BLUEBIO ALLIANCE

20 Nov'17

ERA-MBT Final Conference: 'Oceans of opportunities'

PRODUCT INNOVATION & DIFFERENTIATION

RCN, Oslo, Norway

Helena Vieira, Executive Director BBA

CASCAIS

Tudo *começa nas* pessoas

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THE QUESTION

How can the actions stated in Marine Biotechnology Strategic Research & Innovation Roadmap (ERA_NET MB) be addressed in future marine biotechnology based R&D&I activities?

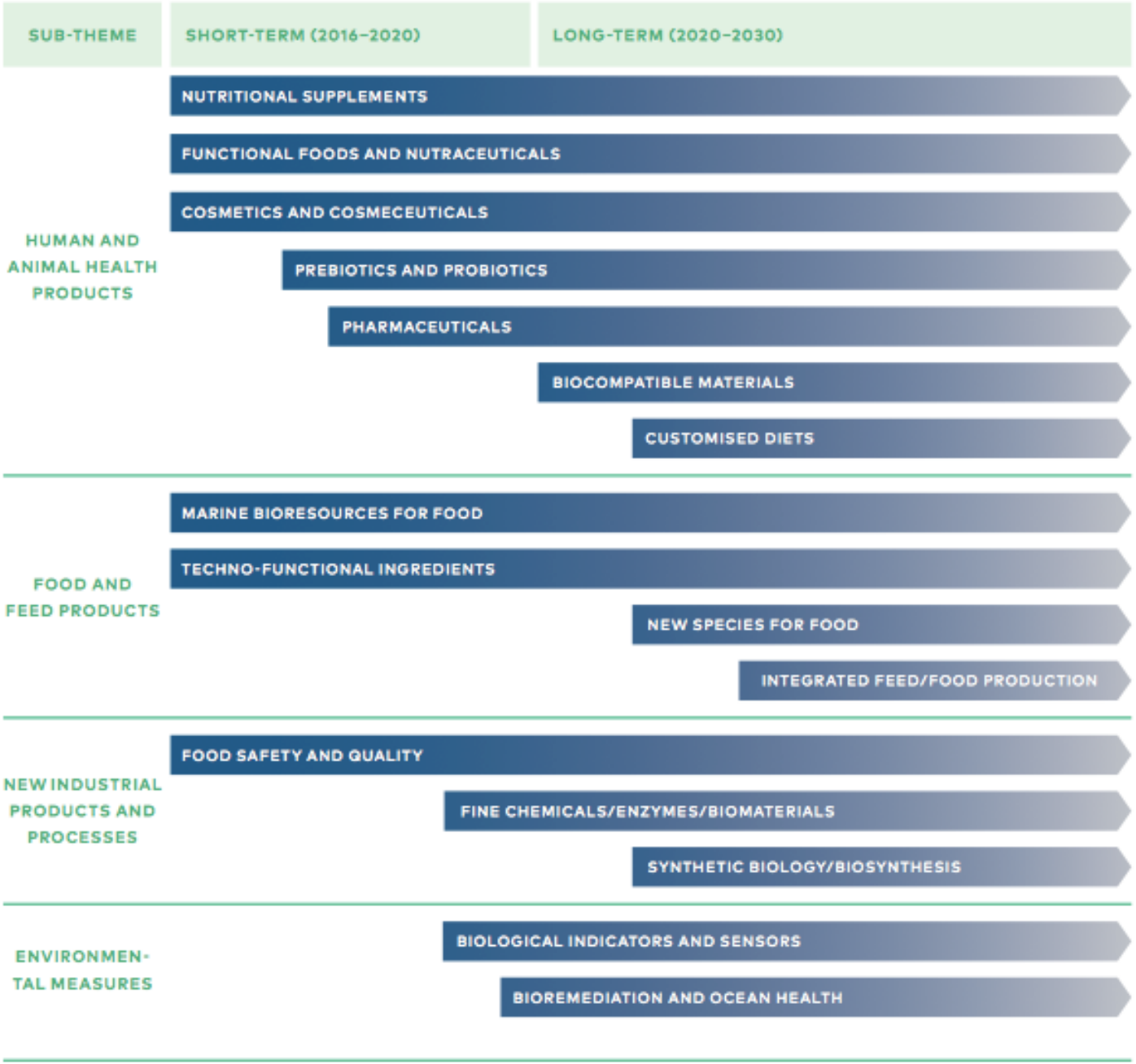

FIGURE 6 Product innovation and differentiation

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THE ANSWER

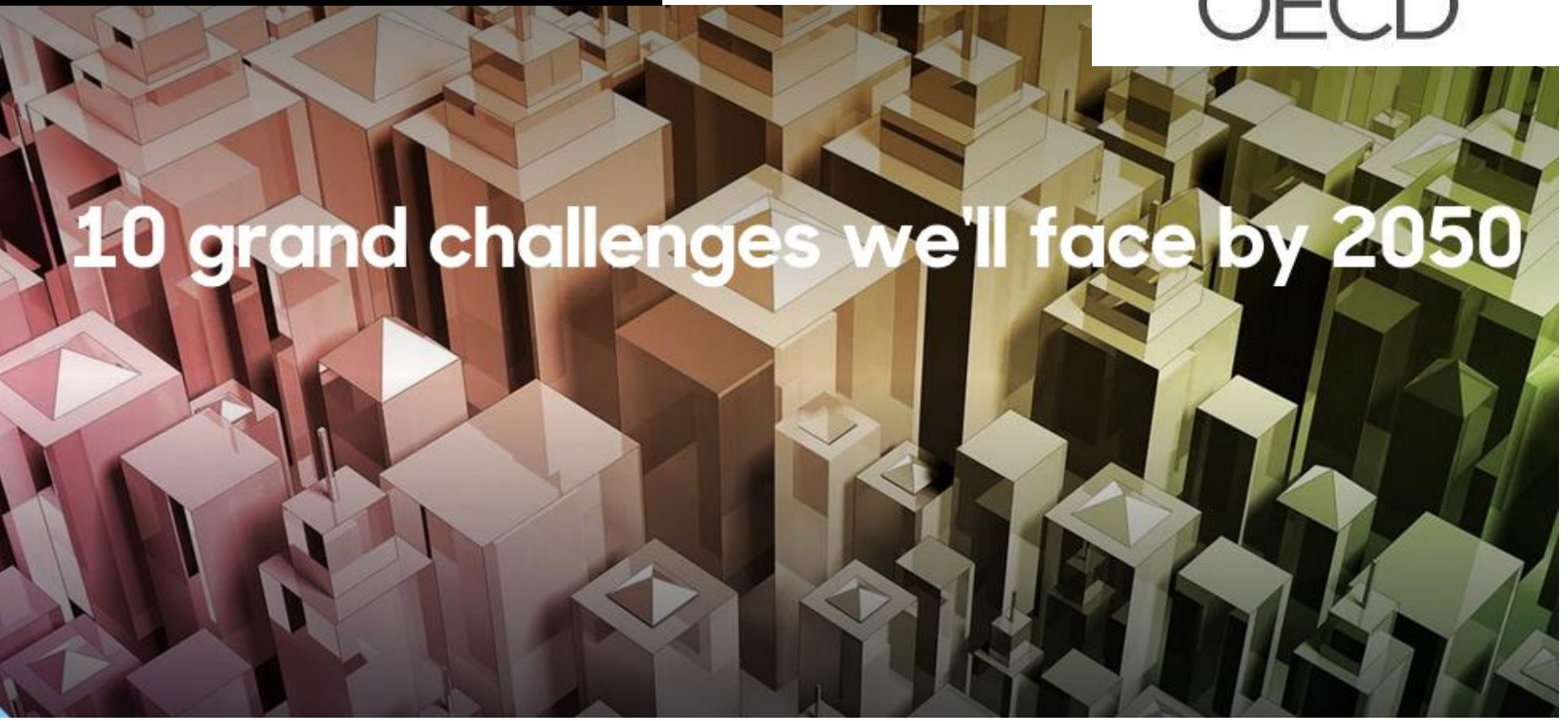
To think future marine biotechnology based R&D&I activities we must look at society biggest challenges and re-think how can we use the power within blue biotech to unlock novel solutions...

