

Paul Gans

Demographic change



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Demographic change is having a significant impact on societal trends in Germany. From a spatial perspective, the focus is on the equivalence of living conditions and thus on safeguarding the provision of public services. Demographic change impacts different areas in different ways, requiring approaches to action to be tailored to the specific circumstances of each locale.

1 Demographic change – an explanation

Demographic change means changes in both the numbers and structure of the population. It will significantly impact how society in Germany develops in economic, social and cultural terms. The ▷ *Equivalence of living conditions* in all regions of Germany is of great importance for ▷ *Urban development* and ▷ *Spatial development*.

Germany's population has increased year on year since 2011, with population increases of well over 400,000 due to migration more than compensating for the birth deficit of approximately 200,000. However, the birth deficit will continue to widen since a significant increase in the birth rate is not anticipated. The result is a decrease in population with growing importance of older people accompanied by decreasing numbers in younger age groups. Gains from migration will mitigate this trend. High immigration surpluses will delay the onset of population decline, as the various scenarios in the 13th coordinated population projection by the German Federal Statistical Office (*Statistisches Bundesamt*) (2015) show. With an annual migration surplus of 300,000 people from 2013 to 2060, the population will rise until around 2030 and then fall to 77.8 million by 2060 (2013: 80.8 million). The number of people aged 60 or older per 100 people aged between 20 and 60 will increase steadily (2013: 49.7; 2060: 79.1), while the corresponding figure for those under 20 will remain stable (2013: 33.3; 2060: 35.7; Destatis 2015: 268). In comparison with these figures, even a slightly higher birth rate of 1.6 children per woman with an annual migration surplus of 200,000 people would tend to counter the ageing trend (Destatis 2015: 152; variant 6).

Though only superficially described, these trends raise questions about the challenges that will have to be met in order to maintain the quality of life in all parts of Germany. What will the effects of a declining and ageing population be, for example, on the demand for goods or on the supply side in regional labour markets (▷ *Labour market*)? Can an active migration policy balance out the shortage of young workers (▷ *Migration*)? Can local authorities meet the growing challenges of integrating people with migration backgrounds (▷ *Integration, social and ethnic*)? What will be the consequences of demographic change for safeguarding the ▷ *Provision of public services*?

Spatial variations are an inherent element of the challenges posed by demographic change; in terms of future population trends – which can be concisely summarised as *fewer, greyer, lonelier, more diverse* – there will be considerable differences between regions of comparable and different sizes and settlement structures (▷ *Region*; ▷ *Settlement/settlement structure*). What challenges will this lead to for spatial development? What approaches to action and recommendations can ▷ *Spatial planning (Raumordnung)* pursue to safeguard the equivalence of living conditions (Danielczyk 2014)?

