analyzing and completing value chains

In order to strengthen the Healthcare Industries cluster, it is particularly important to attract companies that can fill the gaps in the value chain. Networking events, conferences and intensive exchange with the expert committees in the focal areas will be used for that purpose. In addition, the cluster will focus on developing strategic cooperations with partners on the national and international levels.

Strengthening the location's existing companies

Since more than 80 percent of the growth in employment and gross value added is generated by existing companies, these companies must receive special support for expansion and innovation projects in the future. This includes networking with appropriate partners within the cluster, support in securing appropriate real estate and the permits required, providing specialized expertise, etc. This is the only way in which the Berlin-Brandenburg region can maintain its position in the worldwide competition between regions. This company service offer generates incentives for regional companies to establish additional R&D or production divisions in the capital region and remain on top in the competitive internal environment as well.

Helping shape the national general conditions

The healthcare industries are research-intensive and highly regulated in many of their segments. They are particularly dependent on supportive general conditions (advancement, permits, reimbursement of expenses, etc.). This is why the interests of the players are pooled within the cluster and they contribute their proposals for improving the existing general conditions to the national and European discussions together with associations. This will safeguard the international competitiveness of the companies and the region for the long term.

Accelerating the healthcare industries start-up rate

Start-ups have proven to be more successful than average in recent years, particularly in the life sciences and clinics. Against this background, more measures will be taken in the future for the systematic support of university and research facility spin-offs. The aspects of entrepreneurship and starting a business should receive more emphasis in professional training and university courses. Young entrepreneurs will also receive more support as they search for and select locations and funding programs. Furthermore, contacts to angel investors or financial investors (e.g. Investitionsbank Berlin (IBB), Brandenburg Capital, Frühphasenfonds Brandenburg, Charité Foundation and High-Tech Gründerfonds) can be set up.

Activating private investment

One of the biggest challenges of the healthcare industries is to secure the financing of long-term, expensive R&D projects. The search for appropriate investors is also a critical aspect for start-ups. Appropriate measures should make cross-regional and international financial investors and angel investors more aware of regional investment opportunities. This includes the development of event formats with financing themes, and the more active participation of regional players in international partnering and venture capital formats.



Integrative Topic: Internationalization

Background

The capital region already has an international reputation as a location for medicine and healthcare. Important trade shows and conferences such as the World Health Summit take place here. Companies from the Biotechnology and Pharmaceuticals and Medical Technology focal areas manufacture products for the world market and generate a major portion of their revenues with foreign trade. They must expand their innovation lead to be able to keep their position in the competitive global market.

It is obvious that the rather local and regional character of healthcare in the region will change significantly. The establishment of flagship projects with cross-regional appeal will go hand in hand with the growing significance of international collaboration. Berlin-Brandenburg will benefit from special opportunities if it develops systematic reference solutions. An attractive, high-performance capital region will also attract health tourists from all over the world who come here for treatment and healing. These activities in all focal areas must be combined within the Internationalization integrative topic

Highly developed internationalization will be the basis for expanding the strong position of the regional healthcare industries into the global market. The result will be improved visibility abroad – a key factor in intensifying cooperation partnerships for R&D projects as well as increasing the demand for products and services from the region and recruiting investment in the regional cluster from international partners.

Key Subjects

Boosting the international visibility of HealthCapital Berlin-Brandenburg

The prominence of the capital region as a leading provider of solutions for the healthcare industries and a location for cooperation partners are the basis for the internationalization effort. Here, it is important to make the relevant target groups more aware of the expertise and location factors in the region and to initiate contacts in order to accelerate the pace of cooperation and inward investment.

A more distinctive profile for the region as a provider of top-quality healthcare products and services must be developed for all focal areas. The “HealthCapital Berlin-Brandenburg” brand must become an internationally recognized quality seal. Coordinating the marketing measures and using players as ambassadors of the region are the activities that will achieve these goals. International trade shows and conferences in Germany and abroad represent key platforms upon which the Healthcare Industries cluster can prominently present itself.

Identifying international trends at an early stage and using them for cluster development

Entirely new solutions based on specific technologies or as the answers to specific issues often emerge on the regional level. It is necessary to systematically observe this development on the national and international levels, evaluate it and leverage it for the regional business location. For example, companies should be informed about emerging trends and markets, as well as new “best practice” examples from abroad for the healthcare in the region.

Systematically checking the exportability of solutions from Berlin and Brandenburg

Many of the regional solutions that were developed with a great deal of effort – whether new courses of treatment, training and continuing education programs or telemedicine products – can be exported to the appropriate target markets. The regional healthcare industries will receive support for identifying and realizing this potential.

Supporting the initiation of international cooperation: activating international investment in the regional healthcare industries

Cooperation with international providers of know-how is indispensable. Even the world’s leading healthcare regions do not have all of the necessary expertise and structures. Therefore, the regional healthcare industries need support in identifying scientific partners, development and distribution partners and investors.

