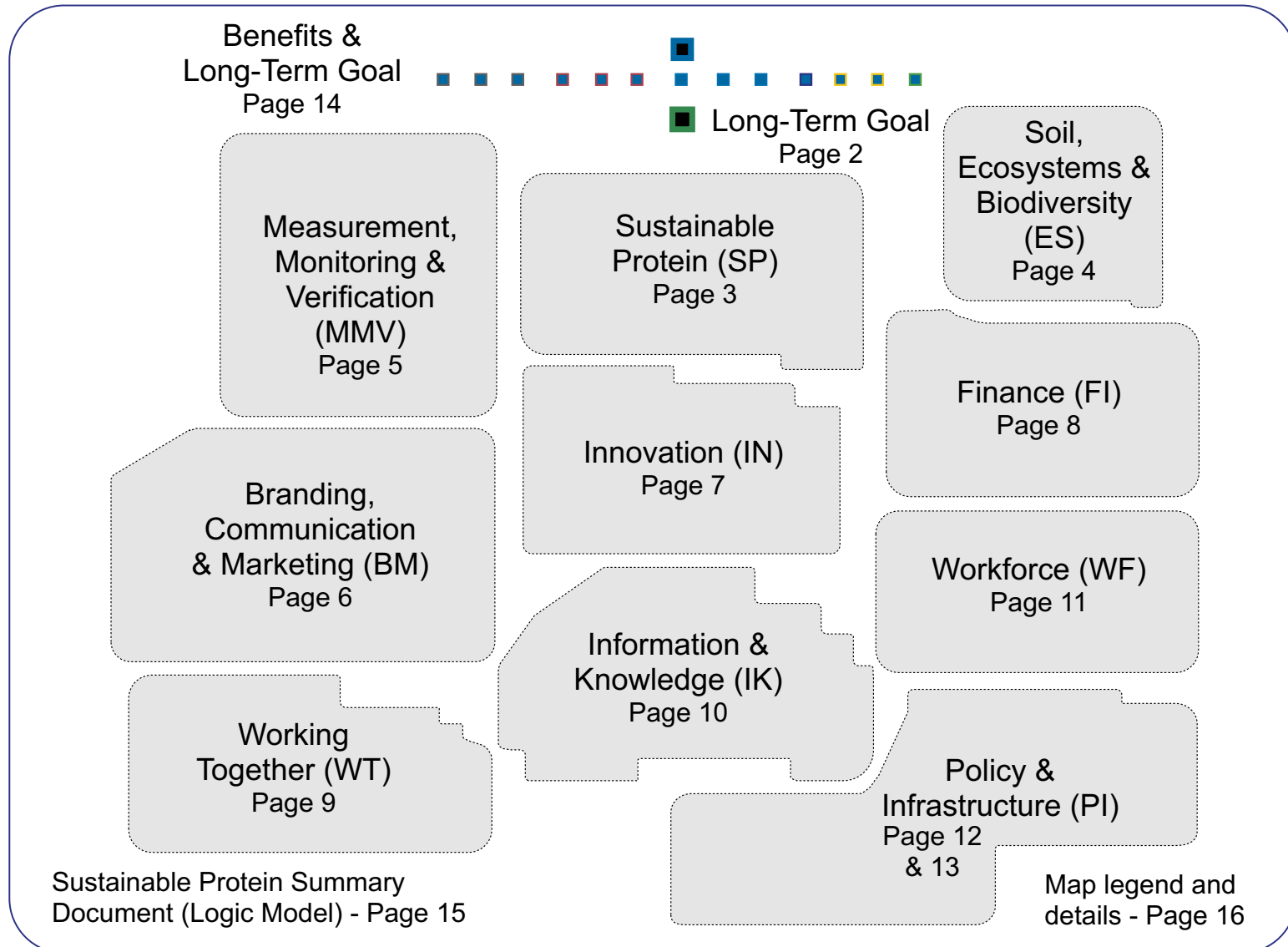


Sustainable Protein Impact Map: A Collaborative Action Framework

Accelerating Innovation to Realize Manitoba's Impact Potential

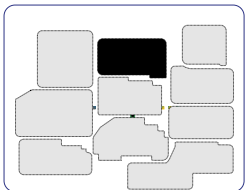
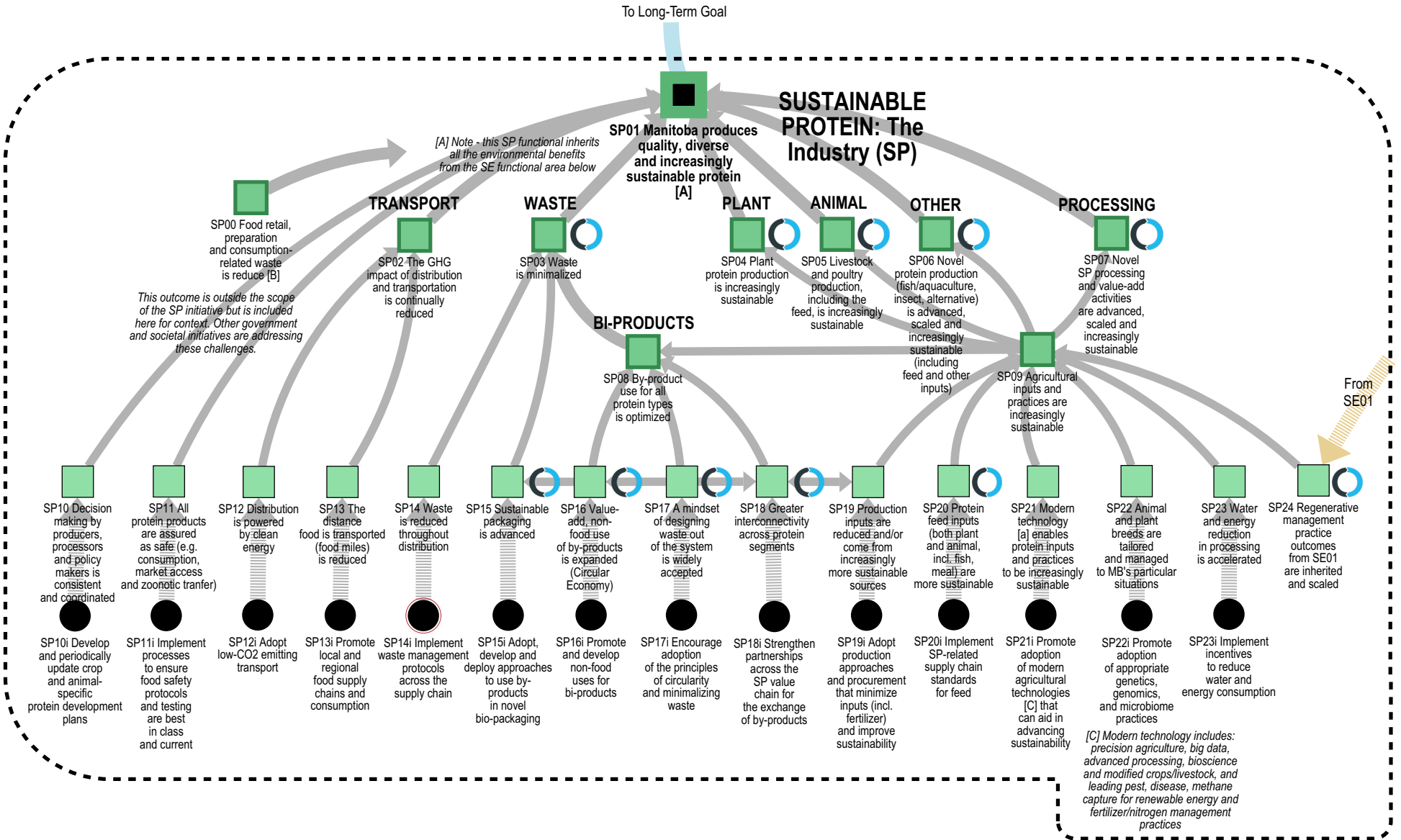
Compendium of Functional Areas



