Backcasting tool (offline worksheet)

The "backcasting" process involves defining a future vision of a solution being used in a specific context and then working "backwards" to identify necessary steps to achieve this vision.

Along the way, we ask you to identify 1) **possible barriers** (and solutions to those barriers) that will need to be addressed or mitigated, 2) **key essential elements** and enabling factors to help ensure a solution gains traction, and 3) **other synergistic solutions** that you think should be "bundled" or "packaged together" to help increase the potential for impact and/or likelihood for success.

To build a pathway-to-impact map for an innovative food system solution in a specific context or setting, please work through the questionnaire sections on the next pages and follow instructions along the way.

This tool has been designed to be used by an individual and/or with a team to better understand the *what*, *when*, and *how* of moving a solution (or set of solutions) towards uptake and eventually to having major positive impact(s). This can be carried out as a quick "snapshot" exercise (~20-30 minutes) or could be worked with at a much deeper level of detail, for example in a hybrid online/offline mode over the course of several hours or days in a workshop or brainstorming team exercise.

> This worksheet may help you to
> draft your pathway OFFLINE. Once you're ready, please use the ONLINE
> TOOL to share your map with the IFSS Portal community.

Before you begin...

- **Use this worksheet to brainstorm first** - We offer the full backcasting exercise questionnaire as a downloadable PDF worksheet to use before you work online in case that's helpful. We highly recommend you use this in case there are internet bandwidth challenges in your context to prevent the loss of your work online before you SUBMIT.

- **Once you start (online), don't stop!** When you begin to work through the tool questionnaire online to build a pathway-to-impact map, you must complete and submit the map to save it to the portal (and to download / print as a PDF file, if you choose). At this time, we do no't offer the option of saving and returning later to complete.

- **Share and inspire others** - Pathway-to-impact maps will be quickly reviewed for relevance/appropriateness by the IFSS Portal research team, and then will be published on solution profile page(s) directly in order to share ideas and inspire others to move towards action in their settings.

- **Your opinion matters!** We are excited to learn how it works for you and how we can improve it (and accompanying materials) going forward - reach out with any questions and/or send us feedback at **IFSSportal@gainhealth.org**

Pathway-to-impact map builder questionnaire

1 **Getting started**

Choose the solution you would like to build a pathway for <u>OR</u> you can use this tool to build a pathway-to-impact map for a solution that is not yet on the portal

*Please refer to the online tool for the drop-down menu of solutions OR see the full list at the end of this worksheet in Annex 1

SOLUTION NAME

[ ]

TELL US WHO YOU ARE

1. **Your name** (first and last)

[ ]

2. **Name of your organisation**

[ ]

What do you want to appear on the pathway? *Please select at least one option*
   ▢ Your name   ▢ Your organisation

3. **E-mail address** - *This is so that the IFSS Portal research team can follow up in case of questions*

[ ]

Do you want to publish your email address on the pathway-to-impact map on the IFSS portal?
   ▢ No   ▢ Yes

TELL US MORE ABOUT THE SOLUTION

1. **Location** - *Indicate the country you are building this pathway for*

[ ]

2. **Context** - *Please provide some information on the context for this pathway, for example "rural semi-arid region" or "urban coastal area" or "deep-sea marine environment" (Max. 5 words)*

3. **Current solution readiness** (maturity status) - *Please select one of the following to indicate how mature this solution is in the country/context you are building a pathway for*

☐ Idea   ☐ Prototype   ☐ Gaining traction   ☐ Moving to scale   ☐ Mainstream

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② Visioning

Imagine it is 2030 and this innovative solution is effectively used in your setting...

It has had a major positive impact in making affordable, safe and nutritious foods available in an environmentally sustainable way, helping to meet the 2030 Sustainable Development Goals (SDGs) for both human dietary and planetary health.

