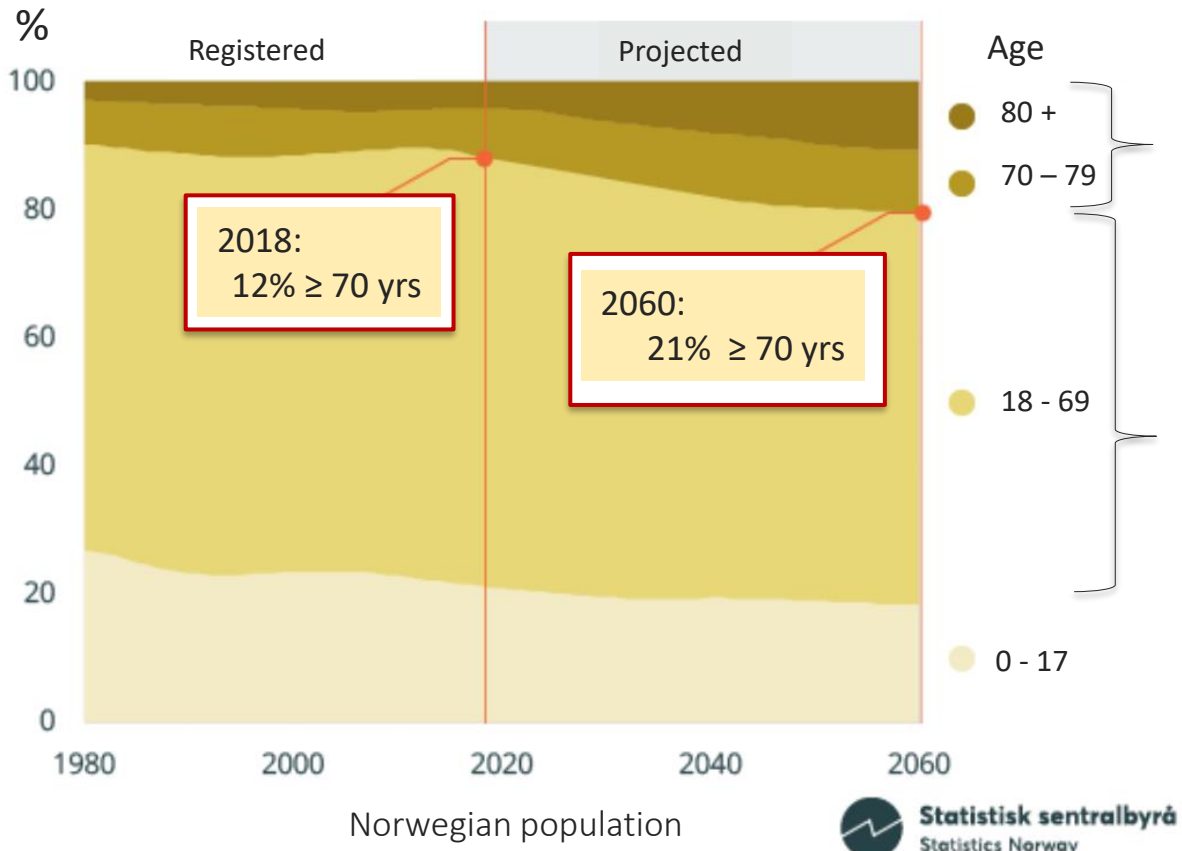


*Developing future solutions  
for the health and care sector  
(Nordic perspectives)*

---

Janne Dugstad PhD  
Centre for Health and Technology  
University of South-Eastern Norway



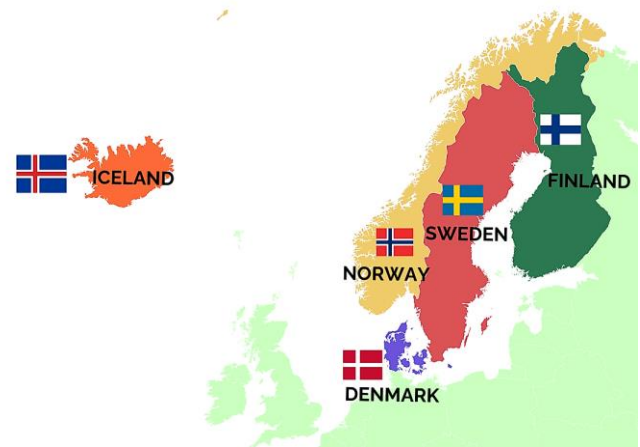
- 1 - The number and the relative proportion of old persons increases
- 2 - The number of workers per retiree decreases
- 3 - The growing availability of technology
- 4 - Focus on Ageing in place
- 5 - Focus on Task shifting
- 6 - Focus on 'what matters to you?' and Shared decision-making