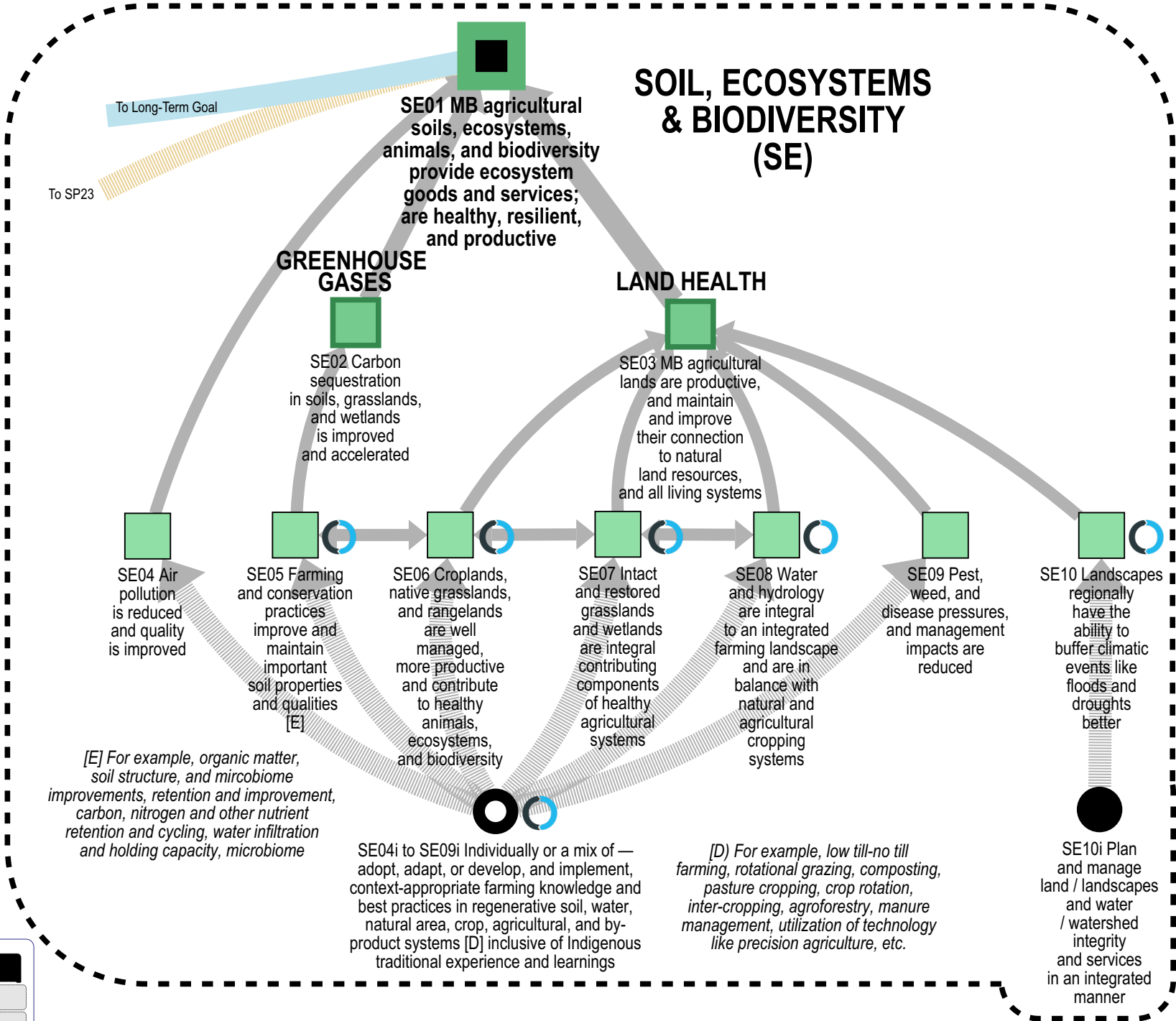
LONG-TERM GOAL



**LTG01 Through strengthened collaboration and accelerated innovation,
Manitoba realizes its collective and equitable potential to produce
protein that is diverse, high quality, healthy and increasingly
sustainable**



SOIL, ECOSYSTEMS & BIODIVERSITY (SE)



SE01 MB agricultural soils, ecosystems, animals, and biodiversity provide ecosystem goods and services; are healthy, resilient, and productive

GREENHOUSE GASES

SE02 Carbon sequestration in soils, grasslands, and wetlands is improved and accelerated

LAND HEALTH

SE03 MB agricultural lands are productive, and maintain and improve their connection to natural land resources, and all living systems

SE04 Air pollution is reduced and quality is improved

SE05 Farming and conservation practices improve and maintain important soil properties and qualities [E]

SE06 Croplands, native grasslands, and rangelands are well managed, more productive and contribute to healthy animals, ecosystems, and biodiversity

SE07 Intact and restored grasslands and wetlands are integral contributing components of healthy agricultural systems

SE08 Water and hydrology are integral to an integrated farming landscape and are in balance with natural and agricultural cropping systems

SE09 Pest, weed, and disease pressures, and management impacts are reduced

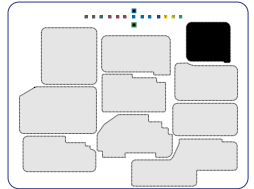
SE10 Landscapes regionally have the ability to buffer climatic events like floods and droughts better

[E] For example, organic matter, soil structure, and microbiome improvements, retention and improvement, carbon, nitrogen and other nutrient retention and cycling, water infiltration and holding capacity, microbiome

SE04i to SE09i Individually or a mix of — adopt, adapt, or develop, and implement, context-appropriate farming knowledge and best practices in regenerative soil, water, natural area, crop, agricultural, and by-product systems [D] inclusive of Indigenous traditional experience and learnings

[D] For example, low till-no till farming, rotational grazing, composting, pasture cropping, crop rotation, inter-cropping, agroforestry, manure management, utilization of technology like precision agriculture, etc.