2 Regional differences in future population trends in Germany

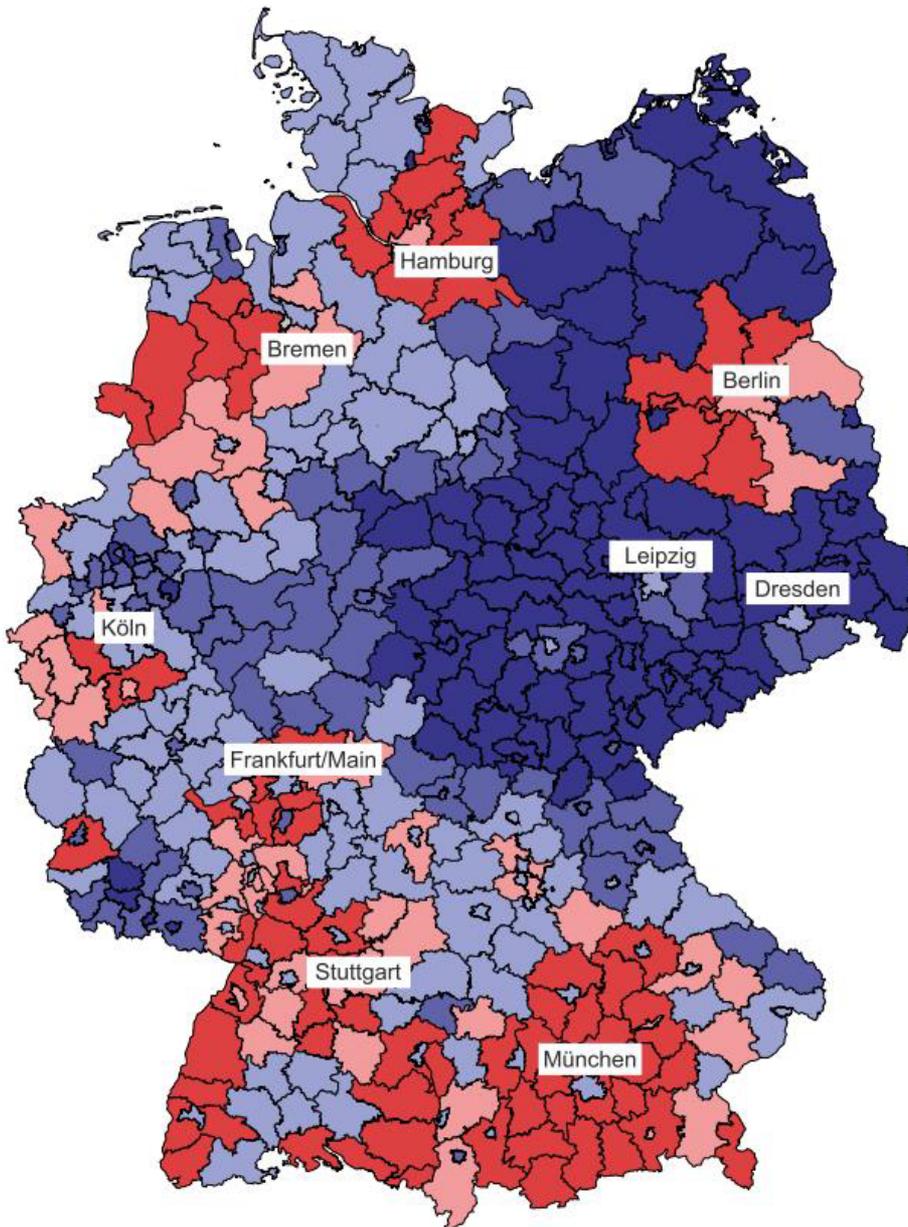
2.1 The 'fewer' component

In its latest spatial planning forecast for 2035, the Federal Institute for Research on Building, Urban Affairs and Spatial Development (*Bundesinstitut für Bau-, Stadt- und Raumforschung, BBSR*) anticipates that the population of Germany will decrease by 3.3% to 78.2 million (▷ *Forecasting*) from 2015 to 2035. This population projection is based on the assumptions of the 2013 spatial planning forecast with regard to birth rate, mortality and internal migration and their spatial distribution, corrected using census results from 2011. For international migration, it was assumed that the balance of 428,000 people in 2013 would decrease to 200,000 people per year by 2018 and then remain constant through to 2035 (Schlömer/Bucher/Hoymann 2015: 3 et seq.). Net migration from 2012 to 2035 would then amount to 4.9 million people, or 212,000 per year; according to the estimate by Schlömer, Bucher and Hoymann (2015: 5), this is most likely a lower limit for future migration activity. However, the population in eastern Germany will decrease by more than 12% over a wide area (see Fig. 1). Only Berlin and the surrounding areas will see an increase. In western Germany, losses of more than 12% will occur in Lower Saxony, the Ruhr area, Saarland and Upper Franconia. Some areas forecast to see growth include the agglomeration areas of Hamburg, Cologne-Bonn, Rhine-Main, Stuttgart and Munich (▷ *Agglomeration, agglomeration area*), and rural regions such as the area around Lake Constance and western Lower Saxony can expect an increase up through 2035. Opposing trends are apparent for both agglomeration areas (Munich, Ruhr area) and ▷ *Rural areas* (Alpine foothills, Upper Franconia). Table 1 indicates that in rural areas, western Germany faces a substantial population decrease and eastern Germany an extreme one, while the negative trend for the more urbanised districts will be below average on the whole. At the same time, the differences in population development between districts with the same type of settlement structure are a strong indication of the need for strategies that are specific to each locale in order to deal with the consequences of demographic change.

The contrasting future population trends at the district level are a result of different types of migration. In particular, variations in net inward migration depend on the regional economic structure, the situation on the labour market, or nationally prominent educational institutions. Soft location factors such as an attractive landscape or the availability of leisure and recreational opportunities also play a role. Interregional internal migration generally follows economic gradients, as reflected in spatial differences in the unemployment rate (Schlömer 2009: 123 et seq.). These relationships are much less apparent for net international migration. For example, both high-growth regions such as Upper Bavaria and areas with losses due to internal migration such as the Ruhr area record gains from international migration that are primarily attributable to the effectiveness of migrant networks (▷ *Networks, social and organisational*). Overall, people with foreign origins are concentrated in the large cities and urbanised districts in western Germany (Gans/Schlömer 2014). After their applications have been processed, refugees and asylum seekers also leave the widely dispersed reception facilities and look to settle in

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Figure 1: Population change in Germany by district (2015–2035)



Population change by district (2015–2035)

0 100
km

Under -12%	Average: -4.8%
-12% to under -6%	Median: -3.6%
-6% to under 0%	Minimum: -29.9%
0% to under 3%	Maximum: 18.8%
3% or more	

Source: The author, based on BBSR 2015

densely populated areas, where social \triangleright *Infrastructure* opportunities for their integration are more accessible and diverse and their chances on the labour market are better than in many rural areas. For these reasons, the current large gains from international migration will have a greater effect on population development in western than in eastern Germany, and in urbanised rather than rural districts. It should also be borne in mind that migration gains in the districts will only conditionally mean an increase in their populations. Instead, according to Bucher and Mai (2008), a new type of population decline is spreading in which growing birth deficits will exceed gains from migration with increasing frequency.

Table 1: Population change in Germany by district settlement structure type (2015–2035)

District types according to settlement structure	Population change in %					
	Western Germany			Eastern Germany		
	Minimum	Average	Maximum	Minimum	Average	Maximum
Administratively independent large cities	-15.3	-5.4	3.6	-20.8	-9.1	3.4
Urbanised districts	-13.4	0.0	18.8	-25.5	-19.4	-3.6
Rural districts with population concentrations	-19.4	-2.2	16.9	-28.0	-16.2	7.3
Sparsely populated rural districts	-15.5	-4.2	11.9	-29.9	-16.5	7.1
Total	-19.4	-2.3	18.8	-29.9	-15.7	7.3

