

New Biotech Policy ***contributing to Bioeconomy***

Jun Koide

**Bioindustry division, Ministry of Economy, Trade
and Industry (METI), Japan**

Formulation of new biotech policy

～産官学による新たなバイオ戦略の策定に向けて～

● Japanese government planned formulating new national policy in Biotechnology field in 2017

Growth Strategy 2017 未来投資戦略2017

Assigned Biotech area as a key for contributing to Society5.0

Society5.0の実現に向け、官民一体となって取り組む戦略分野としてバイオ分野を位置づけ

○ Bio-material revolution

• The government will develop a cross-sectional database that aggregate biological resource data owned by public institutions etc., and build a real data platform for analysis by AI, etc.

Council on Economic and Fiscal Policy 経済財政諮問会議

Create innovation based on Strategic Innovative Program (SIP), a national R&D PJ.

産業界代表より、バイオ分野への研究開発投資の活性化が提言

【Create Innovation】
• The government will launch cross ministry strategic innovation program (SIP) including state-of-the art biotechnology, bioindustry, agriculture, tourism etc.

(H29.3.30)

Comprehensive Strategy on Science, Technology and Innovation 2017 科学技術イノベーション 総合戦略2017

Planned formulation of new biotech policy

産業創造と社会変革に向けた新たな価値創出の取組としてバイオ分野の“戦略”策定を決定

• We will promote to achieve health enhancement through food, non-disease society, and carbon circulation society with innovative biological materials through R&D and practical application.

【H29.6.2 閣議決定】

Working group for new biotech policy in Council for Science, Technology, and Innovation (CSTI), Cabinet Office (Four meetings were held in Dec, 2017 ~ Feb, 2018)

内閣府CSTI バイオ戦略WG(4回開催:2017年12月~2018年2月)

→ proposed interim summary of new biotech policy in June 13, 2018.

「バイオ戦略検討WG 検討の中間とりまとめ」を公表 [H30.6.13]

○Achieve health enhancement through food, non-disease society, and carbon circulation society with innovative biological materials through R&D and practical application of innovative biotechnology that is a fusion of biological and digital technologies.

Smart breeding technology leading to eco-friendly agriculture and global food supply

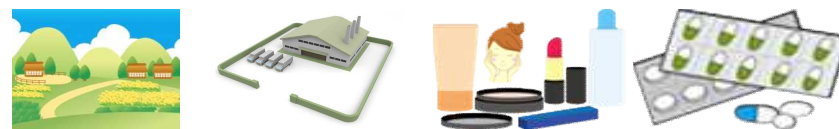
Biotechnology, AI, ICT



Smart Agriculture

農林水産業の革新
炭素循環型社会の実現

New functional materials development via smart cell contributes to job, market, and industry creation



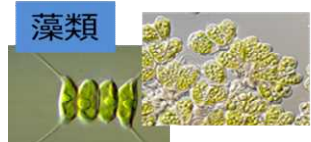
Sustainable growth

革新的新素材による成長社会
健康・未病社会の実現

Circular economy

Reduce oil-dependency via smart cell or bioprocess instead of petrochemical process

藻類



Bio jet fuels, etc

バイオとデジタルの融合

Long healthy life society

Food-based healthcare & medical care leading to long healthy life society



新たな産業・市場の創出

New industry/market

● Create bioeconomy via smart cell-driven innovation

Bio x AI/IT

バイオとデジタルの融合

Smart Agriculture

農林水産業の革新

Smart breeding technology leading to eco-friendly agriculture and global food supply

- Create **Smart Breeding system**, a cutting edge technology based on bio-big data and AI/IT contributing to address critical issues of current agriculture in Japan
- Contribute to eco-friendly agriculture, measure to climate change, and stable food supply worldwide by taking data-sharing and advanced technology

Biotechnology, A I, I C T



Sustainable growth

革新的新素材による成長社会

New functional materials development via smart cell contributes to job, market, and industry creation

- Create new market by developing new highly functional materials using “smart cell” of plant and microorganisms.
- Create job, market and industry in local areas based on high value products of local biological resources.

