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Implementation models, scalability and sustainability of organised cancer screening

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On behalf of WP4

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EU has the recommendation and policy; the task is implementation, scaling, sustaining

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Council Recommendation on cancer screening, 2022

Replaces the 2003 Recommendation

Updated recommendations

Breast

Mammography, women 50–69
suggested extension to 45–74

Cervical

HPV testing, women 30–65
interval of five years or more

Colorectal

Quantitative FIT, 50–74
colonoscopy after a positive test

New — stepwise approach, subject to further evidence

Lung

Low-dose CT in high-risk groups
explore feasibility, linked to prevention

Prostate

PSA with MRI follow-up
evaluate organised programmes

Gastric

H. pylori screen-and-treat
where incidence and mortality are high

90%

of the eligible EU population to be offered breast, cervical and colorectal screening by 2025

Europe's Beating Cancer Plan target

EU support committed

- **€38.5 M** EU4Health for screening projects
- **€60 M** Horizon Europe
- **€38.5 M** EU4Health 2023 work programme, to help Member States implement the Recommendation

Sources: Council Recommendation 2022/C 473/01; European Commission press release IP/22/7548, 9 December 2022.

Delivery models in Europe: no single blueprint

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National programme, centrally coordinated

- One invitation system and one registry
- Central quality assurance and monitoring
- Regional screening organisations deliver

Examples: the Netherlands, Ireland, Slovenia, etc.

Regional programmes in a national framework

- Regions organise and fund delivery
- National standards and indicators
- National monitoring

Examples: Italy, Spain, Belgium, Sweden, etc.

From opportunistic to organised

- Invitation, registry and QA built on existing services
- Progressive move from ad-hoc testing to a managed pathway
- The starting point of several target countries

Examples: Romania, Bulgaria, Slovakia, etc.

What matters more than the model

A mandated governance body · population register linkage · one information system · quality assurance with feedback to providers · a recurrent budget line

Implementation model: programmes are built in phases

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Exploration
Is there a case, and a window?

- Cancer burden and the need
- Political window and policy mandate
- Evidence, cost-effectiveness, feasibility
- Situational analysis of existing services

Preparation
Build the structure

- Governance body with a legal basis
- Protocol, pathway and quality standards
- Population register, invitation system, IT
- Workforce, financing, pilot design