Source: The author, based on BBSR 2015

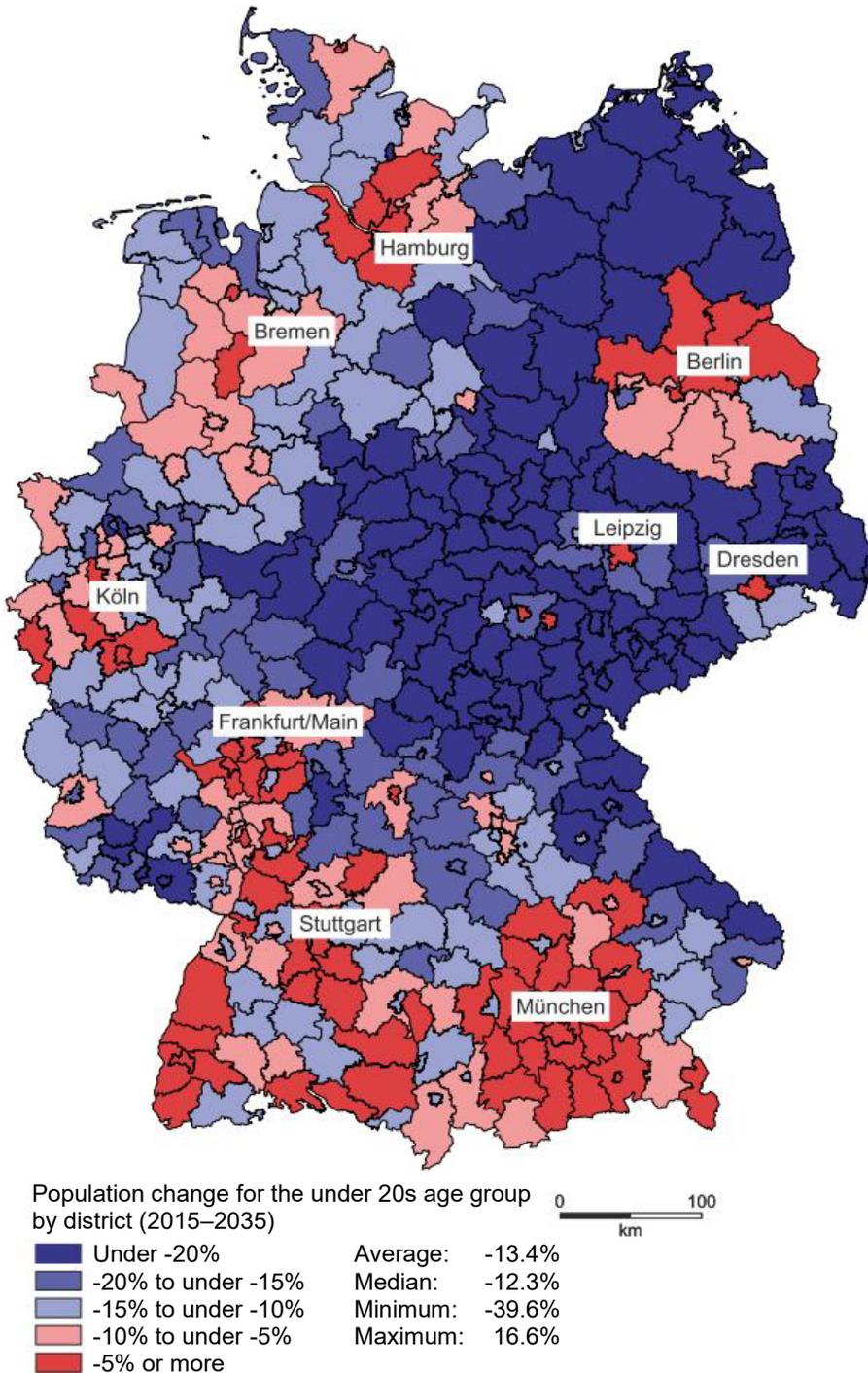
2.2 The 'greyer' component

Typical features of ageing as a further component of demographic change are the absolute and relative increases in the number of elderly people. Three factors are driving the ageing of the population:

- 1) A further increase in life expectancy is expected in general based on an infant mortality rate lower than 4‰ and a decreasing mortality rate among the elderly. The number of people aged 80 or older will increase by around 53% by 2035.
- 2) The large birth cohorts that resulted from the high birth rates of the 1960s will be over 60 years old by 2025.

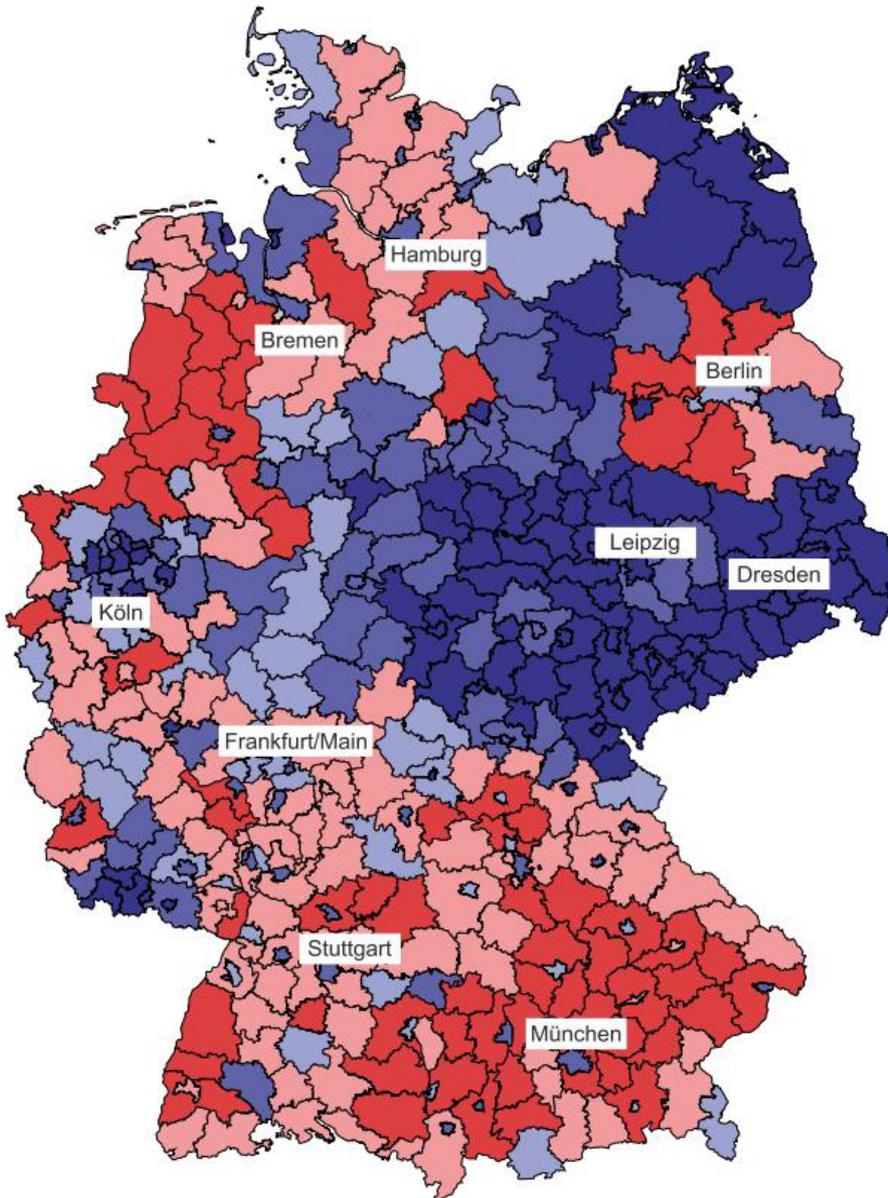
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Figure 2: Change in the number of people under 20 years old in Germany by district (2015–2035)



Source: The author, based on BBSR 2015

Figure 3: Change in the number of people at least 60 years old in Germany by district (2015–2035)



Population change for the 60+ age group by district (2015–2035)

<ul style="list-style-type: none"> Under 15% 15% to under 25% 25% to under 30% 30% to under 40% 40% or more 	<p>Average: 26.9</p> <p>Median: 27.5</p> <p>Minimum: -8.8</p> <p>Maximum: 68.9</p>
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Source: The author, based on BBSR 2015

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- 3) The under-20 age group's share of the total population is decreasing steadily due to the low birth rate since the mid-1970s. The number of people in the younger cohorts will decrease by around 10% by 2035.

There are also significant regional differences in ageing trends; their intensity depends on the corresponding trends in the younger and older age groups. Major cities and neighbouring districts in agglomerations with large regional labour and vocational training markets show increases or smaller declines in the under-20 population (see Fig. 2). The positive trend in cities with universities, such as Jena, Weimar, Oldenburg, Bonn and Tübingen, is particularly striking. The greatest decreases in young people are seen in districts with insufficient training and employment opportunities. These can be rural districts in peripheral areas with a low population density, or urbanised areas and agglomerations with weak economic structures. In such cases, net emigration among young adults exacerbates the demographic effects of the low birth rate (Schlömer 2009).

Above-average increases in those 60 and older can be expected through 2035 in the districts with a growing total population (see Figs. 1, 3). In particular, districts in prosperous agglomerations and scenically attractive regions like the Alpine foothills or the Baltic coast can expect growth that is well above average, in part due to an influx of older people.