Smart sericulture



Innovative bio-materials



Bio x AI/IT

バイオとデジタルの融合

Circular economy

炭素循環型社会の実現

Reduce oil-dependency via smart cell or bioprocess instead of petrochemical process

- From Oil-dependent society to Biomass-dependent society: Promote **oil-independent manufacturing using biomass and smart-cell-based bioprocess.**



※ 画像は一般社団法人藻類産業創成コンソーシアムのウェブサイトより

Long healthy life

健康・未病社会の実現

Food-based healthcare & medical care leading to healthy life society

- Fulfill long healthy life society based on “world class medical care”.
- Create new healthcare industry using food and its ingredients for prevention of **endogenous disease** such as lifestyle-related disease (dementia and diabetes etc.).



- **Growth Strategy 2018 & Integrated Innovation Strategy 2018 published in last June indicate the importance of bioscience and biotechnology fields.**

「未来投資戦略2018」「統合イノベーション戦略2018」でバイオ分野の重要性が明示され、**新バイオ戦略を来年夏を目途に策定**と明示

Growth Strategy 2018

未来投資戦略2018

Bio-material revolution

promote to achieve health enhancement through food, non-disease society, and carbon circulation society with innovative biological materials through R&D and practical application of innovative biotechnology that is a fusion of biological and digital technologies.

Evaluation and display of functions of new materials contributing to circular economy

Create rules for genome editing available for bioindustries

Gain scientific knowledge for functional foods for food with health claim

(H30.6.15)

Integrated Innovation Strategy 2018

統合イノベーション戦略2018

Create Job, market, industry in agriculture, engineering, healthcare, medical fields

Propose new biotech policy in summer, 2019

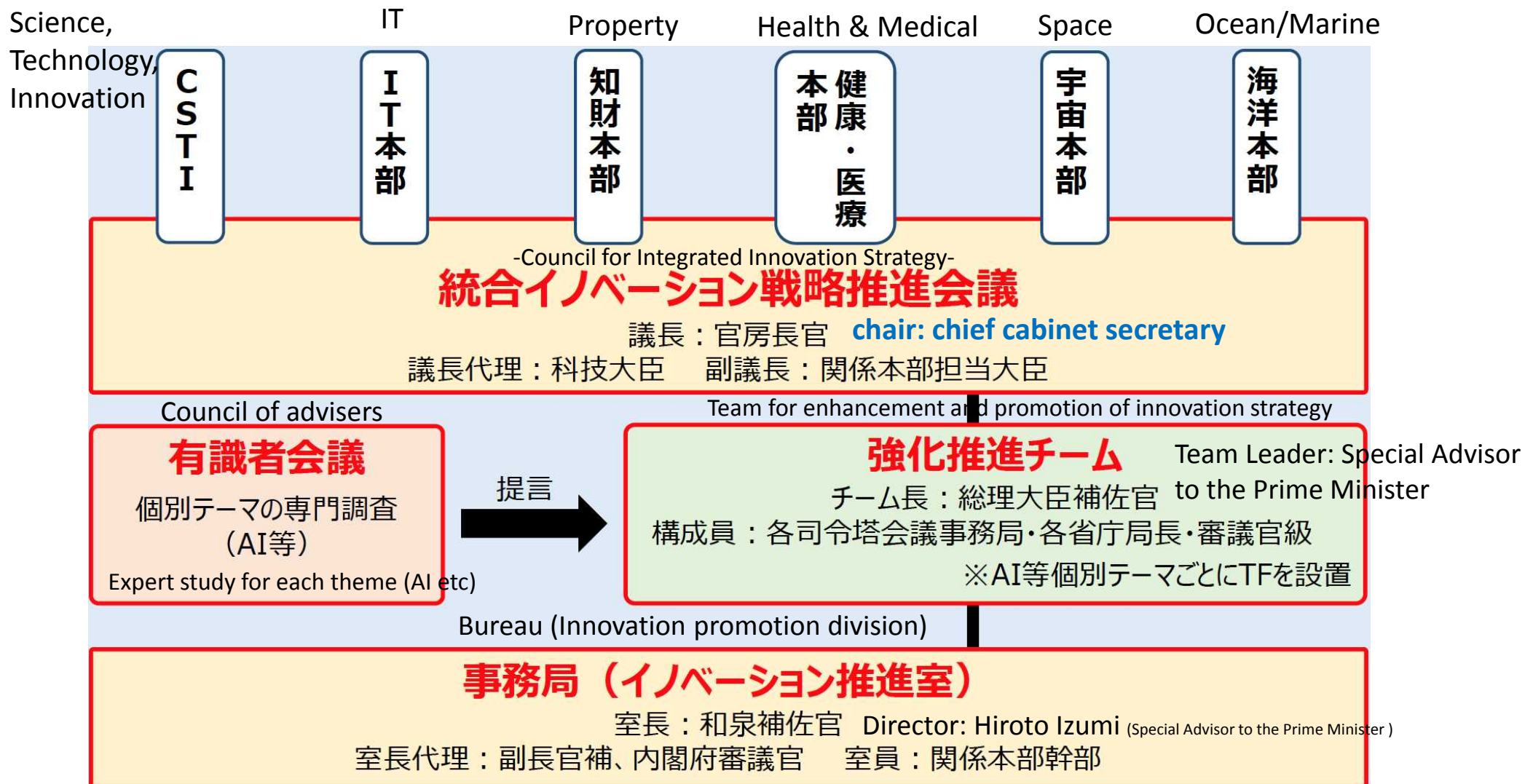
Use scientific evidence obtained by R&D for improvement of food with health claim and display of nutrition areas