SE10i Plan and manage land / landscapes and water / watershed integrity and services in an integrated manner



MEASUREMENT, MONITORING, AND VERIFICATION (MMV)

MMV01 MB and individual actors in the SP system measure, report, and value respectively their collective and individual sustainable protein activities and make adjustments accordingly

MMV02 COLLECTIVE: MB measures, reports, and values its collective sustainable protein activities, including this impact map, and makes adjustments accordingly

MMV03 INDIVIDUAL: Individual actors have robust sustainability data which they use to manage operations and communicate to markets

PERFORMANCE INDEX

MMV04 A simple but powerful SP PERFORMANCE INDEX measures and reports on the overall state and performance of the sector

BASELINE / BENCHMARKS

MMV05 MB establishes baseline data and benchmarks on which to measure improvements and performance against other jurisdictions

MMV06 Individual actors measure, monitor, verify and communicate the sustainability actions relevant to them

MMV20 Performance measurement of MB's SP strategy implementation (this framework)

MMV20i Measure and track progress and impact of the interventions and outcomes in this framework

MMV21 Core overarching SP metrics that are indicative of sustainability performance are defined, with an emphasis on ease of measurement

MMV21i Assess, modify and adopt core overarching SP metrics on which to measure and communicate action

MMV22 The states of the nitrogen cycle and other "hallmark" indicators are tracked and interpreted

MMV22i Measure and track performance of key "hallmark" indicators

MMV23 Support systems to manage MMV processes and data are transparent and traceable

MMV23i Implement blockchain transaction systems throughout the supply chain

MMV07 A robust, consistent and trusted approach to SP performance accounting is operational

MMV08i to MMV11i Assess, adopt, deploy (and integrate where appropriate) leading MMV and reporting

MMV12i Assess need and potential for additional MMV protocols (e.g., Indigenous production certification)

ENVIRONMENT

MMV13 CHG & CARBON reductions and storage are defined and tracked

MMV14 BIODIVERSITY benefits are defined and tracked

MMV15 ECOSYSTEM GOODS & SERVICES, especially water quality and watershed management, are defined and tracked

MMV16 SOIL HEALTH indicators are defined and tracked

MMV17 ANIMAL WELFARE benefits are defined and tracked

MMV18 SOCIAL benefits are defined and tracked

MMV19 GOVERNANCE benefits are defined and tracked

SOCIAL

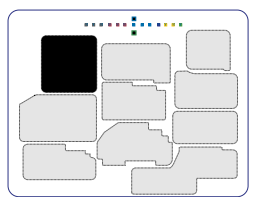
GOVERNANCE

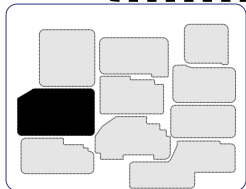
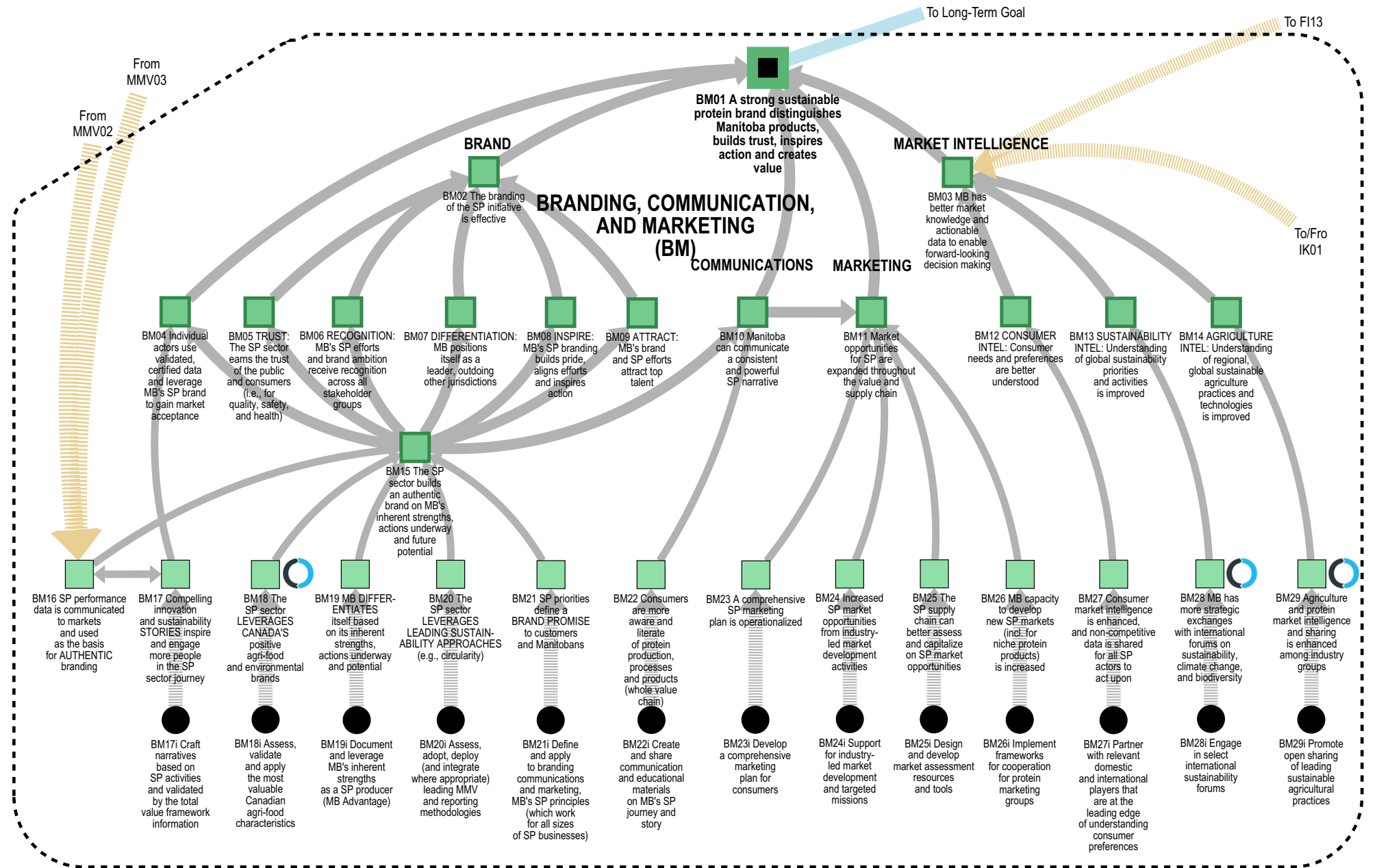
MMV13i to MMV19i Measure and track performance of key sustainability metrics, to be determined

This list of sustainability attributes will need to be assessed for applicability to MB

To BM16

To BM16





To Long-Term Goal

[F] Innovation is ideas, knowledge and technology applied to deliver a performance improvement. It is not just an idea, but an idea that has been made to work.