OUR CHANGING WORLD…

BBC | Sign in

futurenow

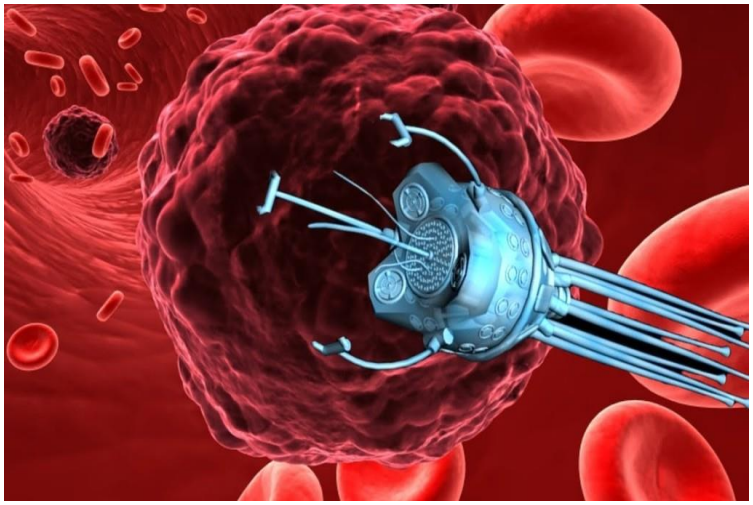
OECD

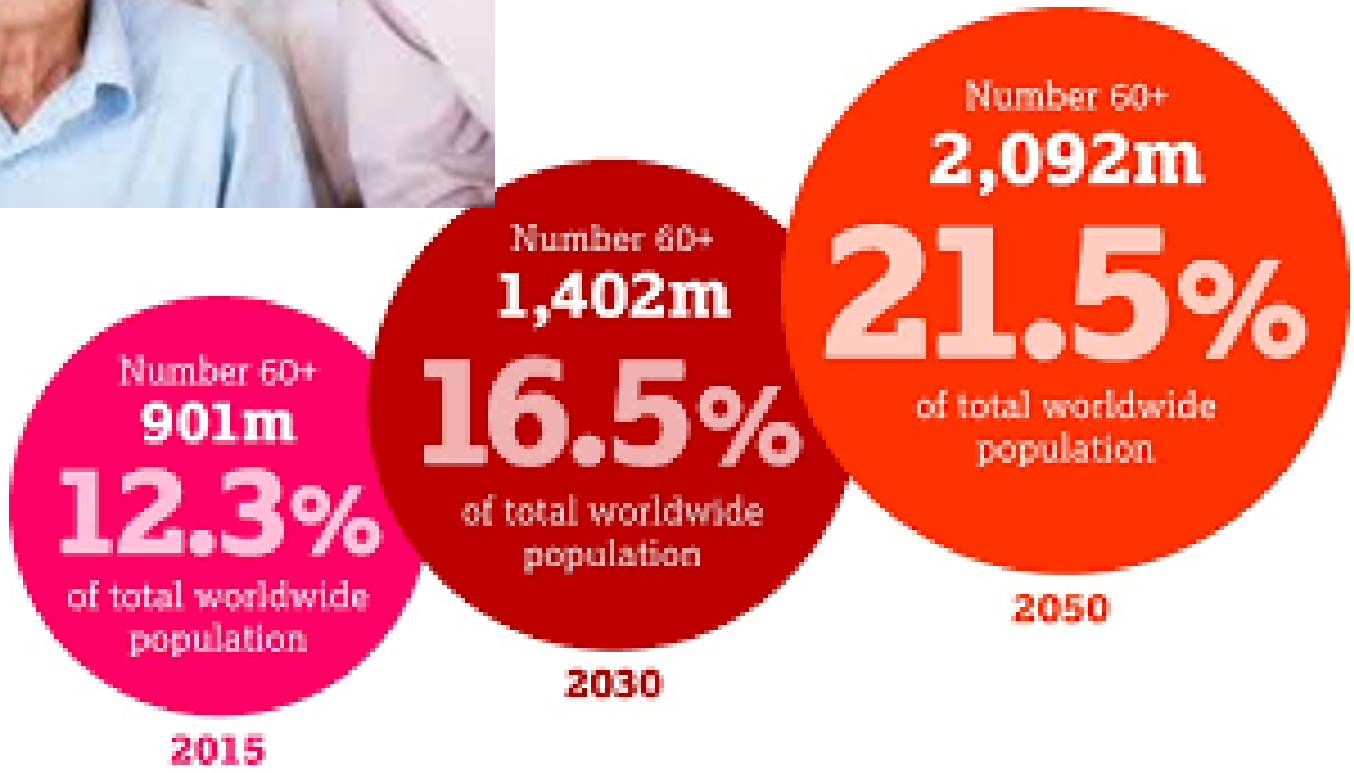


1. GROWING POPULATION