In addition to these interregional differences in the trends for the numbers of people aged 60 or older, in western Germany an intraregional differentiation in ageing patterns is apparent (see Fig. 3). For example, the increase in the number of older people in major cities (19.3%) by 2035 will be significantly smaller than that in the surrounding urbanised districts (30.6%). This intraregional trend reflects *ageing in place* as a result of \triangleright *Suburbanisation* since the 1960s. Increasing home ownership in suburban areas led to a high degree of immobility among the arriving households, which largely comprised couples with children. Yesterday's new generation has long since left their parents' households; now the aged parental generation shapes the local age structure. In comparison, because of their educational and employment opportunities, the housing markets and well-functioning migrant networks, the core cities will see both a net immigration of young adults and net emigration of older people who have reached retirement age. These age-related migration processes lead to a significantly smaller increase in the old age dependency ratio (2015: 44.4; 2035: 60.8) than in the urbanised districts (2015: 51.1; 2035: 77.3).

2.3 The 'lonelier' component

The term *Singularisation* describes the trend towards single-person households. The fraction of single-person households in Germany rose from one-third in 1991 to approximately 40% in 2012. This trend will continue in future, though more slowly (see Table 2). At the same time, the average household size decreased from more than two to the current value of two, and by 2030 it will fall below two people. One reason is the future increase in the proportion of older people with a longer life expectancy for women, another is the progressive decline in the importance of a traditional lifestyle based around a partnership and family and the growing number of people who remain single (Brüderl 2004). In future, assistance and care for the elderly as elements of the provision of public services will be provided by family members to a lesser extent than today, and there are questions not only about how this will be organised but also who will undertake such care activities and who will bear the costs.

Table 2: Change in number and size of private households (1991–2030)

Year	Number of private households (thousands)	Percentage of single-person households	Average household size
1991	35,256	33.6%	2.27
2001	38,456	36.6%	2.15
2015	40,700	41.0%	1.99
2030	41,020	43.4%	1.88

Source: Destatis 2014: 50 et seq.; Destatis 2011: 10

2.4 The ‘more diverse’ component

Deaths have exceeded births in Germany since the early 1970s. Since then, there has only been population growth when international migration more than compensates for the birth deficit. A consequence of international migration is a progressive internationalisation of the population structure. For example, the number of foreigners increased by 86% from 1975 (nearly 4.1 million) to 2013 (around 7.6 million) (see Table 3). During the same period, the range of migrant nationalities became more diverse. Nearly three-quarters of all foreigners belonged to the five nationalities most strongly represented in Germany in 1975, which corresponded to the five most important countries for guest worker recruitment. By 2013 their share decreased to 45% as other countries became important sources of migration to Germany. The causes include the fall of the Iron Curtain in 1989 and the EU accession (▷ *European Union*) of many eastern European countries since 2004. For example, around 610,000 Poles comprised the second-largest group of foreign citizens living in Germany in 2013. Further reasons for this internationalisation are the crises in countries such as Afghanistan, Syria and Iraq, and undoubtedly also globalisation. These causes will gain in importance in the future.

The fraction of people with migration backgrounds – foreign nationals born in Germany, which includes people who moved to Germany after 1949 and children born to foreign nationals who also do not have German nationality (20.3% at the end of 2014) as well as foreigners who have migrated to Germany (9.5% at the end of 2014) – is much higher in large cities than in smaller ones (see Fig. 4). This concentration is a result of the structure of the housing stock. Because of their financial situation, households with migration backgrounds mainly have access to rented flats. This segment of the housing market is more significant in larger cities; owner-occupied detached and semi-detached houses predominate in smaller cities. Urban and spatial development planners face challenges with regard to

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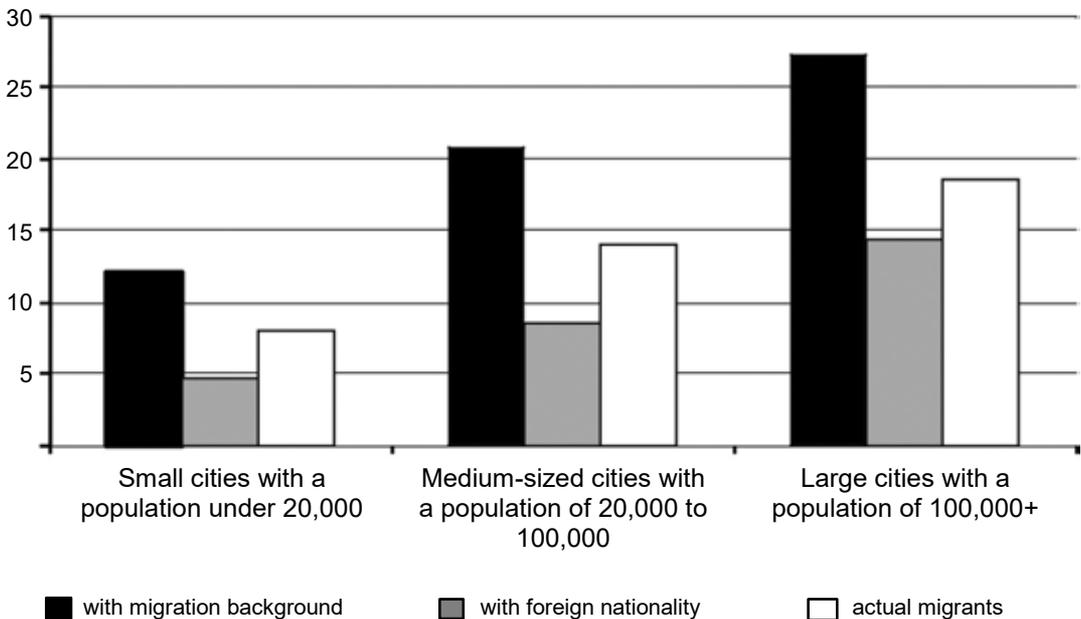
Table 3: Changes in the five largest non-German population groups in Germany, 1975 and 2013

Country of citizenship	1975		2013	
	Number (thousands)	Percentage	Number (thousands)	Percentage
Turkey	1,077	26.3	1,550	20.3
Ex-Yugoslavia	678	16.6	912	11.9
Italy	601	14.7	553	7.2
Greece	391	9.6	316	4.1
Spain	247	6.1	136	1.8
Sum	2,994	73.3	3,467	45.4
Total	4,085	100.0	7,634	100.0

Source: Gans 2011: 99; Destatis 2014: 40

Figure 4: Population with a migration background by size of municipality (2010)

Percentage of total population



Source: Gans/Schlömer 2014: 146

the integration of migrants, particularly in large cities (Gans/Schlömer 2014); these challenges will grow in the years ahead due to the current net immigration. At the same time, the ethnic composition of the migrant population will become more diverse due to the declining importance since the 1990s of migration from the former guest worker recruitment countries and the considerable increase in recent years in poverty-driven immigration, particularly from southeast Europe, and refugee flows. These numerical and structural trends will need to be addressed by integration measures in relation to the educational system and the labour and housing markets. In this regard, the options for officially recognised asylum seekers are most favourable in large cities. Given the proximity to social infrastructure, employment prospects and existing migrant networks, they will crowd the urban housing markets seeking low-cost housing, thus exacerbating the already difficult situation on the housing markets of most large cities.