Implementation
Pilot → phased roll-out → full scale

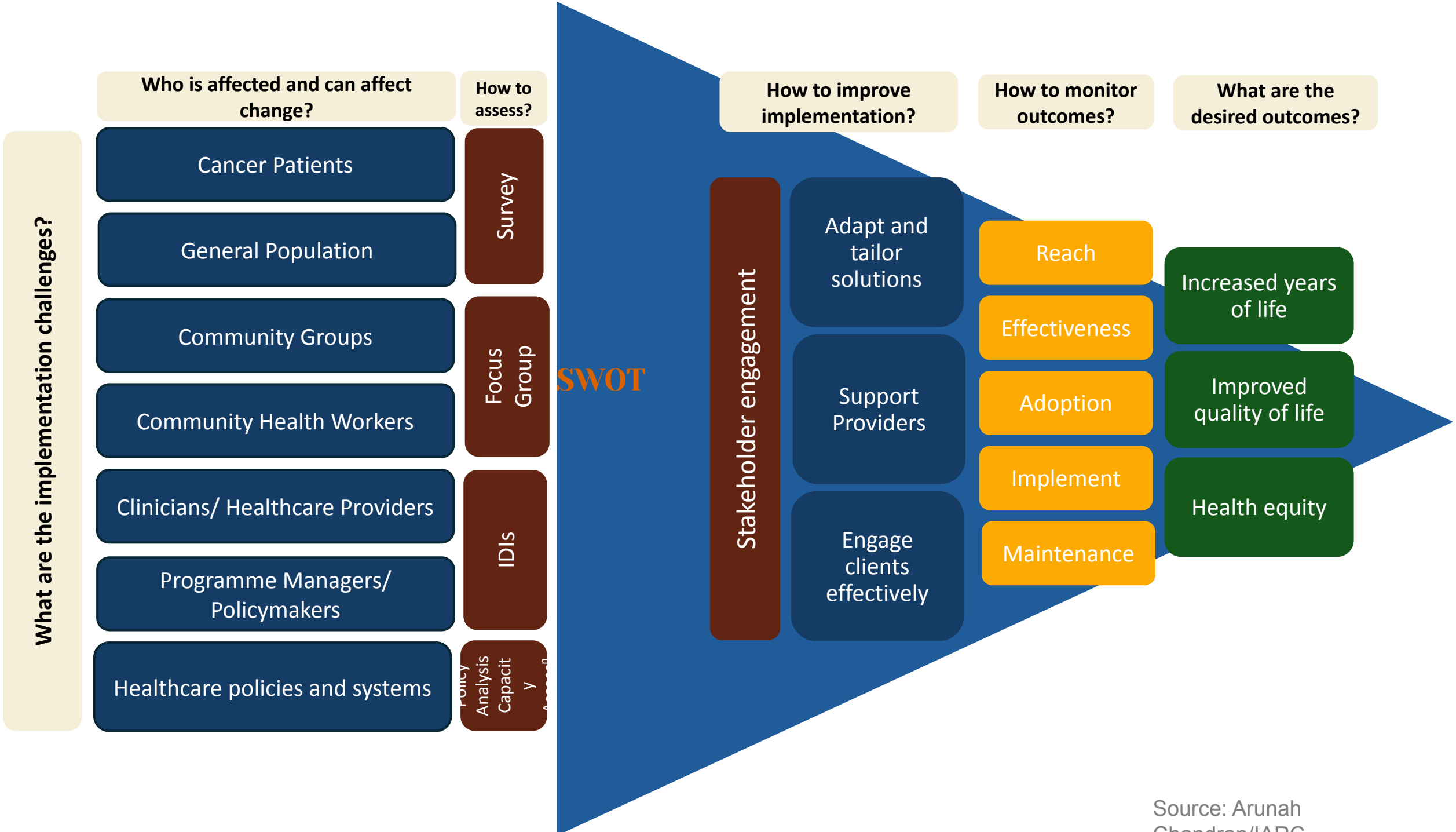
- Pilot in one region or birth cohort
- Expand step by step as capacity allows
- Monitor in real time, adjust the protocol
- Reach the whole eligible population

Sustainment
Keep it performing

- Routine delivery with quality assurance
- Monitoring and evaluation of outcomes
- Adaptation to new evidence and technology
- Protect the core elements under pressure

Research for implementation runs through all four phases. Sustainment is a phase with its own work — not what is left when the project ends.

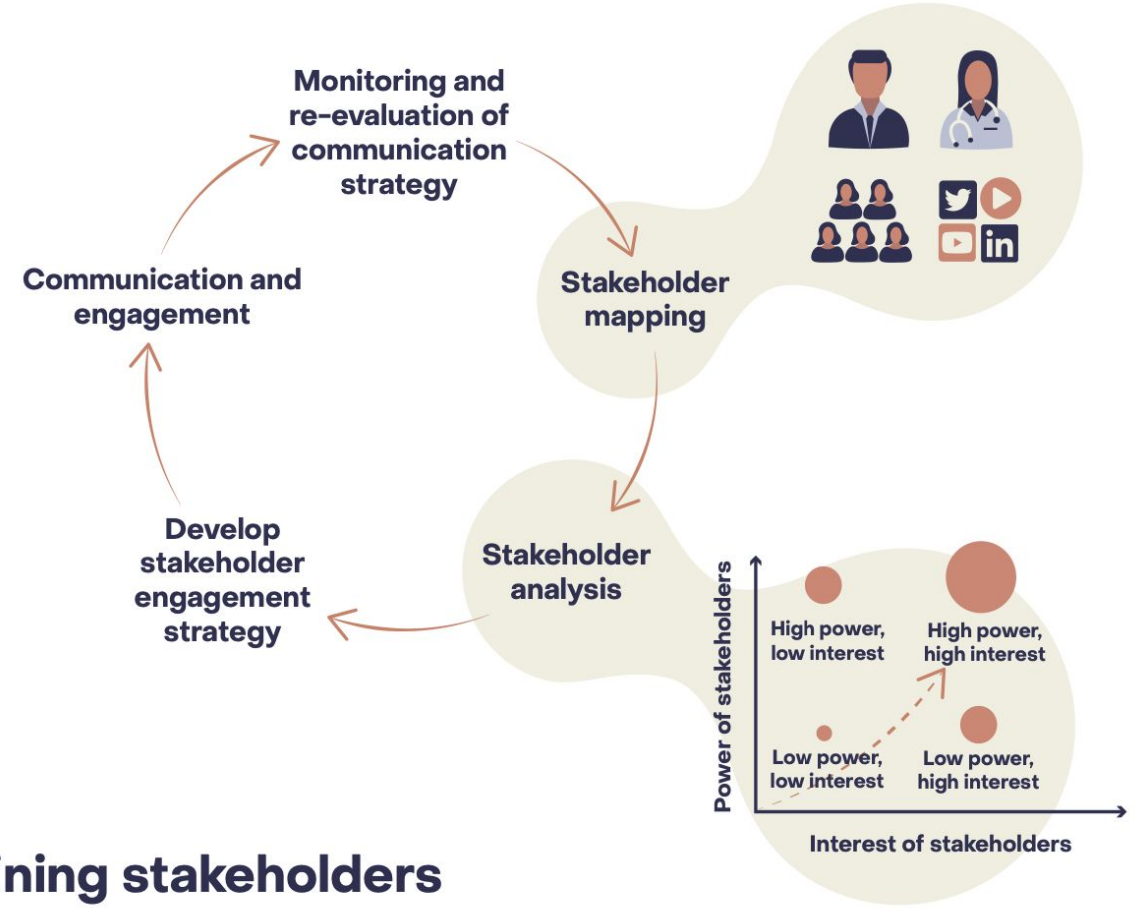
Phases follow the EPIS framework: Aarons GA, Hurlburt M, Horwitz SM. Adm Policy Ment Health 2011;38:4–23; Moullin JC, et al. Implement Sci 2019;14:1.