2. FOOD SUPPLY & SECURITY

3. AGING POPULATION & WELLBEING





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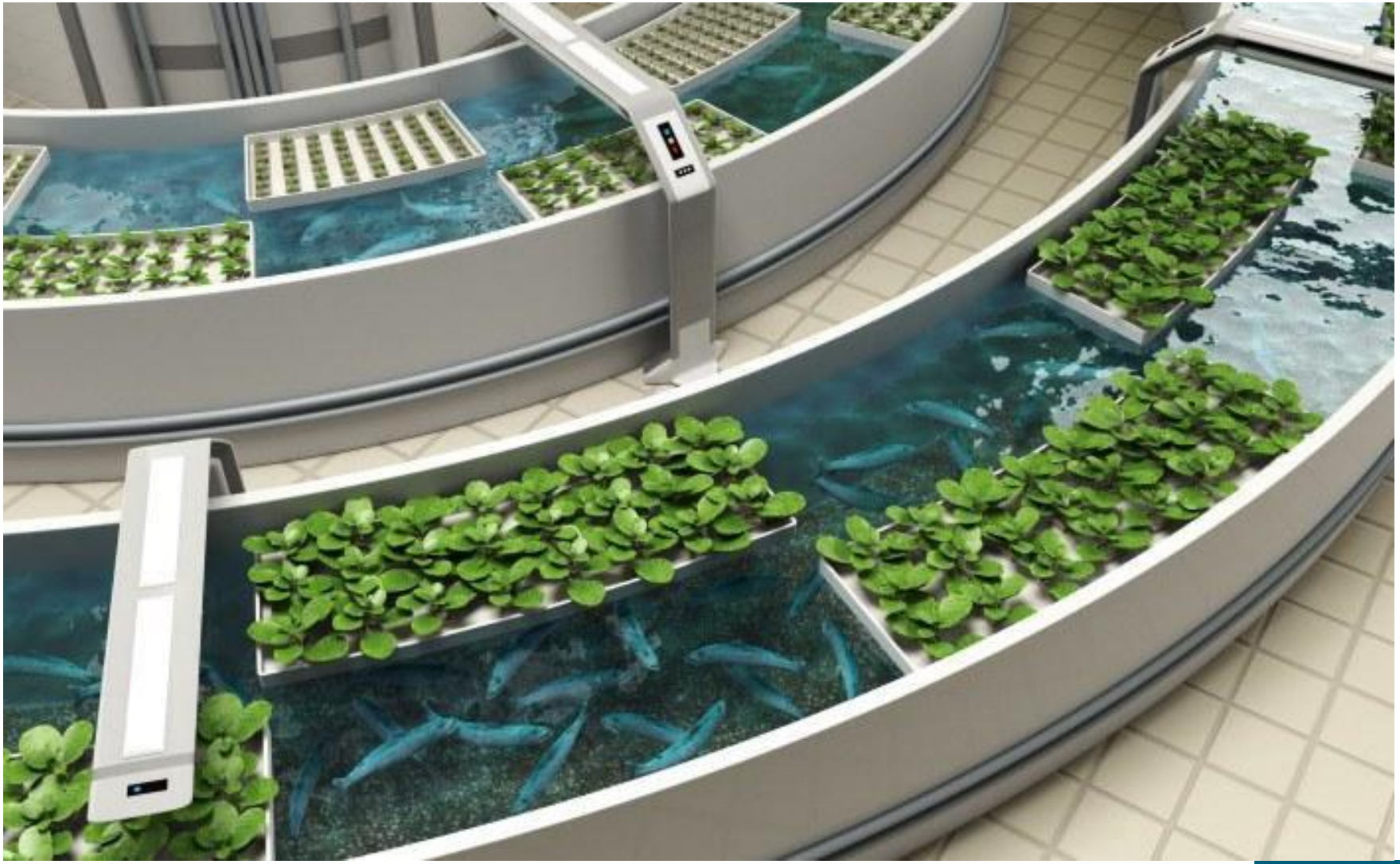
4. CLIMATE CHANGE