Keep in mind that it does not have to be used everywhere in your setting, but focus on how and where it may have the most positive impact. We encourage you to think of this innovation as part of a larger strategy for addressing these critical sustainable Development Goals (UN SDGs) in your setting. Don't worry - for the moment - about barriers, challenges or limitations as we will ask you to address this in later questions.

1. **"So What?!" -** *In 10-15 words please give a subtitle for the major impact you envision this solution having in 2030. For example, for the solution "hydroponics", a "so what" subtitle could be "increasing urban food production and access to fresh produce while lowering transport costs and pollution".*

2. Vision statement: what does "major positive impact" of this solution look like in 2030?

Describe and explain how this solution would be used in your setting by 2030 to change business as usual.
(Max. 45 words)

List the groups/individuals that will benefit from this solution as described in your vision? *For example, urban farmers, youth, processing businesses, policy-makers* (Max. 15 words)

Describe the impact on dietary health (Max. 20 words)

Describe the impact on planetary health (Max. 20 words)

Describe the impact on improving equity (Max. 20 words)

3. Leapfrogging

Does this solution have a high potential to "leapfrog"? By this we mean the potential to by-pass linear or stepwise improvements such that by using this solution, the impact would be several generations ahead of current approaches? For example, mobile networks in some countries have leapfrogged the need to build landline networks, making connectivity for millions of people available much faster and in much less expensive ways than had they waited for landline phone/internet infrastructure.

▢ No ▢ Yes

IF YES - Describe the leapfrogging potential of the selected solution (Max. 15 words)

③ Pathway mapping

Now that you have envisioned this innovation as an effective game changer in your setting by 2030, work towards mapping out a pathway for how to get there

In this section, we ask you to identify key steps, as well as possible barriers along the way, with strategies to overcome those barriers if possible to identify and define at this time.

A few things to keep in mind when working with the ONLINE tool…

- Up to 20 elements can be included (steps / barriers+strategies) using the online tool. We have included only 5 in this worksheet to save paper if you're printing -- *PRINT OFF MORE WORKSHEET PAGES (7-8) TO INCLUDE MORE ELEMENTS if necessary.*

- When you're working with the online tool and you've completed drafting your pathway-to-impact map, you will have a chance to review what you've done and decide if you want to go back and modify anything (change the order of steps/barriers, add or remove something, etc) before saving and sharing your pathway to the portal solution page.

- At least 1 key step and 1 barrier/strategy are required in the online tool, beyond that it's optional to add more. As you add these elements, the pathway is constructed automatically in the online tool and you can see your map develop as you go and adjust if necessary before you submit and save it.

Pathway - Go ahead and begin building your pathway-to-impact!

What do you want to do?	Name this/these element(s)
▢ **Add a KEY STEP** *(15 words)*	
▢ **Add a BARRIER + STRATEGY to overcome a barrier** ➔ *Name the barrier (15 words)* ➔ *Name the strategy to overcome barrier (15 words)*	
▢ **Add a BARRIER / no STRATEGY** ➔ *Name barrier (15 words)* ➔ *Leave solution strategy as "to be determined / not sure about this yet (15 words)*	

What do you want to do now?	Name this/these element(s)
▫ **Add a KEY STEP** *(15 words)* ▫ **Add a BARRIER + STRATEGY to overcome a barrier** ➔ *Name the barrier (15 words)* ➔ *Name the strategy to overcome barrier (15 words)* ▫ **Add a BARRIER / no STRATEGY** ➔ *Name barrier (15 words)* ➔ *Leave solution strategy as "to be determined / not sure about this yet (15 words)*	

What do you want to do now?	Name this/these element(s)
▫ **Add a KEY STEP** *(15 words)* ▫ **Add a BARRIER + STRATEGY to overcome a barrier** ➔ *Name the barrier (15 words)* ➔ *Name the strategy to overcome barrier (15 words)* ▫ **Add a BARRIER / no STRATEGY** ➔ *Name barrier (15 words)* ➔ *Leave solution strategy as "to be determined / not sure about this yet (15 words)*	