INNOVATION (IN)

IN01 Innovation [F] delivers more impactful SP activities and grows globally competitive innovative enterprises

IN02 MB continually improves its sustainability standing (as measured by the SP performance index - MMV03) and is viewed as a leading SP jurisdiction

RESOURCES

PARTNERSHIP

INNOVATION

ATTRACTION

IN03 SP businesses and initiatives have effective resources to help them grow, scale and deliver impact

IN04 More value-add, innovation-focused partnerships are developed

IN05 Innovative SP practices relevant to MB are adopted, adapted, and developed in a timely manner

IN06 Innovative SP technologies and businesses are attracted and developed

IN07 More ideas are tested, rapidly, demonstrated, and scaled-up

IN08 SP entrepreneurs and early adopters have the business support they need to succeed

IN09 More SP-focused businesses are advanced more quickly

IN10 More value-add SP partnerships with players outside MB are created

IN11 Idea and knowhow exchange is expanded and valuable cross-sectoral partnerships are established

IN12 Stronger and more trusting Indigenous partnerships focused on SP are created

IN13 Early adopted farm-level management practices are supported and rewarded

IN14 SP approaches and benefits are demonstrated and showcased at scale at living labs

IN15 More innovative potential solutions are uncovered, advanced and tested

IN16 MB is able to leverage best-in-class thinking (e.g., circularity) to accelerate SP innovation

IN17 Limited SP resources are focused on the important activities first (e.g., greatest leverage, critical path, etc.)

IN18 Entrepreneurs more readily advance SP activities

IN19 There is a more systematic approach to aligning and adopting prospective innovative SP solutions

IN20 More companies and other organizations are attracted to and engage with MB's SP research and innovation system

IN21 Government incentives (i.e. tax incentives) encourage development and adoption of novel SP approaches

IN08i Adapt and deploy mentoring and support programs focused on advancing SP ventures and activities

IN09i Optimize effective use of accelerator and incubator programs

IN10i Establish strategic SP partnerships with players outside MB

IN11i Develop networks and cross-sectoral partnerships in MB [G]

IN12i Build stronger Indigenous relationships focused on SP business opportunities

IN13i Legitimize innovative farm management practices

IN14i Design and support model SP pilot projects

IN15i Design and launch innovation challenge competitions

IN16i Identify, adopt and apply leading sustainability approaches and frameworks

IN17i Establish priority criteria, updated periodically, and apply them to set an innovation agenda

IN18i Establish support mechanisms to increase risk tolerance for advancing SP-specific initiatives

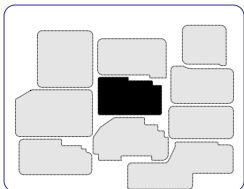
IN19i Implement a structured system to inbound value-add solutions to MB

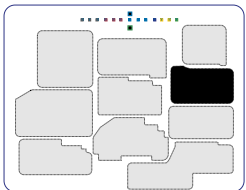
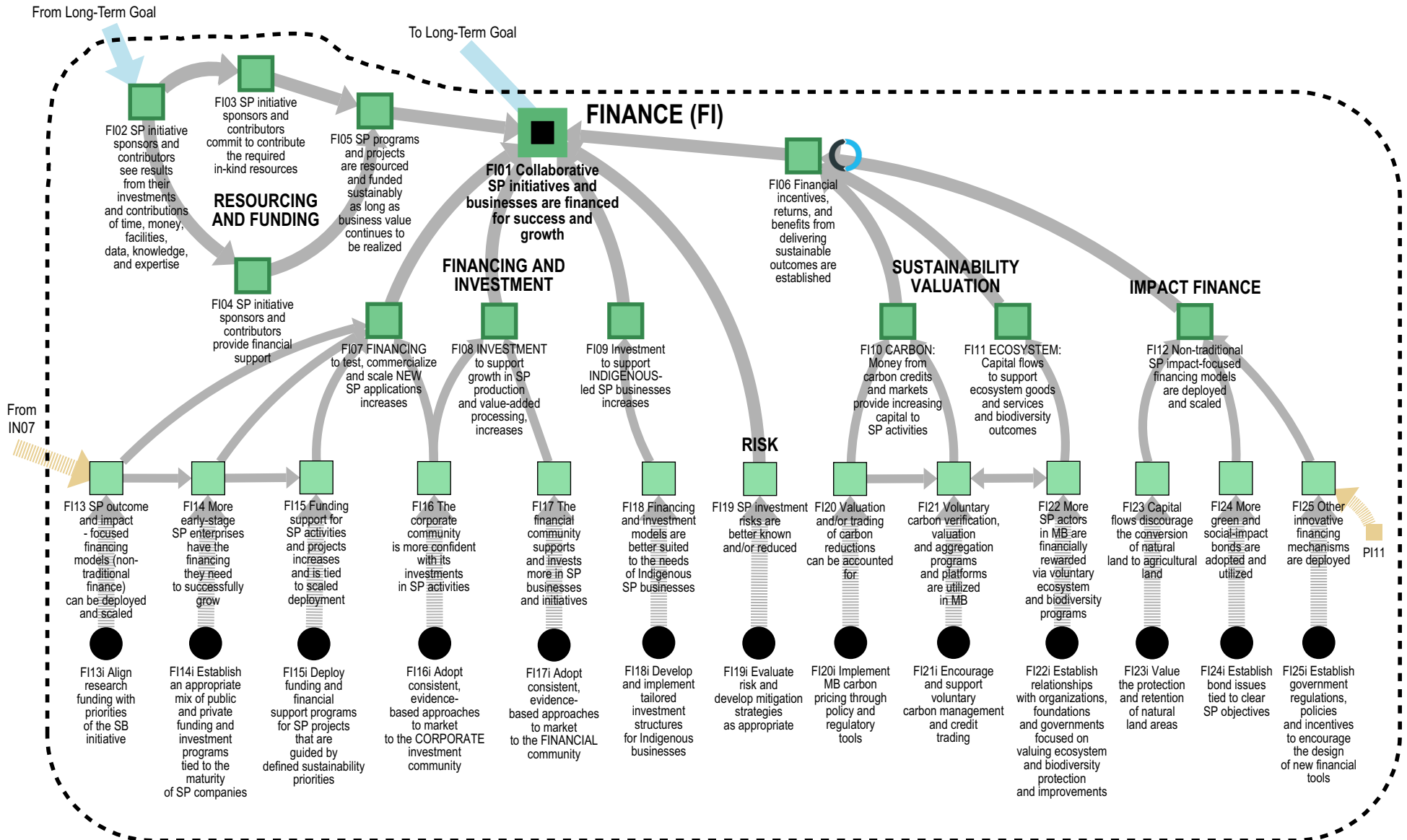
IN20i Strongly promote MB's research and innovation capabilities and assets