5. SCARCITY OF RESOURCES

6. SUSTAINABLE BLUE & GREEN ECONOMY



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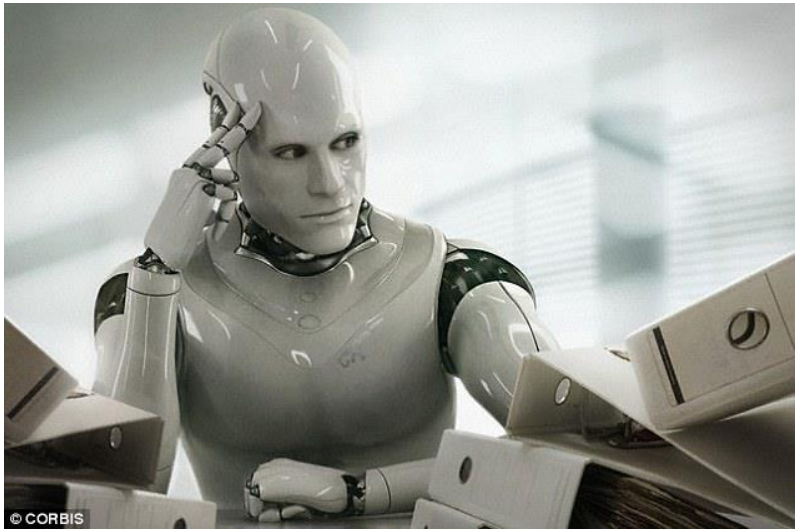
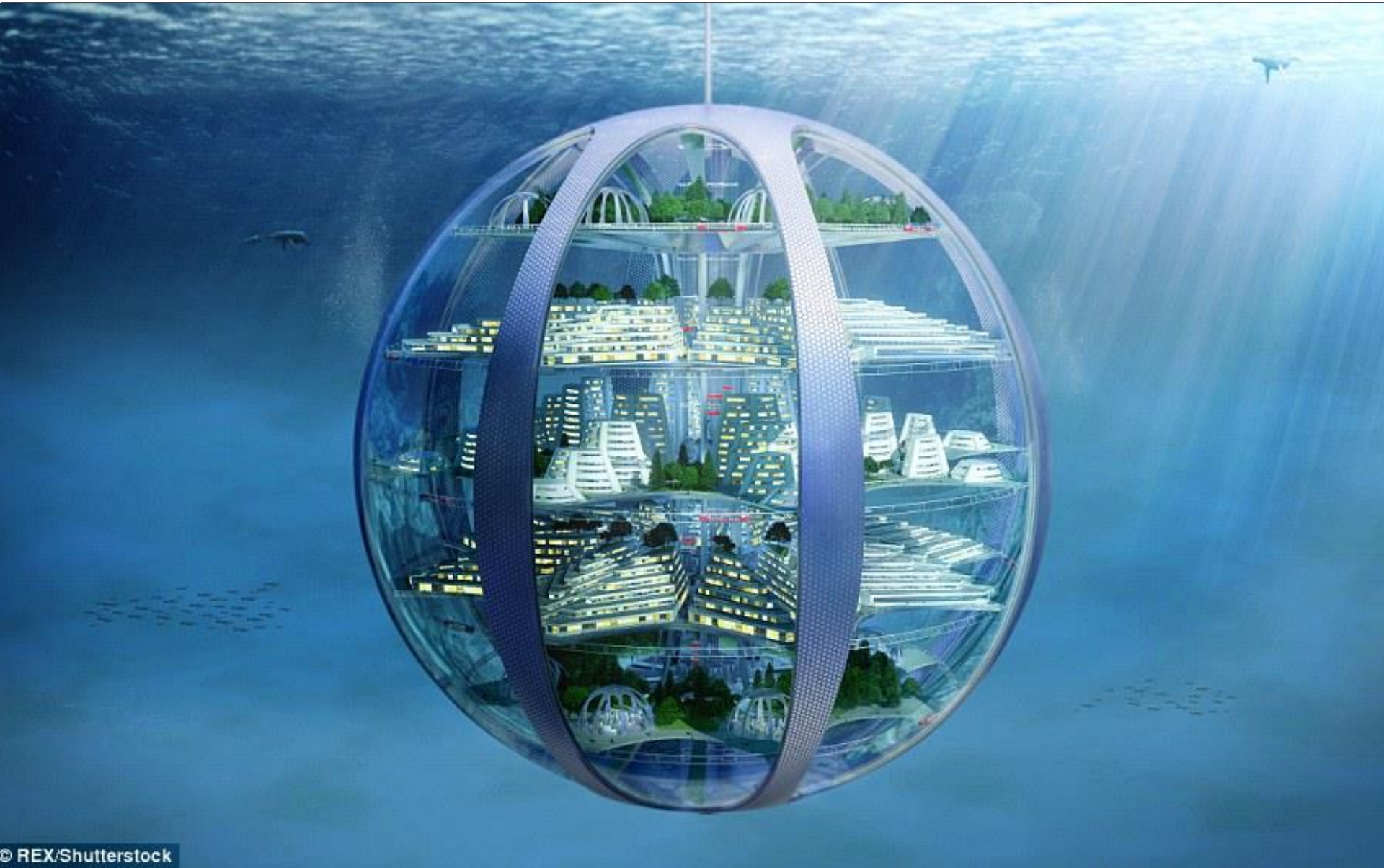
7. MOBILITY & TRANSPORTATION/ CLEAN ENERGY & EFFICIENCY