# Drivers for digital transformation of Nordic community based healthcare

# Welfare technologies in the Nordic region

Welfare technology is all technology which in one way or another improves the lives of those who need it.

*"Welfare technology refers first and foremost to technological assistance that contributes to increased safety, security, social participation, mobility, and physical and cultural activity, and strengthens the individual's ability to cope with everyday life despite illness and social, mental or physical impairment. Welfare technology can also act as technological support for relatives and otherwise contribute to improve accessibility, resource utilization and quality of service provision. Welfare technological solutions can in many cases prevent the need for services or admission in institutions"* (Norwegian Official Report, 2011, p. 99).



# Welfare technology in the Nordic region

According to the Nordic Welfare Centre:

- Many Nordic municipalities offer their residents personal alarms for use indoors
- Welfare technology implementation and upscaling rates are faster in Norway than elsewhere in the Nordic region
- The project Quantitative Follow-up of Welfare Technology Implementation will map the rate of welfare technology implementation in Nordic municipalities. Reports will be available in 2022, regarding

- 1) Digital personal alarms
- 2) Location technology/tracking
- 3) Medicine dispensers
- 4) Digital (passive) monitoring



# Technology and terminology

- Assistive technologies support function
- Assisted living technologies support aging in place
- Social/safety/personal alarm is widely used



## Welfare technologies

1. for safety and security in everyday life
2. for coping with/ managing own health issues
3. for treatment at home
4. for wellness and QoL

Can be used by all age-groups.  
Recent focus on children and youth with disabilities.



Parliament



Government



Ministry of Health and Care services

Hierarchical relationship

Regulatory relationship



Regional health authorities



Municipalities



Hospital trusts



Primary care providers



Hospitals

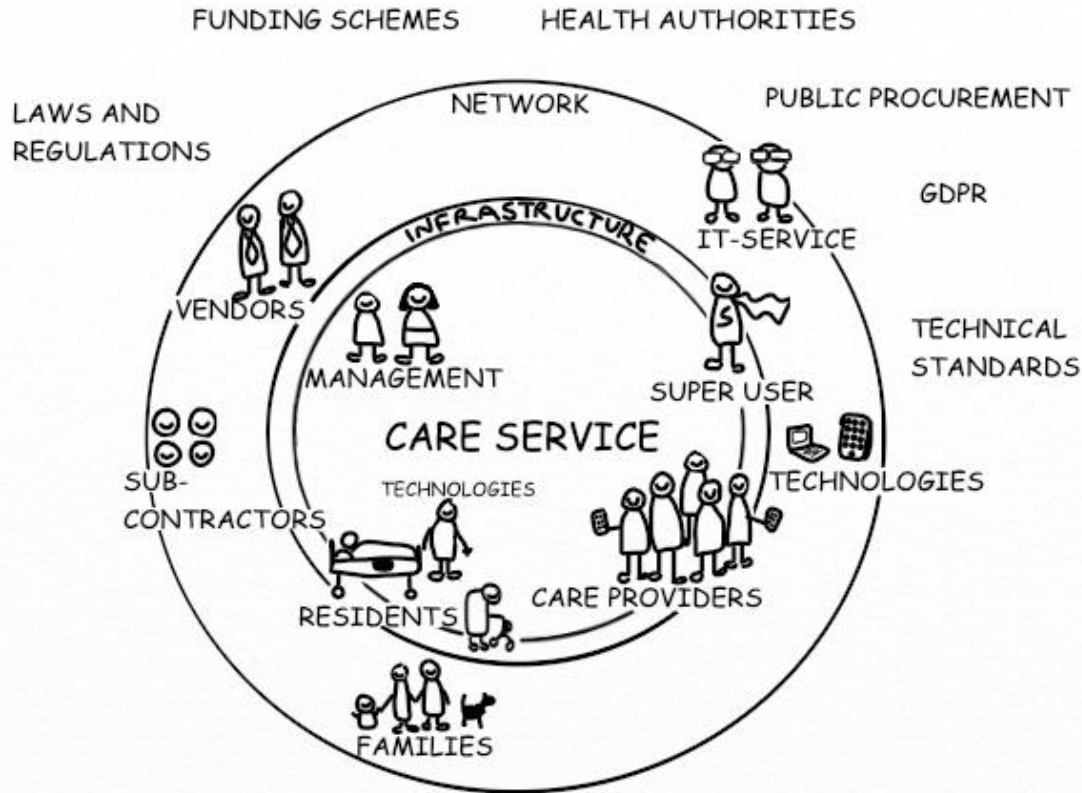
# Norwegian municipal health and care services