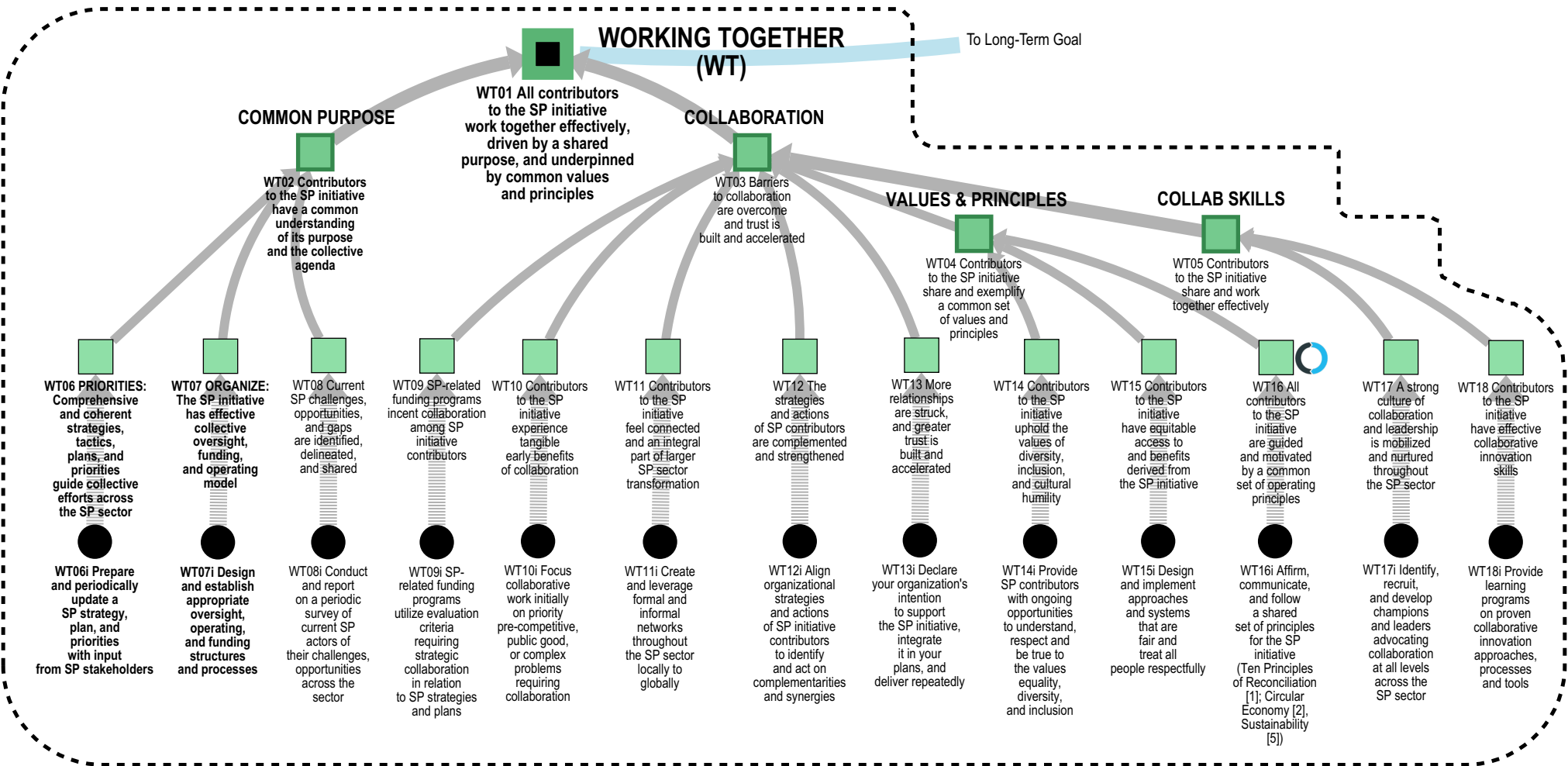
[G] For example between industry, governments, academia, industry and farm groups, innovation institutions

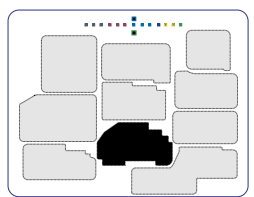
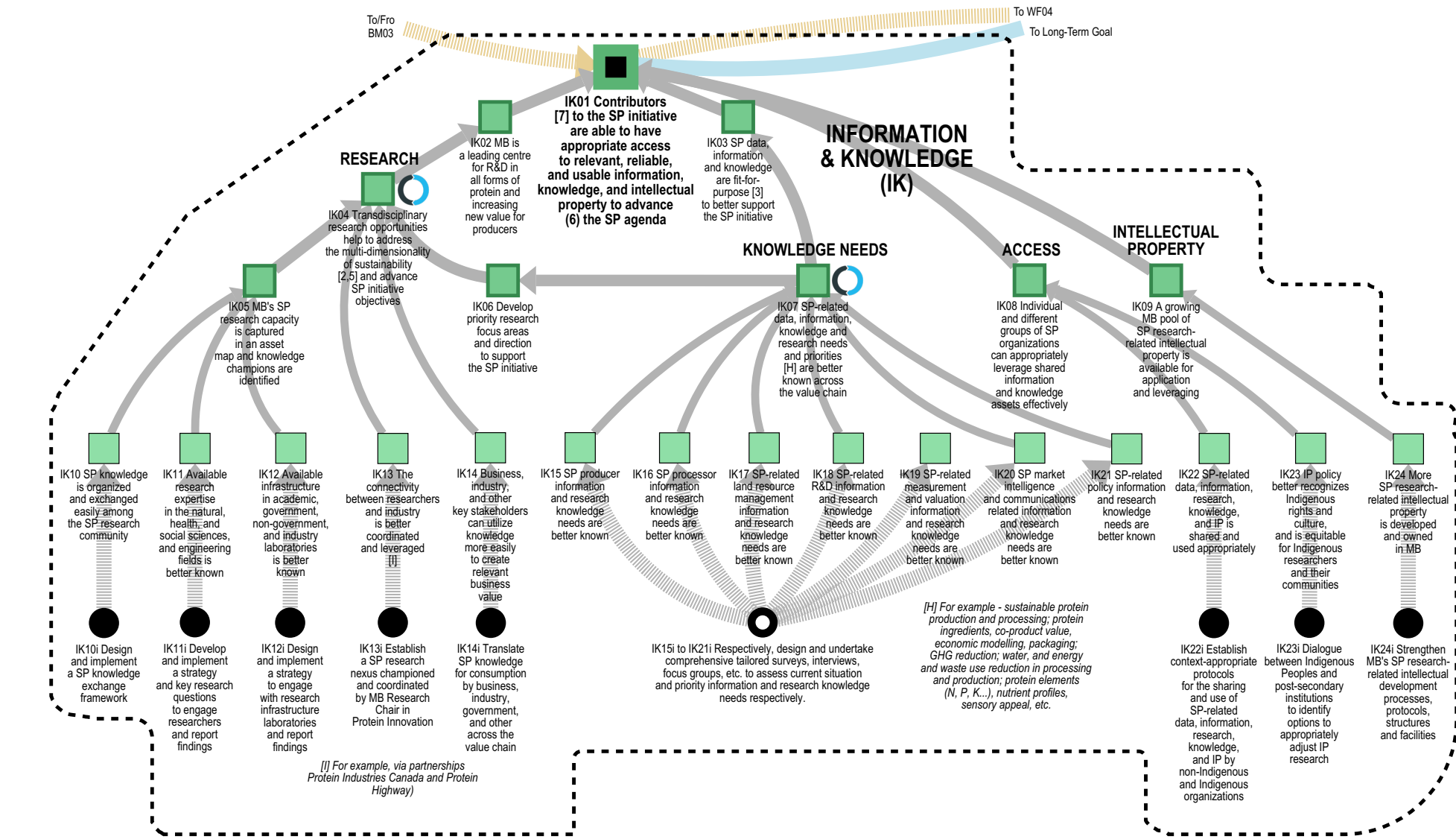
To/Fro FI13