8. EVOLUTION OF TECHNOLOGY & AI



9. INNOVATIVE & INTEGRATIVE GLOBAL WORLD

10. NEW FRONTIERS

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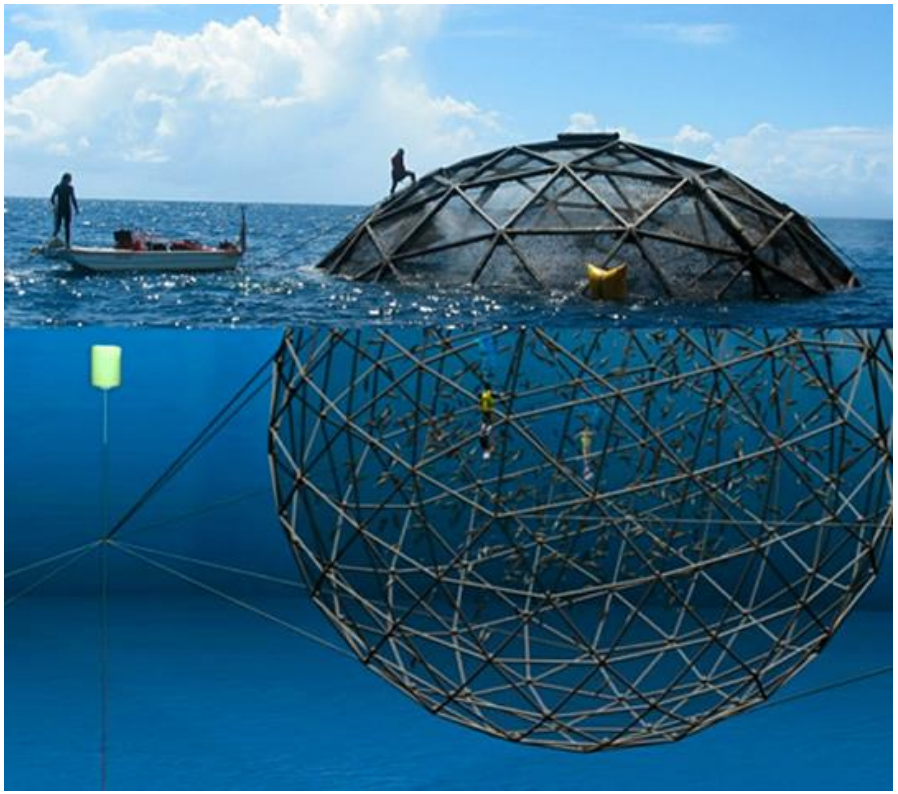
HOW CAN BLUE BIOTECHNOLOGY HELP AND BE PART OF THIS CHANGING WORLD?
IMAGINE... CREATE...EXECUTE....

1. GROWING POPULATION

- **NEW BLUE MATERIALS**
  - **Construction**
  - **Low impact/Circular**
  - **Sustainable**
  - **Textil & functional**

2. FOOD SUPPLY & SECURITY



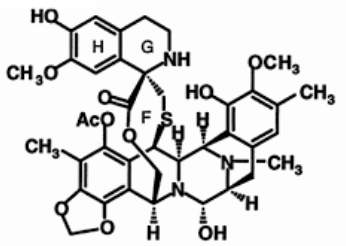
- FISH STOCKS MANAGEMENT
  - Add more value/kg
- AQUACULTURE/IMTA
  - Farm new species
  - Holistic farming
  - New feeds & proteins

2. FOOD SUPPLY & SECURITY

- NEW FOODS/NUTRITIONAL
  - Novel formats, species
- ZERO WASTE/BIOREFINERY
  - Add more value/Kg
  - Circular economy

3. AGING POPULATION & WELLBEING

- BIOPROSPECTION & BIODIVERSITY
- NOVEL BIOCOMPOUNDS
- NOVEL BLUE MEDICINES
- NOVEL THERAPIES
- NOVEL BIOMATERIALS FOR MEDICINE