3 Causes of demographic change

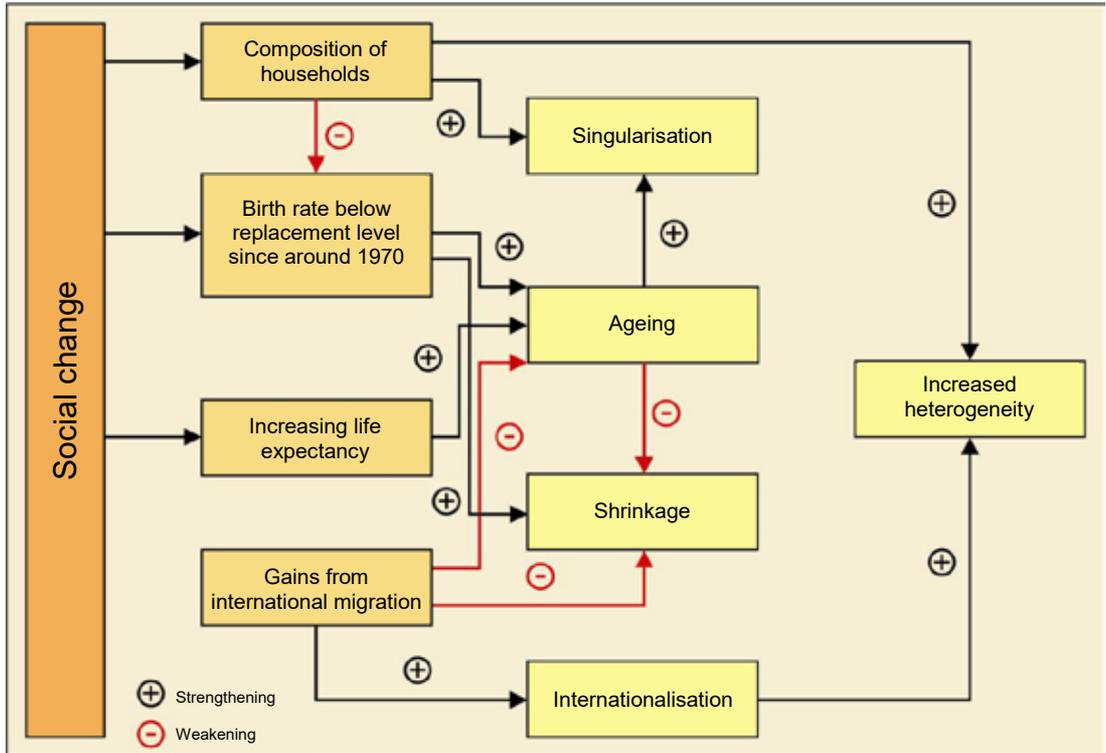
Various characteristics of population trends and structure have an effect on the components of demographic change. A low birth rate such as that of Germany, which for more than 40 years has remained below the natural replacement rate of 2.1 births per woman, drives a decrease in population (> *Shrinking cities*) while accelerating the ageing process from the base of the population pyramid since younger age groups are decreasingly represented in comparison with older ones so that the proportion of older people in the population as a whole increases. Increased life expectancy leads to 'ageing from the top', from the top of the population pyramid, countering a decline in population. Progressive singularisation follows from changes in the composition of households and from the ageing of the population. The growing variety of living arrangements is leading to an increasingly heterogeneous population structure, a development that is also strengthened by the waves of international migration accompanied by the diversification of the migrants' countries of origin.

Explanations of demographic change are to be sought in social change that is reflected in far-reaching changes in values and norms among the population. These changes are characterised by a turn towards post-materialist attitudes that attach great importance to self-realisation and individualism, emancipation and autonomy, and ever greater independence from social authorities such as parents, churches, the state or trade unions (Gans/Schmitz-Veltin/West 2015: 67 et seq.). Their effects can be seen in the composition of households, with the growing number of non-marital partnerships and the declining relevance of the traditional family structure of married couples with a gender-specific division of responsibilities. Structural change in the economy, including increasingly short-term and flexible working arrangements, have been reinforcing this trend since the 1970s (Läpple 2004: 72). The rising number of households with two or more working members can be interpreted as a rational reaction to the decline of traditional employment relationships and to increasingly precarious employment, with the partners attempting to make the best possible investment of their available human capital. The desire to keep as many options open as possible means that marriage is less of a predetermined fact of life than it was previously. The consequences are decreasing numbers of first marriages, higher ages at first marriage, and rising divorce rates. This eventually caused – even as the tight link between marriage and childbirth was maintained in western Germany – lower birth rates and less interest in having children. As Brake

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(2012: 24) pointedly expressed it, ‘One profession, one job in one place, one marriage, and always the same working days or business hours will definitely be much less common.’

Figure 5: Causes of demographic change and interactions between its components



Source: Gans 2011: 100

4 Challenges posed by demographic change

With its numerical and structural changes to the population, demographic change poses multiple challenges to German society. These challenges affect all aspects of life – work and \triangleright *Housing*, \triangleright *Mobility*, provision of public services and infrastructure – and their intensity at regional and national levels can differ significantly. Its future impact can already be felt today in the labour market (shortage of skilled professionals) and the \triangleright *Housing market* (regional differences in vacancy rates). School closures (\triangleright *Educational infrastructure planning*) and a thinning out doctor’s surgeries (\triangleright *Health in spatial planning [Raumplanung]*) or \triangleright *Retail trade* endanger the provision of public services, especially in sparsely populated rural areas with significant population declines (see Table 1). Shrinkage and ageing can also be observed in cities where urban development policy tasks are foreseeable for some neighbourhoods, the intensity of which is likely to be more moderate than in the rural areas.

Germany must confront these challenges at all levels if it is to continue to provide equivalent

living conditions in future. This will require communication and cooperation among representatives from politics, science, the economy and public administration while also involving the local population (*BMI* [Federal Ministry of the Interior] 2012). Against this backdrop, the German Federal Government adopted a demographic strategy called ‘Jedes Alter zählt’ (Every age counts) in April 2012 and, with its portal www.demografie-portal.de, initiated a process of dialogue to shape demographic change with regard to topics such as ‘Strengthening families as a community’ and ‘Quality of life in rural areas and integrative urban policy’.

4.1 Work

A focus of the demographic strategy is to ensure sustainable growth and prosperity. To that end, the German Federal Government aims to establish conditions nationwide for the fulfilment of educational and employment potential, to ensure the availability of skilled professionals, and to promote innovativeness and competitiveness in business. These aims are to be achieved by means of specific projects at the regional level.