From PI11

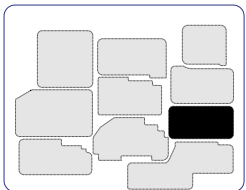
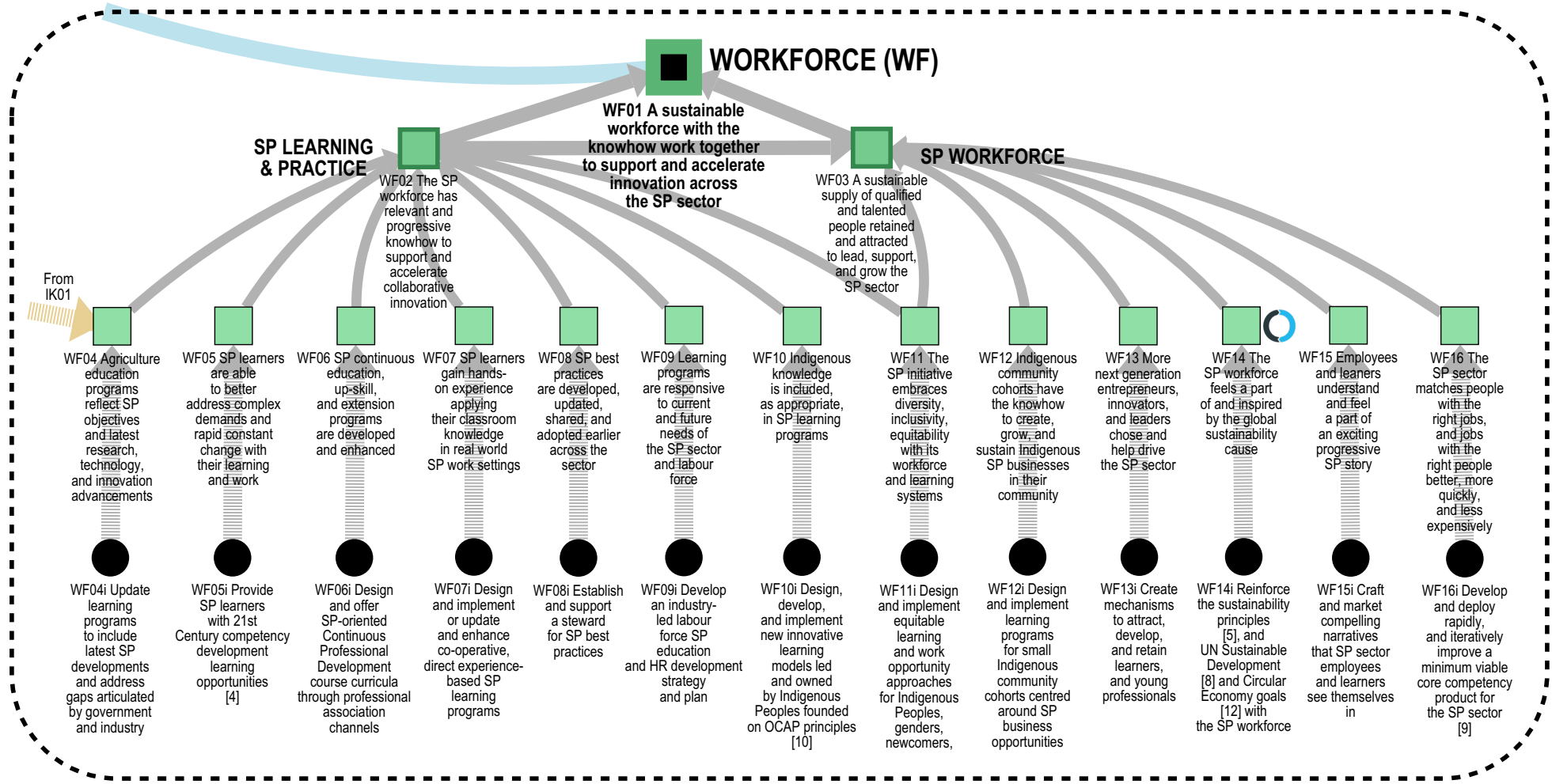


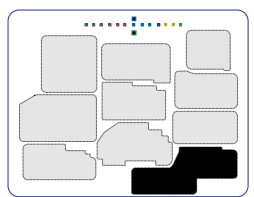
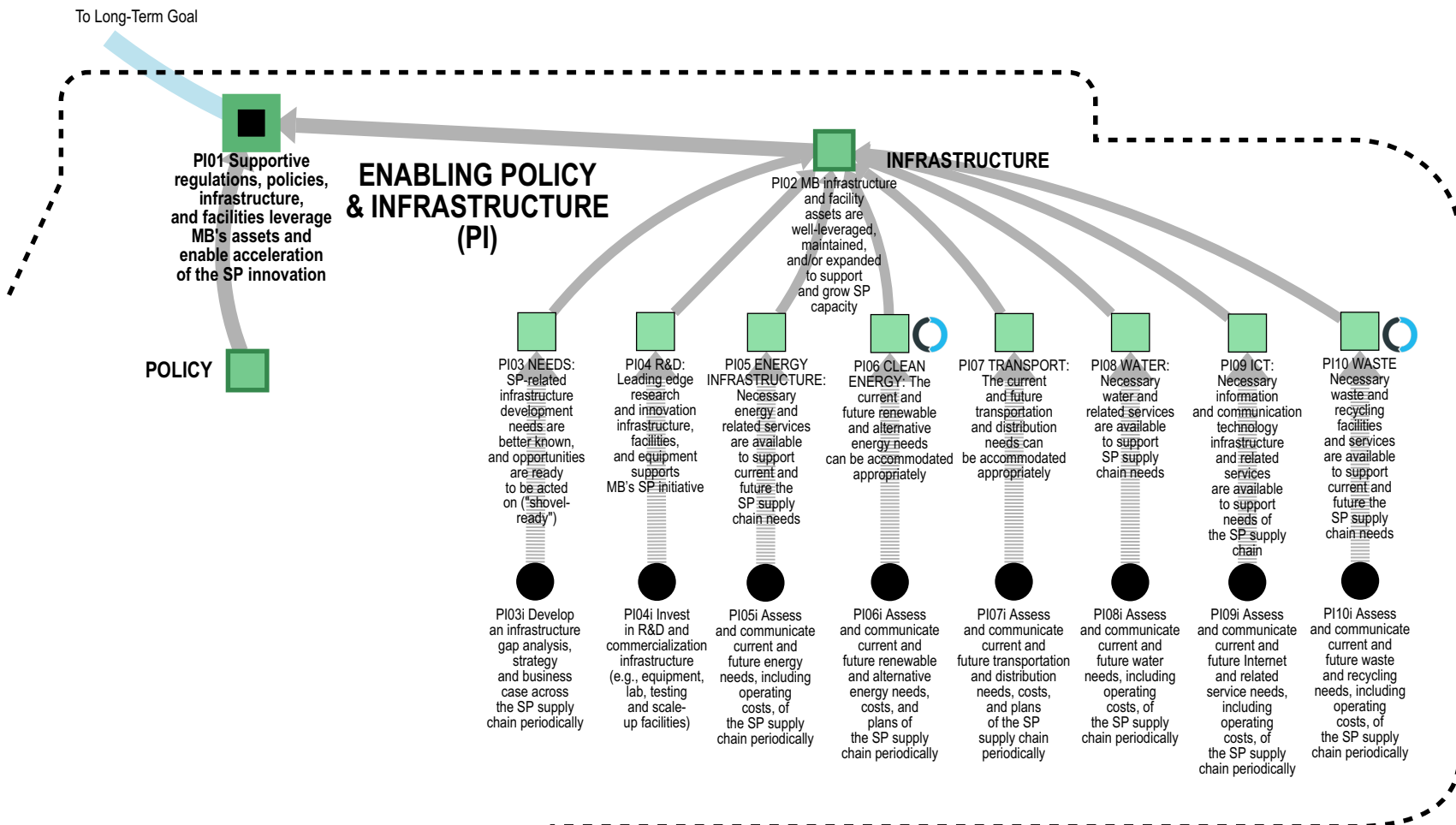