Source: Arunah Chandran/IARC

Standardized stakeholder engagement protocol

Identifying the stakeholders in a cervical screening programme and how to communicate with them



Defining stakeholders

Source: Best Practices in Cervical Screening Programmes: Audit of Cancers, Legal and Ethical Frameworks, Communication, and Workforce Competencies. IARC Working Group Reports, Volume 11

What makes a programme 'organised'?

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An international consensus

Systematic review

69 criteria identified, consolidated into 32

Modified Delphi

24 experts from 20 countries, two rounds, ≥80% agreement

Consensus meeting

21 experts review the results

16 essential + 8 desirable

criteria for an organised cancer screening programme

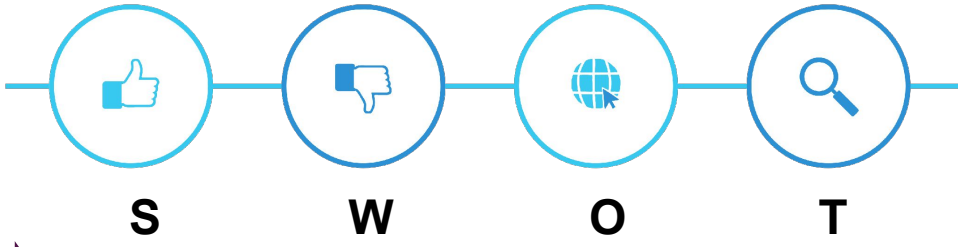
Building blocks of an organised programme

- **Leadership, governance and financing**
- **Health workforce**
- **Access to essential services**
- **Service delivery**
- **Information systems and quality assurance**

'Organised' versus 'non-organised' is a continuum. The criteria are a guide for quality improvement and for setting resource priorities, the same framework used in the sustainability work later in this session.

Source: Zhang L, Carvalho AL, Mosquera I, Wen T, Lucas E, Sauvaget C, Muwonge R, Arbyn M, Weiderpass E, Basu P. BMC Medicine 2022;20:101.