There are various means of increasing the employment rate (Gans 2011; *BMI* 2012). For example, considerably more women in Germany could be in full-time employment. An important requirement for this is to facilitate improvements in helping people to reconcile family and work. Among these are opportunities for training during parental leave to facilitate the later reintegration into the workforce. Moreover, better availability of day-care facilities in combination with educational opportunities that promote language and reading skills would facilitate the social integration of children and adolescents, especially those from socially disadvantaged groups, later in life. For example, the ‘Frühe Chancen’ (Early opportunities) initiative, part of the federal programme for ‘Schwerpunkt-Kitas Sprache & Integration’ (focus day care centres for language and integration) aims to improve around 4,000 day-care centres (*BMFSFJ* [Federal Ministry for Family Affairs, Senior Citizens, Women and Youth] undated). In this spirit, various initiatives such as ‘Abschluss und Anschluss: Bildungsketten bis zum Ausbildungsabschluss’ (Qualification and integration: educational chains through to graduation) serve to help individuals fulfil their employment potential. The use of full-time education guides, senior experts and mentoring during the transition to the labour market is intended to reduce dropout rates from schools and training programmes.

The German Federal Government is also convinced that a targeted migration policy can help (Geiger/Hanewinkel 2014) to relieve shortages on the labour market. Essentially, Germany is to become more attractive as a place to live and work for well-educated and highly-qualified immigrants. With the introduction of the EU Blue Card, temporary residence permits are granted for a minimum annual gross salary of €44,000 (or less for shortage occupations). A permanent residence permit is possible after only two years of employment subject to compulsory insurance. Foreign graduates of German universities receive a residence permit when they have found suitable employment. Furthermore, the German Federal Government is striving for broader recognition of the foreign professional qualifications of immigrants. A ‘welcoming culture’ with language courses, information portals, job fairs, guides for navigating government agencies (*BMWi* [Federal Ministry for Economic Affairs and Energy] undated) and simplified administrative procedures is intended to improve Germany’s standing as a destination for migrants.

4.2 Housing

In an ageing population, the issue of *housing* takes on a key role with regard to the challenges for society (Gans 2011). On the one hand, housing is one of the basic needs of all people, and on the other, people tend to spend more time in the immediate vicinity of their homes with increasing age. At the same time, older people have widely varying housing needs that depend on aspects such as the individual ageing process, living situation and lifestyle.

Given the foreseeable increase in the number of older people, significant growth in demand for age-appropriate housing can be expected. In the future there will also be more and more elderly people with no children, so family support structures will become less relevant for this group and other forms of assistance will be needed to close emerging gaps in services. Most people prefer to remain in their own homes for as long as possible, even into old age, so flats and houses will need to be adapted so that ageing occupants can cope and thus maintain an independent lifestyle in old age for as long as possible. The availability of recreational opportunities such as cultural events or club-related activities outside of the home also promote an active lifestyle and form the basis for quality of life in old age.

The pronounced regional diversity of future demographic trends and the changing demands placed on housing are shaping highly differentiated regional and sectoral trends in demand that, as a consequence of rising international migration since 2010, will become increasingly important and have a significant impact on the tight housing market in economically prosperous regions. Rising demand will lead to new building activity in regions with population growth and vacancies will remain at a low level. In contrast, due to the discrepancy between housing supply and the demands of those seeking housing, the price trends in residential property in regions with decreasing populations will be impacted. Vacancies and sales are also concentrated in urban and suburban neighbourhoods that are relatively homogeneous in terms of construction date, ownership rate and the advanced age of the residents, as in many single-family housing estates dating from the 1950s to 1970s in western Germany (Zakrezewski et al. 2014). Sales of existing dwellings in these residential areas will increase in the years ahead, however, they will not meet the current housing needs of households seeking to acquire a property. At the same time, demand from first-time home owners will fall as a result of demographic change. In a seller's market, generational change and the replacement of existing buildings takes place smoothly through supply and demand. In a buyer's market, on the other hand, winners and losers will be determined depending on locational characteristics, urban development deficits, and image. If a neighbourhood shows signs of a downward trend, local authorities should, depending on the severity of the trend, take actions according to a stabilisation, development or restructuring strategy (▷ *Neighbourhood/neighbourhood development*). These measures should also be integrated in a city-wide plan, for example policy on land for built use, and address the issues of infrastructure and local services, traffic and mobility, buildings and housing, whereby a complex interplay 'between potential demand from current and future groups of residents, economic viability and commissioning public infrastructure' (Zakrezewski et al. 2014: 275) must be taken into consideration.

4.3 Provision of public services

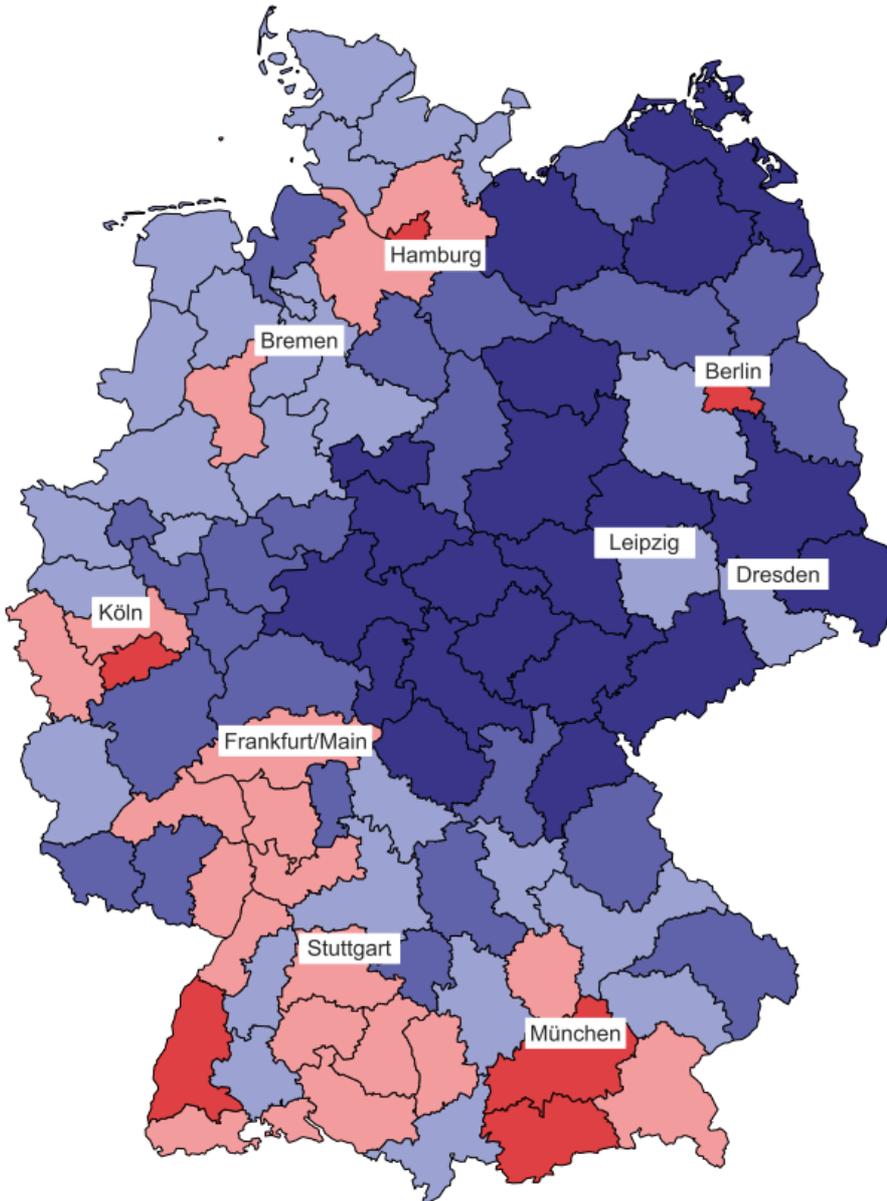
The challenges resulting from demographic change are characterised by the regional confluence of various sectoral problems with spatially specific requirements. They concern safeguarding the provision of public services: education, healthcare and care, local services, ▷ *Public transport* and safety (Danielzyk 2014). The provision of these services to the populace is especially under threat in rural areas with decreasing and progressively ageing populations. For example, educational institutions and social and technical infrastructure are significantly underutilised as a consequence of demographic change and low settlement density. For reasons of cost-effectiveness, they can no longer be retained in their previous form or must even be closed (Dehne 2013). The closure of facilities in areas with severe shrinkage further degrades the quality of life there and accelerates a downward spiral in regional development (Kocks 2007) so that ‘social infrastructure (childcare, schools, doctors, care and recreational and cultural activities) is increasingly becoming a hard and decisive locational factor’ (Dehne 2013: 6). For rural areas in particular, action strategies for maintaining the provision of public services are called for. Because of alternatives close by, demographic effects in agglomeration areas will be moderate in comparison. The following discussion about safeguarding the provision of public services is therefore limited to rural areas, though they are a rather heterogeneous category of settlement structure and thus require solutions specifically tailored to each region (see Table 1).