Leveraging the European Research Area (EFR) for innovations

The development of international partnerships for research and development projects between the players in business and science is particularly important. The cluster management is involved in European cluster cooperation projects with themes that are important for the capital region, participating in their initiation and development. These activities of the Healthcare Industries cluster in Brussels must be intensified. In addition, European funding programs will be increasingly used for cooperation within Europe. Supporting SME participation in these programs is a particular focus here.

Assisting the Berlin-Brandenburg healthcare industries as they develop international markets

SMEs in particular will receive assistance for developing international markets. The region’s activities will be aimed at identifying market potential and the market access conditions, as well as the statistically evident interests of the companies involved. The group of target countries will be constantly reviewed and revised.

Alongside joint trade fair stands and official visits, information and qualification offers and services to support cooperation initiation for the SMEs’ international business will be expanded. A permanent healthcare industries showcase in the form of a showroom or a science center to display an overview of the particularly innovative products and solutions from the region is planned for Berlin.

Acquiring international experts for the region

While companies in focal areas 1 and 2 are competing against strong rivals from all over the world and other research-intensive sectors for the best brains, there is an acute shortage of skilled specialists in the area of patient care. Against this background, Germans working abroad and international scientists, experts and skilled specialists will be systematically made aware of the career opportunities in all areas of the region’s Healthcare Industries cluster.



Integrative Topic: E-Health

Background

The term “e-health” is a translation of online-based retailing’s term “e-commerce” to the modern healthcare industries. It emphasizes the high operational and strategic significance of the information-processing functions, products and services for all areas of the healthcare industries and healthcare in general.

From a healthcare perspective, e-health primarily stands for the combined economic ability and flexibility required for adapting existing healthcare and patient care structures to current and future needs – and the changing resource situation as well. It encompasses cross-sector and cross-institutional communication, information exchange and data management.

From a technological perspective, the topics in the diverse field of e-health range from wearable sensors, health and image data interfaces to high-capacity, fast data storage devices, electronic patient charts, biomarkers, the “biologization” of medical technology and comprehensive telematics infrastructures.

Due to its geographic and demographic situation (e.g. population growth in the capital region vs. population decrease in rural areas), the Berlin-Brandenburg region is facing major challenges while providing ideal conditions for the development and implementation of e-health solutions such as telemedicine. Berlin-Brandenburg meets these challenges and the resulting opportunities with a wide range of clinics, universities and research facilities, state-of-the-art companies in the pharmaceuti-

cals, biotechnology and medical technology sectors and a vibrant, creative ICT landscape. Appropriate cross-focal-area measures are combined under the “E-health” integrative topic.

Key Subjects

Facilitating the development of application- and patient-care-oriented technology by networking all of the players

To achieve success and acceptance for technological e-health developments and innovations for medicine, healthcare and patient care, developers and users must work together. Complementary viewpoints can be combined and R&D activities can be oriented to user needs only if technology companies, universities, research facilities and healthcare players join to form a network.

Supporting the further interconnection of ambulatory, stationary and rehabilitative care by applying e-health technologies

E-health technologies can help drive the networking of ambulatory and stationary care and rehabilitation facilities forward. This safeguards the adequate, affordable healthcare of the future – in the metropolitan area and in rural regions as well.

This includes:

- Establishing sustainable network structures among the care facilities of the different sectors (telematics infrastructure)
- Creating the technological prerequisites related to devices for medically oriented data exchange (interoperability)
- Communicating and providing expert medical knowledge independently of specific locations (telemedicine)

Developing innovative e-health products for the regional and global markets

Innovative e-health products and services are increasingly in demand worldwide. On the one hand, the existing technological, scientific and applications-related companies and players in Berlin and Brandenburg meet the necessary prerequisites for developing these innovative e-health solutions. The region also provides an ideal environment for technological development and user testing of these products and services.

On the other hand, high R&D cost for e-health technologies make marketing measures in both the regional and global markets necessary for maintaining profitability and, in turn, a competitive edge. For this reason, it is important to identify and communicate the relevant international trends and needs via continuous market monitoring and to analyze and integrate them into R&D projects at an early stage. The close cooperation between companies, universities, research facilities and users described above should be supported as part of this process.



Integrative Topic: Aging Society

Background

In the wake of demographic change, there has been an absolute increase in the proportion of older people in the German population. The decisive factors are the low birth rate and increased life expectancy. This development impacts the individual regions differently: whereas there has been a significant increase in the proportion of older people in the rural regions of Brandenburg primarily due to the exodus of the younger population, the impact of the population aging process in major cities like Berlin, Potsdam and their suburbs has been mitigated by immigration. For example, the working-age population in Berlin will probably remain nearly constant in the period between 2011 and 2030, while in Brandenburg it will decrease by a total of 29.5 percent. The group of “younger senior citizens” between 65 and 80 is growing by 14 percent in Berlin and 38 percent in Brandenburg, whereas the number of old people over 80 will almost double in both federal states, experiencing an increase of 80 percent (Berlin) and 94 percent (Brandenburg).

Against this background, the challenge for all of the focal areas is to secure adequate healthcare for all generations. Due to the special requirements of healthcare for the growing population of elderly people, the Aging Society integrative topic is focusing on this particular group. This is linked to the aim of establishing Berlin-Brandenburg as a pioneer in solving issues of demographic change with the help of scientific institutions, regional companies and medical patient care facilities.