There are 356 municipalities in Norway and approximately 1200 in the Nordic region. Their responsibilities vary. In Norway, municipalities are responsible for providing reasonable, high-quality health care and social services to everyone in need of them, regardless of age or diagnosis.

- public health centres for children and young people, a school health service, care during pregnancy and post-natal care, and vaccination
- a general practitioner (GP) service,
- an emergency service,
- rehabilitation,
- mental health care,
- health and care services, such as homebased nursing care, personal assistance, nursing homes and respite services.

Welfare technology can be included in all municipal health and care services

# Digital transformation increases complexity of health and care services





# Implementation

Early initiatives (2010 +/-) focused on pilots and small-scale testing of stand alone technical solutions (GPS, sensors).

**National welfare technology program** in Norway established to provide better **health** and **quality of life** for recipients of welfare technology services, as well as **sustainable** public care services

The program provides funding and facilitates implementation in 300+ municipalities (85%). Knowledge-sharing in networks, initiates research, develops recommendations and tools / methods. Focus on benefit realization. Service innovation methodology, including co-creation of technology and services.

<https://www.healthcareatdistance.com/media/1178/roadmap-for-service-innovation2.pdf> (service innovation methodology Best practice)

<https://nordicwelfare.org/en/publikationer/welfare-technology-tool-box/> (project management methodology Best practice)



# From implementation to sustainable service



Illustration: Kongsbergregionen

A national program for Innovative Public Procurement

ABC of Welfare technology (on the job training)

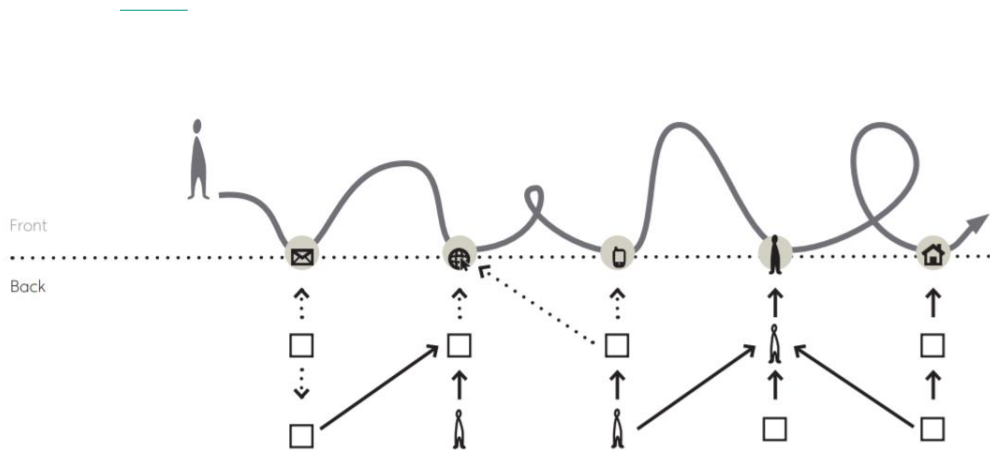
Quick-guides for implementation of specific technology services