Stepwise capacity assesment



Desk Review

- Policies and governance
- Screening protocols
- Information system

Facility Visit

- Screening centres
- Diagnostic and treatment centres

Stakeholder engagement

- Engagement with key informants of care pathway

Policy Analysis

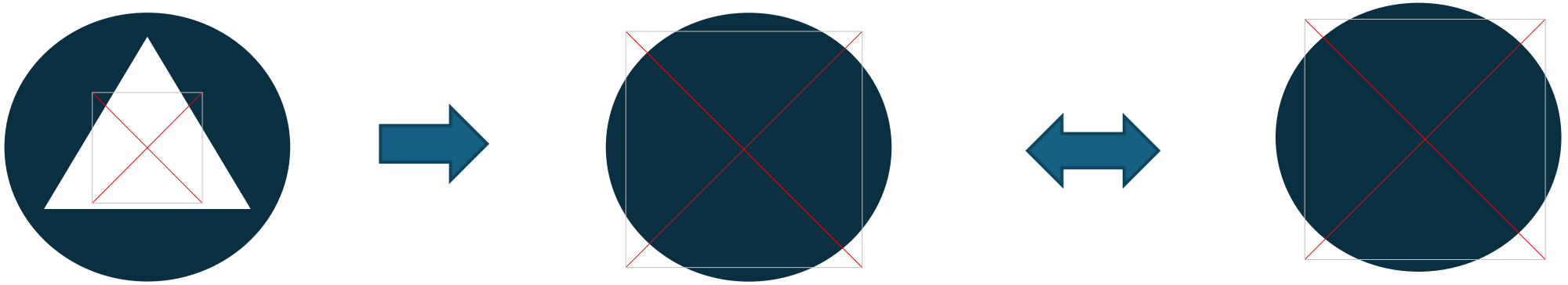
Health system readiness and implementation climate

Building blocks

Leadership & governance
Financing
Health workforce
Access to care
Service delivery
Information system
Quality assurance

Source: Arunah

Designing a protocol for a multi-level intervention strategy



The findings of the earlier work will be synthesized and triangulated to feed the ‘intervention’

‘Intervention’ presented to stakeholders – especially ‘key players'

Collaboratively, identify the intervention elements that are ‘best fit’. Interventions may be different to suit the local context in the selected pilot sites.

Stakeholder engagement platform established

Involving stakeholders who are directly affected by the intervention (macro, meso, micro) and can also affect change

Scalability: can it work at population scale?

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Intervention Scalability Assessment Tool (ISAT) — ten domains

Part A · Setting the scene	Part B · Implementation planning
A1 The problem	B1 Fidelity and adaptation
A2 The intervention	B2 Reach and acceptability
A3 Strategic and political context	B3 Delivery setting and workforce
A4 Evidence of effectiveness	B4 Implementation infrastructure
A5 Intervention costs and benefits	B5 Sustainability

Part C · Summary: scale up, scale up with modifications, or do not scale up

WHO / ExpandNet

Nine steps for developing a scaling-up strategy: plan for scale from the start: the innovation, the resource team, the user organisations, the environment, and the strategy itself.

Scalability is assessed before scale-up, not discovered during it.

A pilot that worked with a dedicated team, extra budget and a motivated region tells you little about the whole country unless the ten domains were looked at.

Sources: Milat AJ, Lee K, Conte K, et al. Intervention Scalability Assessment Tool. Health Res Policy Syst 2020;18:1; WHO/ExpandNet. Nine steps for developing a scaling-up strategy. Geneva: WHO, 2010.

Scaling screening is a capacity question

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Identify and invite	Screening test	Assessment and diagnosis	Treatment	Follow-up and monitoring
• Population register • Invitation and reminder system • Communication to the public	• Mammography units, HPV laboratory, FIT kits and laboratory • Trained staff • Accreditation	• Colonoscopy, assessment units, colposcopy, pathology • Waiting-time limits • Often the binding constraint	• Referral pathways • Surgical and oncology capacity • Navigation for patients	• Registry linkage and data system • Quality assurance and KPIs • Feedback to providers

NEEDS — IARC's resource-planning tool for screening

- Follows the screening pathway node by node to estimate the staff, equipment and services a programme needs at scale
- Modules for prostate, cervical, lung and colorectal screening
- Built to answer the question a ministry asks first: what will it take, and where will it break?

Diagnostic and treatment capacity sets the pace of scale-up.

Invitations can be printed in a month; endoscopists, radiologists and pathologists cannot.

Scaling in practice: phased by capacity

Slovenia
DORA · breast

Launched 2008 in central Slovenia → extended step by step to all municipalities by 2018

Women 50–69 · digital mammography every two years · quality assurance built into each expansion step

Netherlands
colorectal · FIT

Planning since 2004 → regulation, protocols/guidelines, capacity assessment, cost analysis, etc.