What do you want to do now?	Name this/these element(s)
▢ **Add a KEY STEP** *(15 words)* ▢ **Add a BARRIER + STRATEGY to overcome a barrier** ➔ *Name the barrier (15 words)* ➔ *Name the strategy to overcome barrier (15 words)* ▢ **Add a BARRIER / no STRATEGY** ➔ *Name barrier (15 words)* ➔ *Leave solution strategy as "to be determined / not sure about this yet (15 words)*	

What do you want to do now?	Name this/these element(s)
▢ **Add a KEY STEP** *(15 words)* ▢ **Add a BARRIER + STRATEGY to overcome a barrier** ➔ *Name the barrier (15 words)* ➔ *Name the strategy to overcome barrier (15 words)* ▢ **Add a BARRIER / no STRATEGY** ➔ *Name barrier (15 words)* ➔ *Leave solution strategy as "to be determined / not sure about this yet (15 words)*	

PRINT OFF MORE WORKSHEET PAGES (7-8) TO INCLUDE MORE ELEMENTS if necessary

4 Solution Packages / Synergies and Essential Elements

Now that you have envisioned this innovation as an effective game changer in your setting by 2030, are there any other solutions that you think should be "bundled" or "packaged together" with this one, to help increase its potential for impact or likelihood for success?

1. **Solution packages / bundles -** *Do you want to add a bundle / package of synergistic solutions?*

    ▫ No   ▫ Yes

Yes - Describe the bundle / set / package of synergistic solutions that you envision working all together to help increase the potential impact on dietary and planetary health.

Select up to 10 solutions already included in the IFSS portal or use the option for "other" to include solutions not yet featured in the portal. *Please refer to the online tool for the drop-down menu of solutions OR see the full list of solutions at the end of this worksheet in Annex 1*

IFSS PORTAL SOLUTION NAMES (Max 10)

OTHER SOLUTION NAMES (Max 10)

2. Essential element(s) - *Select the essential elements (at least one) that are necessary to take into account.*

☐ **Building trust** - This element is about working towards a high-level consensus on what future food systems might look like and the outcomes they might produce. It articulates the need for trust in the ability of innovations to deliver benefit to society, particularly with respect to the processes that might be needed to effectively deal with intermittent problems or failure.

☐ **Changing policies and regulations** - This element refers to fulfilling policy and regulatory support for innovations—whether for the innovator (for example, ensuring that health and safety standards for a technology are in place, are appropriate, and are enforceable), the consumer (for example, clear labelling), or other food system actors.

☐ **Designing market incentives** - This element recognizes that there could be very large start-up costs and risks associated with deploying new innovations at scale, and that these costs and risks might need to be spread well beyond the innovators themselves, and that there is a public policy responsibility to ensure that new directions and opportunities are aligned to sustainability.

☐ **Enabling social license** - This element articulates that public trust in genuinely responsible innovation must be built and maintained for innovations to be adopted. It identifies that gaining public acceptance of innovation requires consideration of responsible innovation principles and extensive public dialogue.

☐ **Ensuring stable finance** - This element refers to the need for more steady and longer-term finance for innovations to drive transformational shifts.

☐ **Research data and evidence** - This element recognizes the need for adequate data collection to improve existing research and contribute new evidence to the ongoing public dialogue. It looks to science-based and evidence-driven models to effectively monitor all aspects of the food system.

☐ **Safeguarding against undesirable effects** - This element seeks to minimise the undesirable or negative indirect effects of innovations. It looks to policy and investment frameworks to harness the transformational potential of new innovations. This element has implications for the monitoring and analysis of the early stages of upscaling highly innovative approaches, as well as agreed-upon plans for taking corrective or redistributive action when necessary.

☐ **Transforming mindsets** - This element refers to the need for a learning mindset by the actors of the food system to embrace change in the food system. It recognises the deeply engrained cultural relationship that many people have with food and encourages transformation of the way that people think about food and the values that shape their choices.