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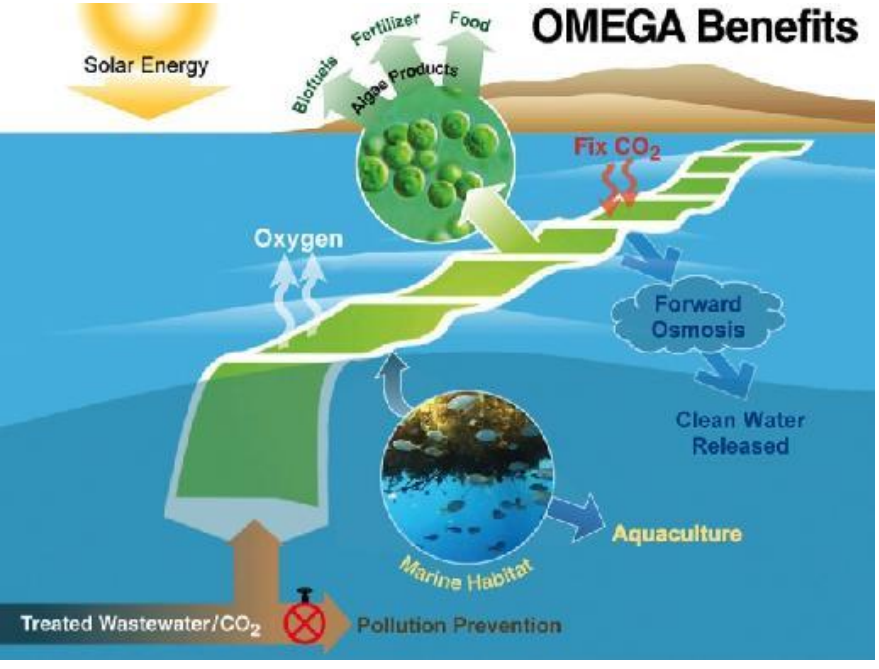
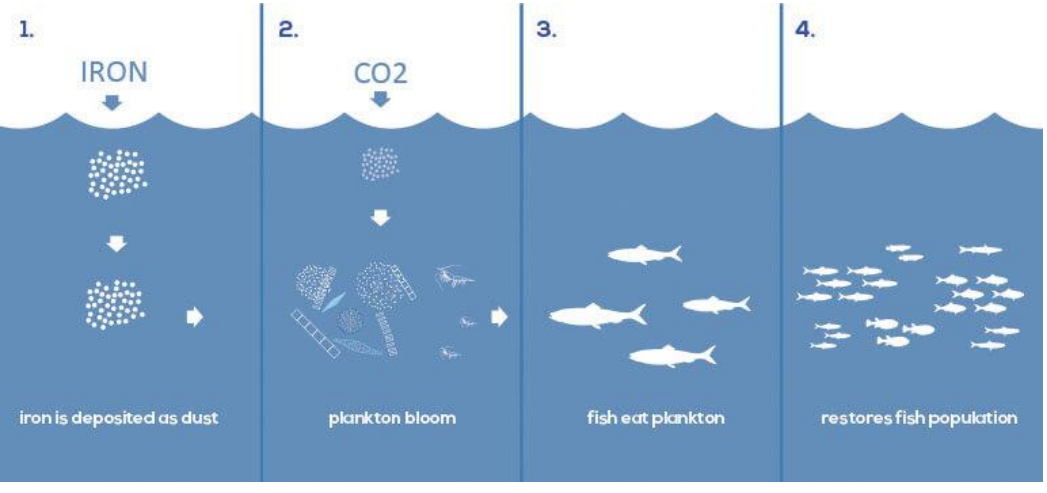
4. CLIMATE CHANGE



- CO_2 Capture
- Ocean Cooling/fertilization
- Clean Energy (biobased)
- New Biomaterials & enzymes
- Circular economy
- New Biosensors (to measure)

OCEAN IRON FERTILIZATION



5. SCARCITY OF RESOURCES

- Ocean resources value $21 trillion
- <5% biodiversity known or explored
- Microbial diversity
- Lower impact operations of production or extraction
- farming/aquaculture
- Blue Biotechnology as sustainable method
- Circular economy

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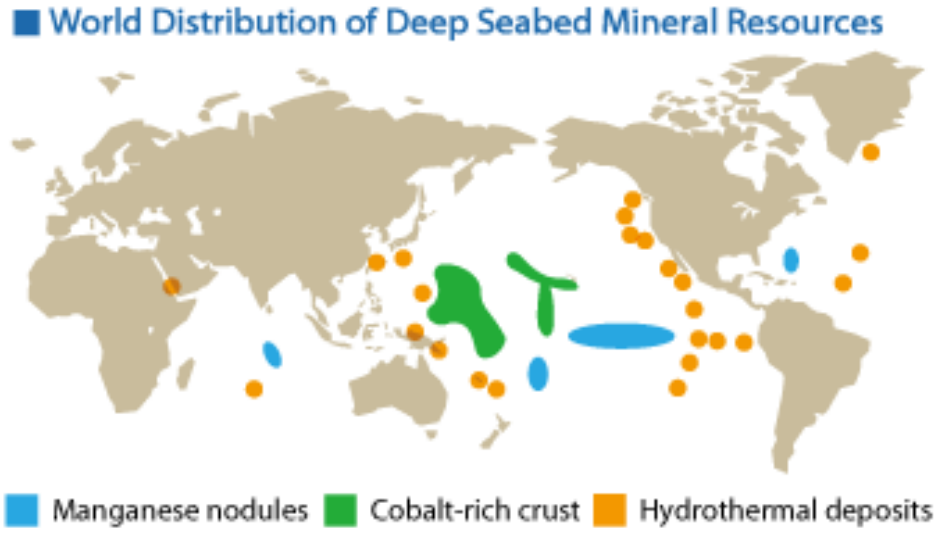
5. SCARCITY OF RESOURCES



- 80% world minerals are underwater
- Technology development for lower impact alternatives
- Blue Biotechnology alternatives (Mineral Bugs)
- Circular economy & mineral recycling