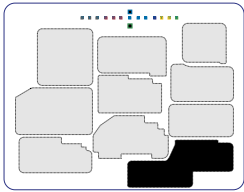




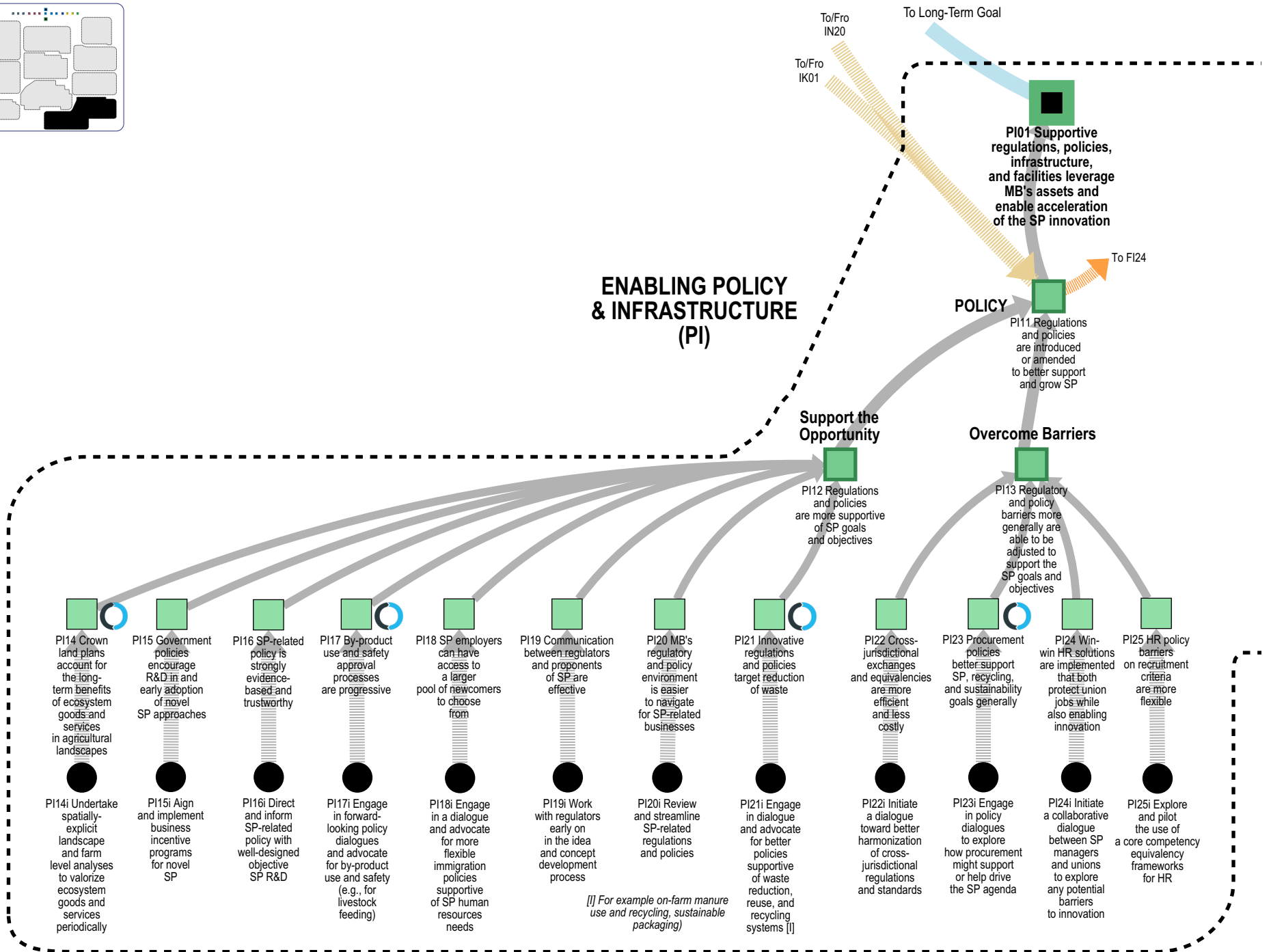
To Long-Term Goal







ENABLING POLICY & INFRASTRUCTURE (PI)



ULTIMATE BENEFIT



BE01 Manitoba proudly leads Canada and the world as an innovative model for high-value sustainable protein that nurtures and benefits all people, the local environment, and the climate

Penultimate Benefits

The Manitoba Brand



BE02 MB is regarded as a sustainability leader – in Canada and globally - and is a sustainable protein supplier of choice



BE03 Public knowledge of and trust in the agriculture and food sector is greater



BE04 MB contributes to UN Sustainable Development Goals



BE05 MB is globally competitive and secures new customers and markets



BE06 MB's economy grows with increased profitability, new business creation, and increased high-value direct and indirect jobs



BE07 MB attracts and secures new talent

Social



BE08 MB communities are more resilient and vibrant



BE09 MB's agriculture and food workplace is safe and healthier for employees



BE10 Reconciliation with Indigenous Peoples is advanced

Consumers



BE11 Consumers benefit from having a trusted and healthy food producer



BE12 GHG emissions are reduced and carbon sequestration is maximized



BE13 MB is better able to withstand water-related climate change impacts

Local Environment

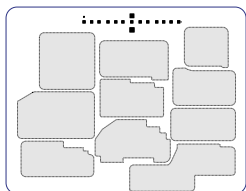


BE14 The local environment is strengthened with enhanced ecosystem services, improved biodiversity, improved water quality, and reduced waste