Launched 2014 → rolled out by birth cohort until 2019

Year one: 741,914 invited, 71.3% participation

Mid-2014: real-time monitoring showed positivity 10.6% and PPV 42.1% → FIT cut-off raised from 15 to 47 µg Hb/g to keep colonoscopy demand within capacity (positivity 6.7%, PPV 49.1%)



Sequence

by cohort or region, at the pace of diagnostic capacity

Build first

registry, IT and quality assurance before expanding

Monitor and adjust

real-time data changed the Dutch protocol within months

Plan for years

It takes time from first invitation to full national coverage

Sources: Toes-Zoutendijk E, et al. Gastroenterology 2017;152:767–75; Breekveldt ECH, et al. Eur J Cancer 2023;178:60–7; Tomšič S, et al. Cancers 2025;17:742.

Scalability: five questions before scale-up

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1. **Did the pilot look like the country?**
   Population, providers, setting and funding comparable to routine conditions vs. a motivated region with a dedicated team
2. **Does the effect survive routine conditions?**
   Participation, test performance and follow-up at fidelity (including the groups that are hardest to reach)
3. **What does it cost at full scale, and who pays?**
   Costs and benefits per screened person; a recurrent budget line, not project money
4. **Is the capacity there?**
   Workforce, diagnostic and treatment capacity, registry and IT (along the whole pathway)
5. **Who owns it after the project?**
   A governance body with a legal mandate, quality assurance and the authority to adapt

The answers lead to one of three decisions

Scale up

The programme goes to phased national roll-out

Scale up with modifications

Adapt the pathway, the test threshold or the delivery model first

Do not scale up, yet

Build the missing capacity or evidence before trying again

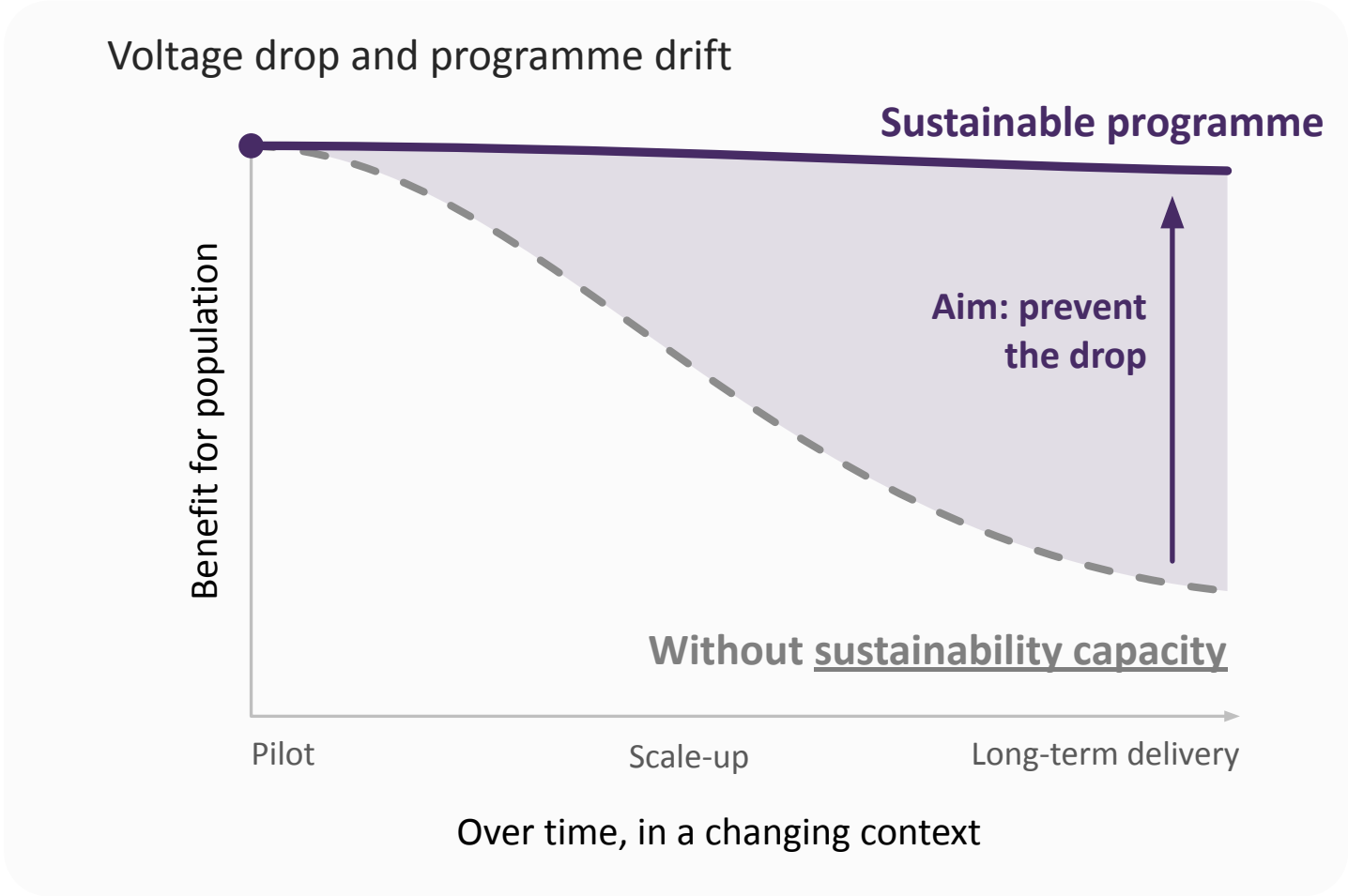
Scalability is assessed before scale-up, and not discovered during it.