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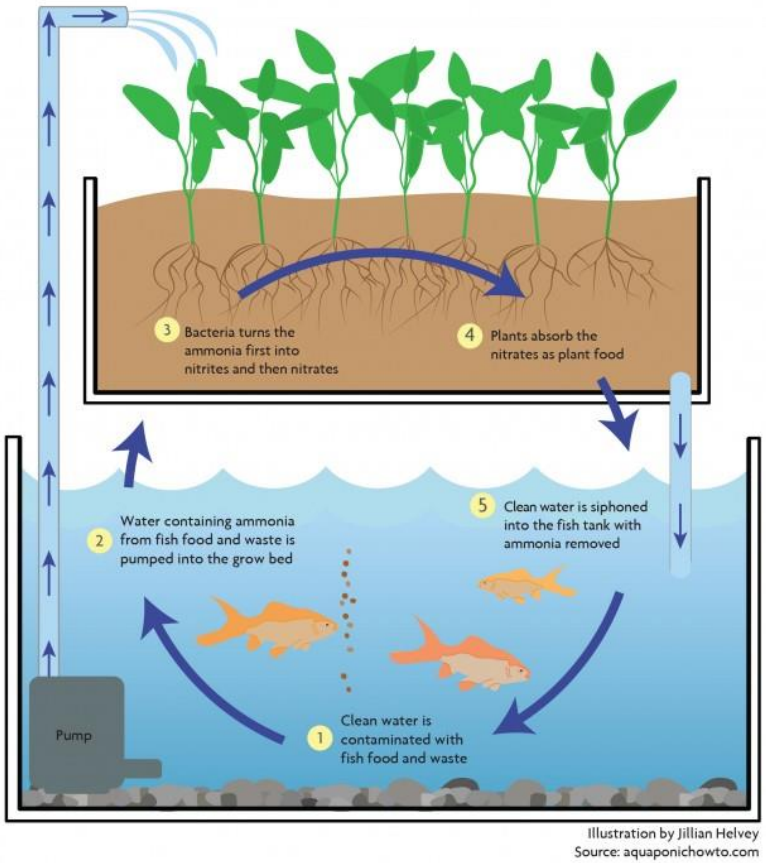
6. SUSTAINABLE BLUE & GREEN ECONOMY



- Agricultural substrates, boosters, nutrition and pest control from marine bioresources
- Aquaponics feed & system components
- Blue Biotechnology
- Circular economy & zero waste

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7. MOBILITY & TRANSPORTATION/ CLEAN ENERGY & EFFICIENCY

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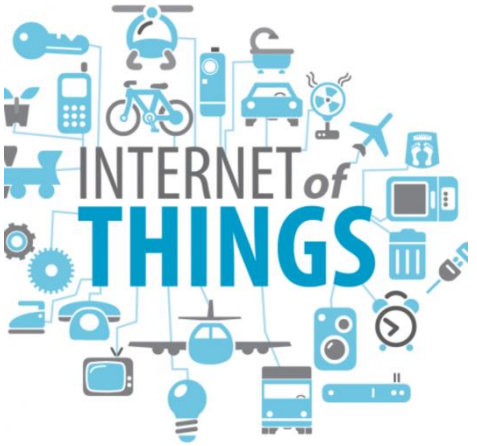
- Green fuel for ships and cars (biofermentation/algae)
- Ocean cities & biomaterials
- Blue Biotechnology

8. EVOLUTION OF TECHNOLOGY & AI



- **Industry 4.0 upgrade**
- **Blue IoT**
- **Zero waste processes**
- **New markets & channels**
- **New costumers for blue**
- **Technology development**
- **Going beyond current frontiers...**

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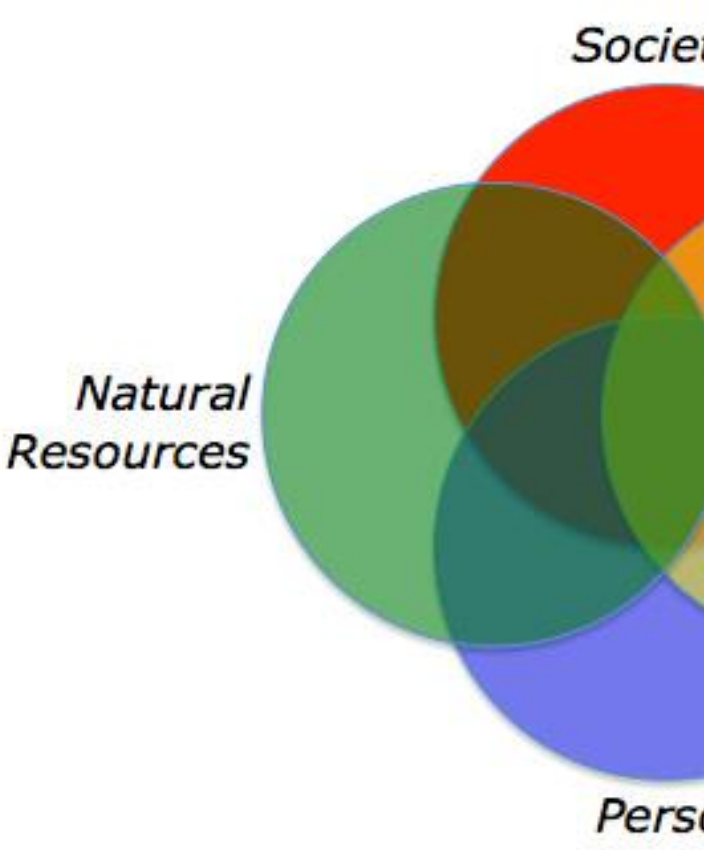
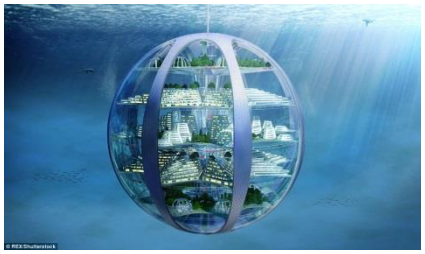
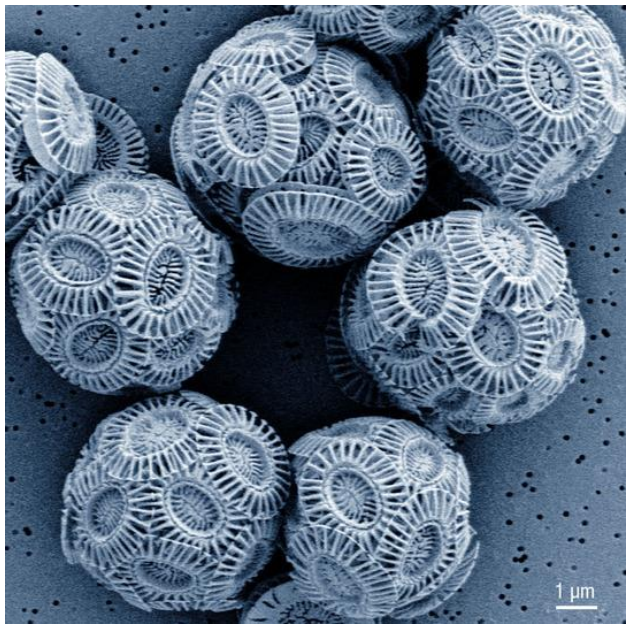
9. INNOVATIVE & INTEGRATIVE GLOBAL WORLD