LONG-TERM GOAL



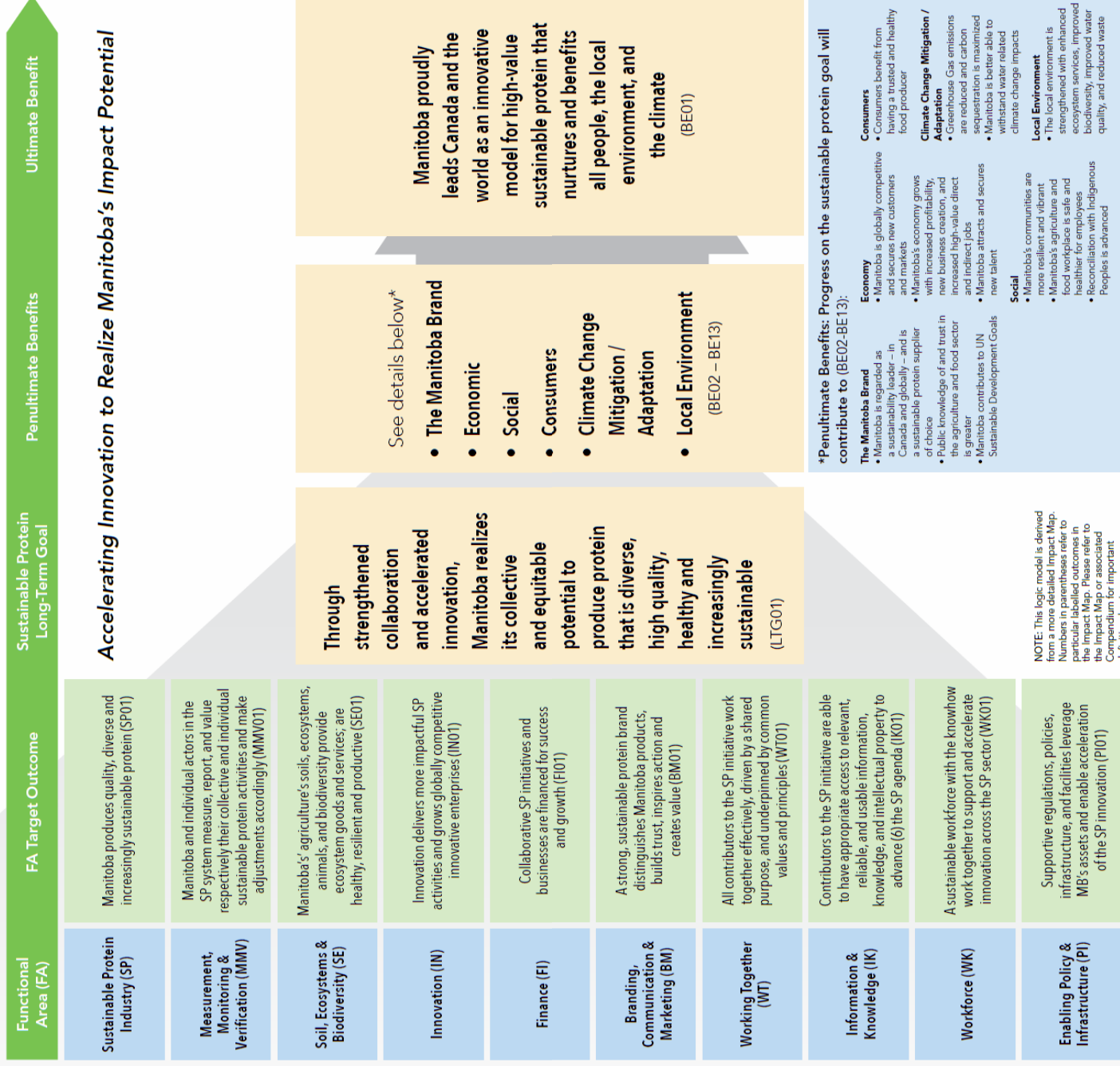
LTG01 Through strengthened collaboration and accelerated innovation, Manitoba realizes its collective and equitable potential to produce protein that is diverse, high quality, healthy and increasingly sustainable



SUSTAINABLE PROTEIN SUMMARY DOCUMENT

A COLLABORATIVE ACTION FRAMEWORK

INVEST.
BUILD.
GROW.
MANITOBA



Sustainable Protein Action Framework*

Developed as part of Manitoba's Sustainable Protein Advantage Strategy, under the guidance of Manitoba Agriculture and Resource Development and the Manitoba Protein Consortium. February 18, 2021 ver. (35.75 x 29")

Members of the Design Team

This Sustainable Action Framework was co-created through the generous contributions and guidance of a diverse Design Team:

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Robin Young - *Food Development Centre*

This Sustainable Protein Action Framework* has been developed as part of Manitoba's Sustainable Protein Strategy. Consulting led by

Sustainable Growth Co.
www.sustainablegrowth.ca

Outcome Mapping led by
R. Keith Jones & Associates

Challenge Dialogue System® (CDS)
www.challengedialoguesystem.net

*Collaborative Outcome Change Framework using *Theory of Change* methodology and *Kumu* online system mapping software

Legend



Ultimate benefit



Penultimate benefit



Penultimate benefit category
- e.g., Climate Change



Long-Term Goal



Longer-term outcome



Functional area outcome



Intermediate outcome



Early outcome



Intervention (activity, action, policy, program, initiative, etc.)



Group of related types of interventions



Causal connection intervention to outcome or between Functional Areas (orange)



Causal connection outcome to outcome, and to Long-Term Goal (blue)



Functional Areas



Accountability ceiling: limit of attribution and measurement



Outcome / outcome pathways aligned with Circular Economy principles

Preconditions

Important Definitional Notes

SP - Sustainable Protein (as in Initiative/ Sector / System including often the closely associated agriculture and food system / sector)

[1] Principles of Reconciliation as described in "What We Have Learned - Principles of Truth and Reconciliation (pp3-4), 2015. Truth and Reconciliation Commission of Canada.

[2] Circular Economy principles: A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

[3] Fit-for-purpose means tabular, spatial, meta and are forms of information and knowledge that are relevant, authoritative, complete, accurate, integratable, inoperable, and affordable.

[4] 21st Century competencies involve the ability to meet complex demands, thrive in a world where change is constant and continuous learning draws on many different complementary of skills such as: learning - critical thinking, creativity, collaboration, innovation, self-direction, accountability, and communication; literacy - digital information, media, technology; and life skills - flexibility and adaptability, leadership, initiative, productivity, and social skills and cross-cultural interaction.

[5] Sustainability strives to attain balance across four dimensions: (a) place minimal pressure and impact on the environment; (b) promote all aspects of an individuals health and well being; (c) be accessible and culturally acceptable; (d) be economically viable and affordable (source FAO, WHO).

[6] For example, to inform, advance, and communicate policies, practices, research, innovative enterprise, industry, marketing, measurement and valuation, consumers, and the public.

[7] For example, Indigenous People with traditional knowledge, scientists and researchers, analysts, marketers, practitioners, policy-makers, communicators, management-planners, etc.

[8] UN SDG goals, and in particular #4 - Quality Education; #5 - Gender Equality; #8 - Decent Work and Economic Growth; #10 - Reduced Inequalities; and #16 - Peace, Justice, and Strong Institutions.

[9] This intervention and outcome draw on the Conclusions - Other Considerations section of a 2017 report titled "Matchup: A Case for Pan-Canadian Competency Frameworks" by the Canada West Foundation.

[10] OCAP™ principles are complied with regarding the right of First Nations to own, control, access, and possess information about their Peoples.