Technology: more platform-based, connected solutions

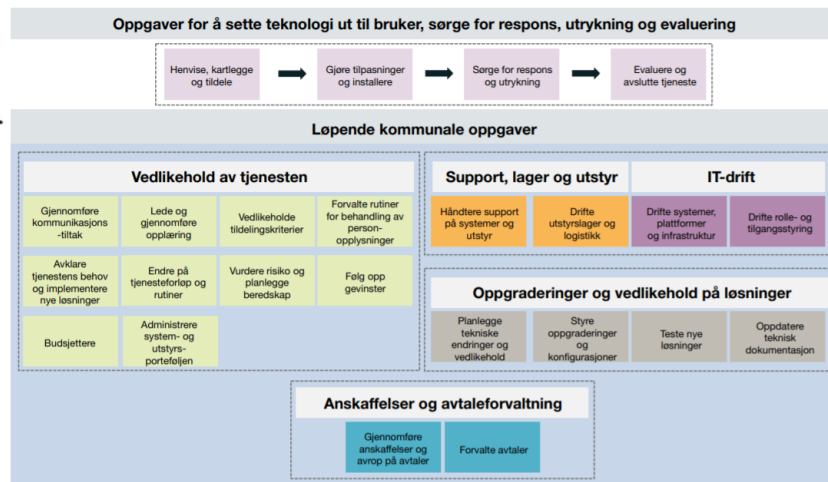
Call centres operate the platforms and respond to alarms, notifications and calls

Holistic service model for upscaling recently introduced

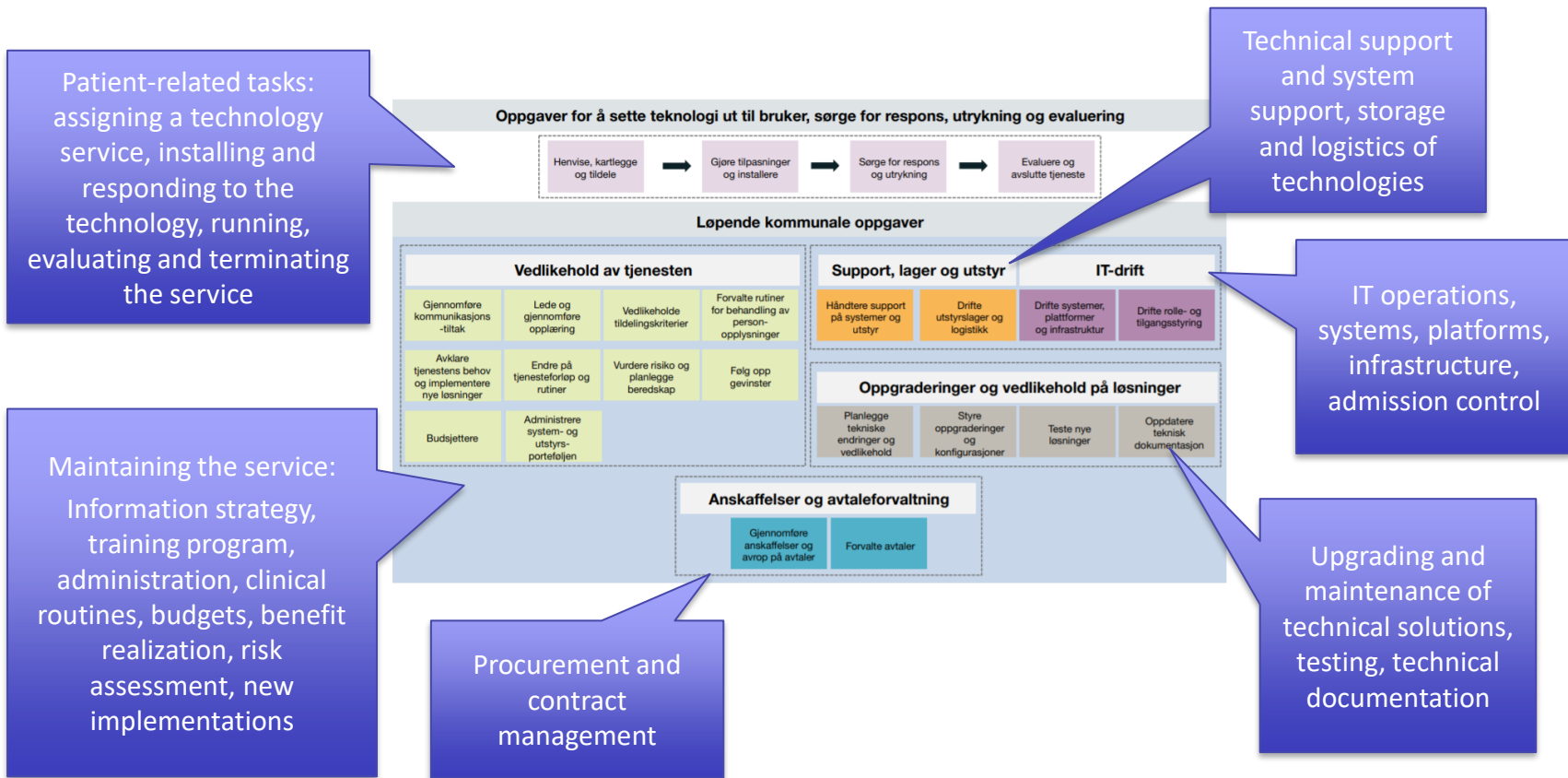
# Scaling up with the Holistic Service Model for Municipal Care