A relevant action strategy for safeguarding the provision of public services is based on the central-place theory (▷ *Central place*). Concentrating infrastructure and service providers at small and medium-sized centres in rural areas reinforces their multifunctionality and favours higher utilisation rates for the facilities. Utilisation can be further increased by optimising the public transport network and alternative operating strategies between central places and municipalities in the intake areas. A suitable solution for smaller municipalities involves establishing service centres in which various local services are jointly kept available. Bundling different services strengthens the attractiveness of the overall package and increases the chances of maintaining local services even with low or still-decreasing populations. Examples include ‘Marktreffs’, a concept based on three pillars: core business, services and a meeting place, and ‘DORV’, a play on the German word for village that stands for services and local all-round supply (▷ *Services*). Consolidation under one roof promotes synergies that ensure the viability of a complete location for places with a population of at least 1,000. For even smaller municipalities, mobile services are preferable, or the expansion of broadband cable access, e.g. for e-commerce. The mobilisation of facilities should be expanded in parallel, such as intermittently occupied branches of doctor’s surgeries or community nurses who visit older and less mobile people and, if necessary, contact their GP using the laptop they carry with them.

Given declining school enrolment (the number of children and adolescents aged 6 to 15 will decrease by nearly 12% from 2015 to 2035), the closure of some schools stands to reason (see Fig. 6). Though the decrease in eastern Germany at around 16% will be higher than that in western Germany with around 7%, it will have an above-average impact in rural areas in both regions. In contrast, several large cities and their surrounding regions will see increases (e.g. Munich, Hamburg and Frankfurt).

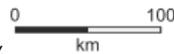
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Figure 6: Population changes for the 6–15 age group in Germany by spatial planning region (2015–2035)



Population change for the 6–15 age group by spatial planning region (2015–2035)

■ Under -18%	Average: -11.8%
■ -18% to under -12%	Median: -10.2%
■ -12% to under -6%	Minimum: -34.0%
■ -6% to under 0%	Maximum: 9.3%
■ 0% or more	



Source: The author, based on BBSR 2015

As a rule, arguments in support of school closures are limited to cost-cutting. Such arguments can be countered by noting that a school closure in a rural area with low population density and a poorly developed urban network will have a lasting negative impact on the municipality and its inhabitants:

- school catchment areas will grow, reducing the free time children have.
- Transport costs for schoolchildren will increase, usually burdening the rural district as the responsible authority for school transport.
- Vacant buildings convey a negative impression of a municipality.
- The location loses attractiveness as a place to live, for example for couples with schoolchildren, and the emotional connection between the inhabitants and their place of residence weakens.

As a result, lasting population loss is probable, driving a downward spiral in development. Michel and Schulz (2007) make the following counterproposals:

- alternative teaching and learning strategies (e.g. combining multiple years in one class, use of low pupil-teacher ratio to benefit children);
- utilisation of overcapacity in school buildings by local inhabitants;
- multiple and multipurpose use (e.g. as community centre, meeting place, internet café for schoolchildren or other inhabitants).

‘Schools, especially in rural areas, play a crucial role in the social and cultural life, the attractiveness and often also the history of a town or municipality that goes beyond their purely educational function’ (Michel/Schulz 2007: 275).

5 Action strategies for areas with different structures

Taking the Metropolitan Region Rhine-Neckar (German acronym MRN; ▷ *Metropolitan region*) and the rural Werra-Meißner district (German acronym WMK) in northern Hesse as examples, various strategies for dealing with the challenges of demographic change are presented below.

5.1 Metropolitan Region Rhine-Neckar

MRN founded the demographic change regional strategy network (*Regionalstrategie Demographischer Wandel, RDW*) in 2008. Today it has around 350 members: businesses, local authorities and institutions such as the Chamber of Industry and Commerce (*Industrie- und Handelskammer, IHK*), the Chamber of Trades (*Handwerkskammer*), and the German pension insurance fund (*Deutsche Rentenversicherung*). With projects, information events, conventions, workshops and panel discussions, the RDW seeks to strengthen cooperation, communication and networking among regional stakeholders in the MRN (MRN 2013).

With specific projects, the RDW network provides information to raise awareness among stakeholders and the general public in the MRN about the impact of demographic change on society. Examples include:

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- a platform for exchanging ideas that provides facts and figures for best practices to deal with demographic change in the MRN and information about current events (cf. Rhein-Neckar regional association [*Verband Region Rhein-Neckar*] undated);
- establishing a welcoming culture (¡Vamos!: recruiting Spanish professionals or the Newcomers Guide to living and working in the region);
- mobile advisors for renters, landlords and homeowners interested in accessible housing,
- organising a demography week to present 445 projects and activities in 67 MRN municipalities and a full-day demography conference with presentations and panel discussions about new markets and the silver economy, safeguarding local services, or residential interior design and the design of residential living environments.