☐ **Women and gender empowerment** - This element articulates the need for an effective agri-ecosystem that allows and promotes gender inclusiveness and does not leave vulnerable populations - specifically young girls and mothers - behind, but rather supports more equity in the development and adaptation of innovative food system practices.

☐ **Youth involvement** - This element refers to the need to more actively involve young people in all parts of food system transformations going forward. It recognizes that youth are the earth's future generation and the more they are included in designing, developing, testing and scaling up innovations, the more invested they become in driving positive changes in society across the food system.

☐ **Others** (list here below)

BEFORE YOU PUBLISH USING THE ONLINE BACKCATING TOOL...

- *Enter in the information from your worksheet above into the* Backcasting tool *here:*
https://ifssportal.nutritionconnect.org/moving-to-action/backcasting-tool/interactive-map-builder

- *Before you finalize and save your pathway map online, you can PREVIEW your work and if you would still like to make changes or adjust anything, return to step 3 (Pathway mapping) to add new elements, adjust the order of elements (drag up or down), or edit any text*

- *Finally, SUBMIT and save your pathway-to-impact and it will be published on the IFSS portal profile pages for the solution(s) you chose to work with*

- *Select DOWNLOAD to save and keep your pathway-to-impact map to print and/or share*

Our goal is to be as inclusive as possible with mapping pathways towards impact for solutions in specific contexts from around the world. The IFSS team submission review process is meant to confirm "fit" with the scope of the portal and help to ensure solution pathway maps are relevant. We will contact you over the next weeks if we have any questions and/or to confirm when it goes live on the portal.

Your feedback is valuable!

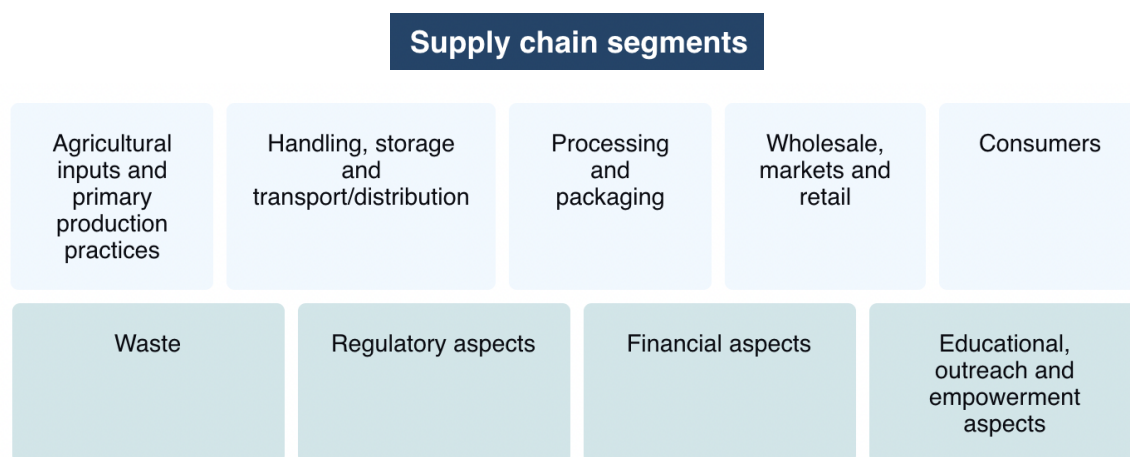This is a beta version of the *Backcasting tool* that we hope to improve.

Please let us know how you think we can make this more useful to you and your team - reach out with any questions and/or send us feedback at:

IFSSportal@gainhealth.org

ANNEX 1: INNOVATIVE SOLUTIONS LIST

Please refer here to the full list of innovative solutions included in the IFSS Portal database as of July 2021, organized by supply chain segment. To learn more about these solutions, please visit https://ifssportal.nutritionconnect.org/solutions/explore .