Questions adapted from the Intervention Scalability Assessment Tool (ISAT) and WHO/ExpandNet.

Sources: Milat AJ, Lee K, Conte K, et al. Health Res Policy Syst 2020;18:1; WHO/ExpandNet. Nine steps for developing a scaling-up strategy. Geneva: WHO, 2010.

Sustainability: what are we aiming for?

- **Maintained core elements**
- **Adapting while protecting core**
- **Achieving the desired goal**



Illustrative. Concept from Chambers, Glasgow & Stange (2013), The dynamic sustainability framework, Implementation Science 8:117.

Sustainability is designed in, not added on

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What to lock in while the programme is being built, by sustainability capacity domain

Overall governance

Policy and vision
A screening policy with a named owner and a long-term plan

Stakeholder engagement
Professional societies, patients, payers and regions at the table

Information and intelligence
Registry-based monitoring from the first invitation

Legislation and regulation
Legal basis for invitation, data linkage and quality assurance

Health system functions

Financing
A recurrent budget line

Resource generation
Workforce planning, training and equipment renewal

Service delivery
Programme organisation · quality assurance and improvement · population outreach and access · integration with primary and specialist care

Judged against
efficiency · quality · equity · ethics · resilience

These are the domains of the EUCanScreen sustainability capacity assessment tool

Domains informed by the HSPA Framework for UHC (WHO / European Observatory on Health Systems and Policies), as used in EUCanScreen WP4.

EUCanScreen WP4: support that is built to last

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Targeted Support Mechanism (TSM)

- **Six target countries:** Estonia, Hungary, Romania, Slovakia, Slovenia, Ukraine
- **Seven supporting countries:** Denmark, Finland, Ireland, Italy, the Netherlands, Sweden, Slovenia

- Country visits and structured exchange of practice
- Target countries adapt what works elsewhere to a specific programme problem
- Feedback loop on the WP4 tools
- A peer support network linking screening professionals across countries

Sustainability capacity assessment tool

Delphi-built, programme-level self-assessment

Context-specific governance models

Building on the CanCon Joint Action

Consolidated barrier assessment tool

Piloted in WP6

Prioritisation methodology

Cost-effectiveness and resource use

European networking strategy

Governmental Advisory Board

White book for new programmes

Lung, prostate, gastric

Source: EUCanScreen WP4 (co-led by the Institute of Oncology Ljubljana and the Department of Health, Ireland), eucanscreen.eu; EU4Health GA 101162959.



“Give me six hours to chop down a tree,
and I will spend the first four sharpening the axe.”

attributed to Abraham Lincoln

Key take home messages

1

Implement in phases, scale by capacity

A phased roll-out with real-time monitoring beats a big-bang launch. Diagnostic capacity (not political enthusiasm) sets the pace.

2

Build sustainability capacity while you build the programme

A mandated governance body, a recurrent budget line, an information system and quality assurance cannot be retrofitted easily, nor cheaply.

3

Use the European network

Target–supporting country exchange, shared tools and peer learning shorten the path — and the new lung, prostate and gastric programmes should start this way from day one.

Sustainability is not the last work package. It is the way the first one is written.

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Thank you!

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