Key Subjects

Creating the prerequisites for healthy aging

The prerequisites that enable old people to spend the extra years of life they have acquired and remain healthy need to be improved. This begins with improved prevention measures, but improvements in the pre-symptomatic diagnosis of diseases that will increasingly occur in the aging society are also required for curing them at an early stage. Workplace health promotion also plays a major role, since people spend much of their lifetimes at the workplace and the conditions there are decisive for healthy aging. Population aging will also result in a decrease in the working-age population. As a result of the impending deficit of skilled specialists, our society will depend on high-performance employees.

Retaining independence in old age

In the wake of population aging, an increase in the number of care recipients by 56 percent (Berlin) and 72 percent (Brandenburg) is expected. In order to cope with the demand for care in the face of a foreseeable shortage of skilled specialists, models that enable old people to stay in their own living environment as long as possible must be developed and enhanced – not in the least because this is what most of those concerned desire. This can be achieved by making ambulatory care services more flexible and expanding age-appropriate assistance systems (AAL, etc.).

Improving age-appropriate care structures

The growing number of elderly people goes hand in hand with an increase in multimorbidity and certain age-related diseases. This will necessitate a change in healthcare requirements, including an increased need for coordination between the different occupational groups involved (specialists, general practitioners, hospitals, nursing services, etc.), the coordination of treatments for multiple diseases and the maintenance of quality of life and independence. Special, coordinated geriatric programs will play a major role in the process and neighborhood care services can compensate for decreased levels of mobility.

Developing appropriate care structures for patients with dementia

With few exceptions, dementia is an age-related disease: the probability of developing dementia abruptly rises from the age of 65. The increasing life expectancy of the overall population goes hand in hand with an increase in cases of dementia. The number of dementia cases in Germany is expected to double by 2050. Drug treatments have merely been able to slow down the course of the disease. The disease pattern involves behavioral and personality change – particularly regarding the capacity for memory and orientation – that, unlike other diseases, require specifically supervision and care structures.

Improving regional and international networking

Meeting the challenges of an aging society requires interdisciplinary cooperation between doctors in different fields, nursing personnel, patients and relatives, companies in the life sciences, medical technology, and other players such as the ICT sector, architects and housing associations. Interconnecting the activities and players in the Berlin-Brandenburg region with each other and with their counterparts on the federal state, national and European levels plays an important role in this context. In order to establish efficient, high-performance structures in the region and to tap the innovation potential of biotechnology, pharmaceuticals and medical technology, all the parties involved must jointly develop specific instruments and initiate reference projects. In addition, a stronger focus must be placed on translating proven models into the general care in the future.

List of Abbreviations

AAL	Ambient assisted living
AGnES	(Arztentlastende Gemeindenahe E-Health-gestützte Systemische Intervention) an e-health-supported systemic intervention project relevant to the municipality with the aim of lightening the burden on doctors
BCRT	Berlin-Brandenburg Center for Regenerative Therapies
BIH	Berlin Institute of Health
BMBF	Federal Ministry of Education and Research
BPBT	Berlin Partner for Business and Technology
BTU-CS	Brandenburg University of Technology (BTU) Cottbus – Senftenberg
CEBR	Council of European Bioregions
DiagnostikNet BB	DiagnostikNet Berlin-Brandenburg
EDCA	European Diagnostic Clusters Alliance
EU	European Union
FMP	Leibniz-Institut für Molekulare Pharmakologie
FONTANE	Gesundheitsregion der Zukunft Nordbrandenburg (Health region of the future northern Brandenburg)
Fraunhofer IBMT	Fraunhofer Institute for Biomedical Engineering
HGF	Helmholtz-Gemeinschaft Deutscher Forschungszentren
Horizon2020	8 th Framework Programme for Research of the EU
HTGF	High-Tech Gründerfonds
HZG	Institute of Biomaterial Sciences, Helmholtz-Zentrum Geesthach
IBB	Investitionsbank Berlin
IGiB GbR	Innovative Healthcare in Brandenburg
ICT	Information and communications technologies
innoBB	Joint innovation strategy of the States of Berlin and Brandenburg
IP	Intellectual property
IT	Information technology
IVD	In-vitro diagnostics
KV	Association of Statutory Health Insurance Physicians
LGK	State Health Conference Berlin
MUGV	Ministry of Environment, Health and Consumer Protection
MVZ	Community health centers
Omics	Abbreviated collective noun comprised of molecular biological technologies applied in genomics, proteomics and metabolomics
OR	Operating room
R&D	Research and Development
RMC	Regenerative Medicine Coalition
RMIB	Regenerative Medicine Initiative Berlin-Brandenburg
ScanBalt	Organization for the Baltic Sea or Nordic-Baltic Region's Health and Bio Economy community
SME	Small and medium-sized enterprises
STEMO	Stroke Emergency Vehicle
TSB	Technology Foundation Berlin
WHO	World Health Organization
ZAB	ZAB ZukunftsAgentur Brandenburg (Brandenburg Economic Development Board)
ZMDB	Center for Molecular Diagnostics and Bioanalysis