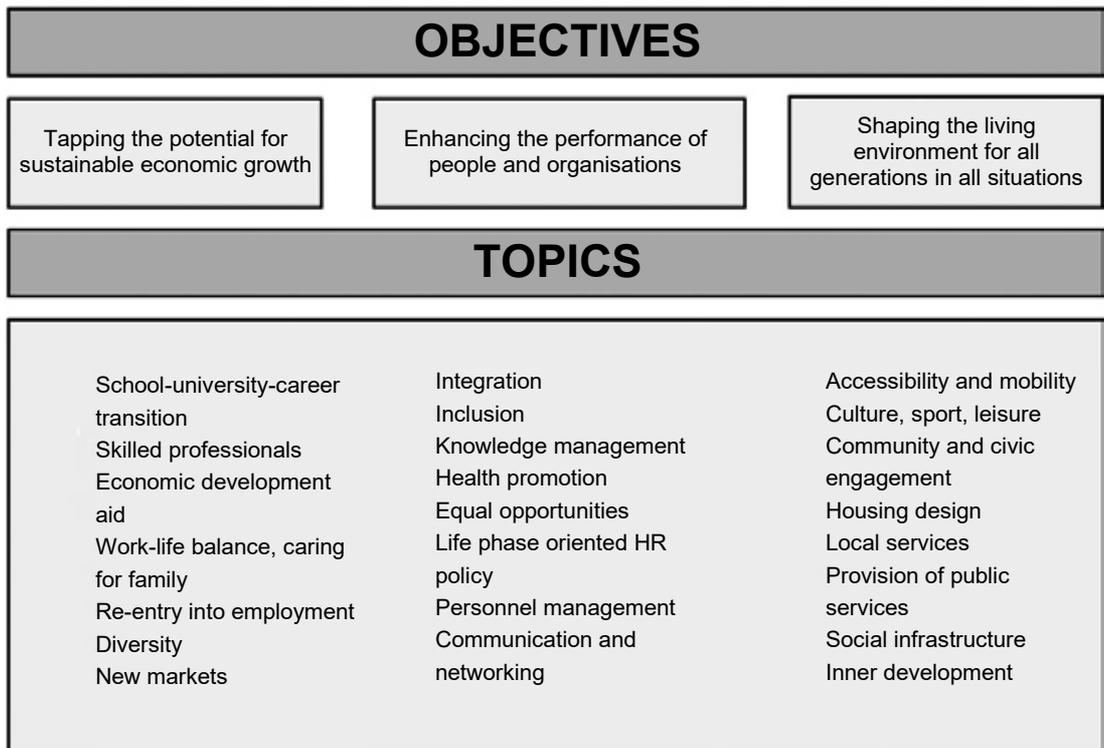
The RDW aims to generate synergies for dealing with the challenges of demographic change and highlight the wide range of opportunities to implement proposed solutions.

Moreover, the RDW's aims are subsumed in the MRN's Vision 2025 to increase its attractiveness as an economic centre with a high level of innovation and good education and quality of life. The challenges are understood as across-the-board tasks that are reflected in demography-related statements in the MRN's unified regional plan (MRN 2013: 2 et seq.):

- strengthening existing settlement cores (higher priority for inner than outer development) and reduced designation of new building areas;
- maintaining and appropriately expanding infrastructure, e.g. for education and healthcare, by increasingly intensive intermunicipal cooperation;
- ensuring equivalent mobility conditions for all population groups (basic network of mobility services, improved intermodal transport options, setup of multimodal mobility stations);
- safeguarding local services at locations that are well integrated in public transport networks.

The RDW revision in 2012 by the MRN's demographic change steering committee specified three main themes (see Fig. 7) and added two new objectives: integration and inclusion.

Figure 7: RDW objectives



Source: MRN 2013: 11

5.2 Werra-Meißner district

The WMK drew up a master plan with its model project entitled ‘Region schafft Zukunft’ (‘The region creates the future’, www.regionale-daseinsvorsorge.de) (VfR WM [Werra-Meißner Regional Development Association] 2011). It involved personnel from the district administration, stakeholders from politics and business, and experts. Working groups for social infrastructure, culture and education, and energy, settlement areas and accessibility worked out adaptation strategies and recommended actions in nine areas, and also model implementations for selected projects.

The ‘elderly care and seniors’ area is characterised by a growing number of people needing care accompanied by an above-average increase in inpatient care as well as a decreasing potential for home care. While a comprehensive overall strategy was being developed, it became apparent that there were specific conditions for meeting the challenges in the municipalities. Therefore, decentralised services based on self-organised structures in the municipalities were to be supported. A good example is the project ‘Zukunft gestalten – älter werden in unserem Dorf’ (Shaping the future – growing old in our village), which was participatory, involved multiple communities, and had a multi-sector focus. It was an open planning process with older people about the consequences of demographic change for infrastructure in the municipalities. The project’s implementation bolstered civic and neighbourhood engagement, strengthened local

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services (e.g. with a multifunctional local service centre) and led to a barrier-free redesign of public spaces.

This example points to two conditions for the success of village stores that were set up on a decentralised basis in WMK in cooperation with a supermarket chain. On the one hand, the concept has to be adapted to local demand and offer retail goods which are not merely ‘embarrassing purchases’. The facility must cultivate a connection with local residents, for example through strategic partnerships, so it can serve as a meeting place for private parties, club events, etc. On the other hand, a mobility strategy that connects all boroughs and participating municipalities reinforces the accessibility and thus the attractiveness of the facility. The mobility strategy is based on a pool of vehicles in the municipality and on volunteer drivers.

6 Concluding remarks

Demographic change affects all aspects of the provision of public services. The intensity of its effects depends on local conditions and will differ according to trends in the number and structure of the population, varying from one municipality to the next, from district to district and region to region. Those conditions also affect age-specific migration processes, which in turn can either reinforce or weaken the effects of demographic change. Overall, regional disparities are more likely to increase than to decrease (▷ *Disparities, spatial*).

There are various approaches to action to counter this trend (Danielzyk 2014). The central-place theory focuses on the concentration of public facilities and the transport connections to rural locations. Cooperation between local authorities and increased infrastructure flexibility aim to increase the use of existing facilities and adapt to future needs without new construction being required. Involving the public in the implementation of measures strengthens people’s connections with their place of residence and their awareness that the consequences of demographic change can be shaped so as to maintain quality of life. There is growing readiness for civic involvement among the public; participation raises awareness of the challenges of demographic change as in the ‘spaces of self-responsibility’ described by Aring (2014).

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