(H30.6.15)

Establish **“Council for Integrated Innovation Strategy”** in July 2018

「統合イノベーション戦略推進会議」を設置（2018年7月）

- **“Council for Integrated Innovation Strategy”, a control tower for cross-cutting integration and coordination of different specified innovative fields, was established in last July.** 統合イノベーション戦略（平成30年6月15日閣議決定）に基づき、イノベーション関連の司令塔機能の強化を図る観点から、横断的かつ実質的な調整機能を構築。



Theme for enhancement –Council for Integrated Innovation Strategy-

| Theme of strategy | Contents |
|--|---|
| <p>Specified fields</p> <ul style="list-style-type: none">▪ AI Technology▪ Biotechnology▪ Safety & Security▪ Environment & Energy▪ Agriculture | <p>< Biotechnology ></p> <ul style="list-style-type: none">▪ Formulate a new biotechnology policy including both medical and non-medical fields by coming June or July in 2019. --- <i>Interim summary of the biotech did not include medical field.</i> <p>医療・非医療が一体となった新たなバイオ戦略の策定</p> |

○Background

- Biotechnology and bio-based raw materials are going to be utilized in all of the industries including chemical, food, agriculture, energy and environment, and medical.

BIOLOGIZATION!

- **EU, USA, and China have published “bioeconomy strategy”**
- Formulate a new biotechnology policy including both medical and non-medical fields by June 2019.



「The Bioeconomy to 2030」 (OECD)

- Predict the expansion of bioeconomy-related market (reach up to 1.6 trillion USD) in the world.

USA : National Bioeconomy Blueprint
EU : Innovation for Sustainable Growth: A Bioeconomy for Europe
China : 「Science technology innovation 2030」

○Major issues in past policies

- 産官学のコミットが継続せず -less continuous cooperation of academia, private and public sectors
- シーズ発の思考に偏重 -too much bottom-up thinking (seeds oriented consideration)
- 投資すべき対象、取るべき対応が総花的 -targets of actions and investment are broad and not focused

○Direction of new biotech policy

- 産官学がその推進にコミットする戦略の策定 -Academia, private, and public sectors involve the actions
- 新市場創出・海外市場獲得からのバックキャストとフォローアップ -market-oriented thinking & follow up the achievement
- 我が国の強みを活かした、目指すべき社会像・市場領域の設定 -propose the ideal society and targeted market