ill: Kaja Misvær Kistorp, DesignIT



# Scaling up with the Holistic Service Model for Municipal Care





Hospital-based care



Residential care

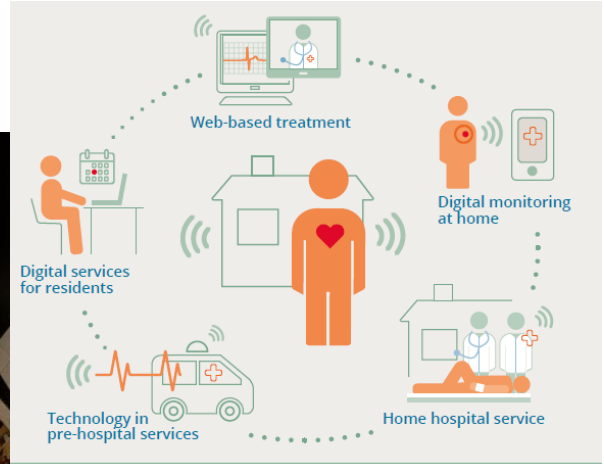


Primary care (GP)



Community / home-based care

# Trends supporting smart city concepts



## Specialist healthcare at home

Call centres (commercial or inter-municipal) handle notifications from other sectors (elevators, fire alarm etc), as well as from personal apps and technology, and interact with volunteers. Seamless integration of telecare between hospitals, GPs and municipal services.





# Ireland and Norway at a glance

	Ireland	Norway	EU
Population size (mid-year estimates)	4 807 000	5 277 000	511 876 000
Share of population over age 65 (%)	13.5	16.6	19.4
Life expectancy at birth (yrs; 2017)	82.2	82.7	80.9
Health spending per person (EUR)	3 406	4 459	
Public funding of total health spending (%)	73	85	79
Health spending by households	12	Ca 15	
Voluntary Health Insurance	13 (high in EU)	Insignificant	
GDP per capita (EUR PPP <sup>1</sup> )	54 300	43 900	30 000
Relative poverty rate <sup>2</sup> (%)	15.6	12.3	16.9

1. Purchasing power parity (PPP) is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries. 2. Percentage of persons living with less than 60 % of median equivalised disposable income. **Source: Eurostat Database.**





The Irish are living longer than before, but not all remain healthy as they age

The proportion of people aged over 65 in Ireland is projected to double to 26 % by 2050, which will lead to growing demands on health and long-term care systems. Many years of life in old age are lived with some chronic diseases and disabilities. In 2017, 50 % of Irish men and women aged 65 and over reported having at least one chronic condition, and around **one in three reported some or severe limitations in carrying out usual activities** because of health problems.



Norwegians live about three-quarters of their lives after age 65 free from disability

In 2015, slightly over half of Norwegian women and men aged 65 and over reported experiencing functional limitations such as seeing, hearing or walking impairments. While most people are able to continue leading independent lives, about **one in 11 people** aged 65 and over **reported limitations in basic activities of daily living** such as dressing and eating. These limitations are mainly concentrated among people aged over 80.

**USN** **Universitetet**  
**i Sørøst-Norge**

---



Janne.Dugstad@usn.no  
mob +47 90 99 36 46