We actively encourage and invite new solution submissions as well as contributions of examples and additional resources to solutions already there! Check it out and please share your ideas and experiences with the portal community at https://ifssportal.nutritionconnect.org/solutions/submit-and-join .

Supply chain segments

Agricultural inputs and primary production practices	Handling, storage and transport/distribution	Processing and packaging	Wholesale, markets and retail	Consumers

Waste	Regulatory aspects	Financial aspects	Educational, outreach and empowerment aspects

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Agricultural inputs and primary production practices

    3D printed food
    Aeroponics
    Agroforestry for fruit production & soil health
    Algae-based animal feed
    Aquaponics
    Big data for disease and pest early warning
    Big data integration
    Cropping and harvesting robots
    Cultured Meat
    Dietary additives for livestock
    Drone - delivery of seed and inputs
    Drone pest management
    Duckweed

Farm-to-fork virtual marketplace
Farmlands for renewable energy production
Gas-based fermentation to produce proteins
High-intensity coastal aquaculture
High-tech greenhouses
Hydroponics
Insect protein for food sources
Insect-based animal feed
Integrated digital platform for livestock management
Integrated household poultry-vegetable farming
Intensive household gardening
Microalgae and cyanobacteria for food
Multi-target crop breeding for climate resilience & enhanced nutrition
Mushroom mycelia for protein
Nano-drones
Non-organismal soil supplements and additives
Novel nitrogen-fixing crops
On-field robots
Perennial Farming
Pest Control Robots
Precision agriculture
Precision fermentation
Promotion of native and orphan crops
Regenerative Agricultural Practices
Restorative Ocean Farming
Satellite Tracking of foreign vessels in local communities' waters
Seawater Greenhouses
Soil monitoring sensors
Solar powered irrigation pumps
Urban mushroom farming
Water desalination

Handling, storage and transport/distribution
Assistive exoskeletons for agricultural workers
Drone high-load delivery
Reusable crates and backhauling
Sensors for food safety assessment
SERS sensors for agricultural products
Solar powered cold chain
Traceability Technologies: Crops
Traceability Technologies: Livestock
Urban-Rural linkages and food logistics

Processing and packaging
  Edible films and coating
  High Pressure Processing
  Intelligent food packaging technology
  Plant-based biodegradable packaging
  Small-scale processing toolkits for nutritious foods
  Solar processing
  Synthetic biodegradable packaging

Wholesale, markets and retail
  Axfoundation Antibiotic Criteria
  Blockchain food system traceability
  Fresh Food Vending Machines
  Ghost Kitchens
  Local high-nutrient snacks
  Open source decision support tools for agricultural data
  Secondary Markets for Food Waste
  Street food innovations
  Upcycling food waste

Consumers
  Improved labeling and standards for environmental health
  Innovative approaches to breastfeeding promotion & support
  National well-being and environmental indicators in place of conventional (e.g., GDP) indicators
  Smartphone-based food diagnostics
  Urban youth engagement platform

Waste
  Digital food sharing initiatives
  Human waste recovery to utilize as fertilizer

Regulatory aspects
  Antibacterial LEDs
  Certification for regenerative agriculture
  Food policy councils
  Improved labeling and standards for nutrition
  Secure land tenure
  Strategic hazardous pesticide bans

Financial aspects

    AgTech incubator

    Blended financing for nutritious food

    Bundled crop insurance products

    Cereal Banks

    Expanded productive safety net

    Greenhouse Gas markets

    Sharing economy

    Universal basic income

Educational, outreach and empowerment aspects

    Dynamic integrated demonstration farms (non-digital education)

    Farm-to-Fork digital knowledge hub

    Integrated digital platform for women empowerment and financial inclusion in the food system

    Integrated Farmers Federation Support

    Integrated school education programs

    Interdisciplinary nutrition education programs

    Local agro-tourism

    Mother empowerment by distributing straightforward planetary health guidelines

    Nutrient-rich school meals

    Root-to-stem youth cooking classes