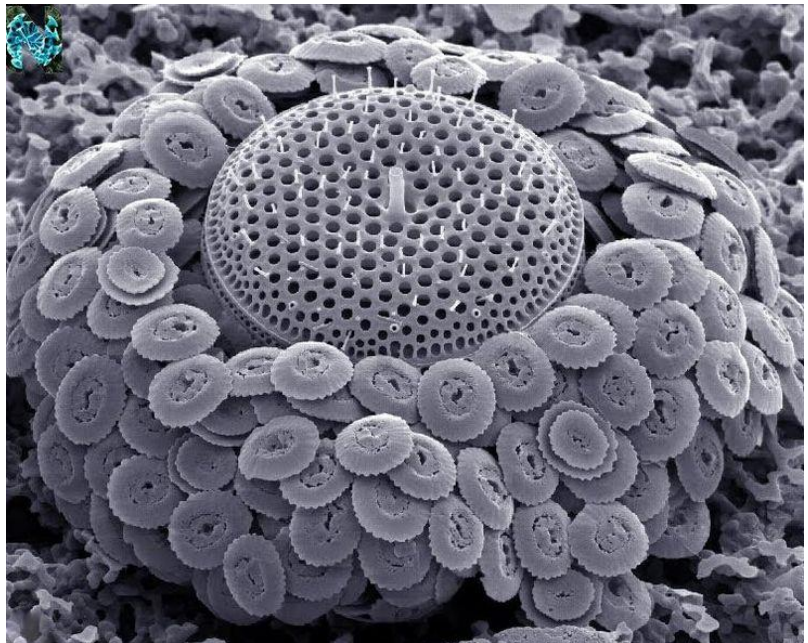
- Train the next generation
- Retain talent near Blue resources
- Migration patterns and local needs
- Develop local communities, training and solutions
- Sharing Ocean and water – innovation w/ different “eyes”

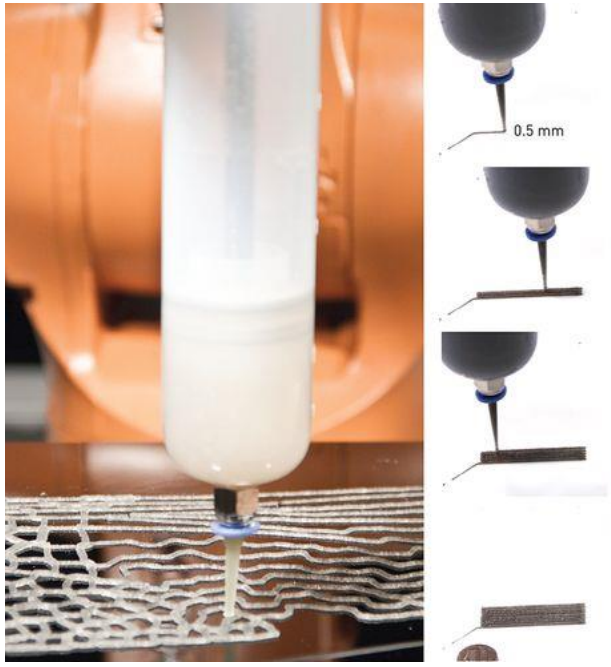
10. NEW FRONTIERS





- NOVEL BIOMATERIALS
- 3D BIOPRINTING
- BLUE BIOTECHNOLOGY FABRICATION
- SMART CITIES/SMART OCEAN





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WHO CAN IMPLEMENT THIS?

ENTREPRENEURS

Entrepreneurship – the pursuit of an opportunity beyond the resources one currently has under control.

(source: Berkley, 2006)

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- GO BEYOND CURRENT BORDERS!
- ACKNOWLEDGE UNKNOWN; FOSTER TRIAL & ERROR R&D&I!
- LEAVE SPACE FOR CREATIVITY AND WILD EXPERIMENTS!
- PROMOTE FAST-2-MARKET INNOVATIONS TO HELP FINANCE AND FEED "IMAGINE PIPELINE"!

FIGURE 6 Product innovation and differentiation

IMAGINE A BLUE SOCIETY…

- A boat using the energy of waves for propulsion or feed by blue microbial broth
- That blue microbial biomass is used for new compounds for agricultural purposes
- A reactor using microalgae to extract CO2 from atmosphere & produce food and feed
- Buildings made out of biomaterials and biomimetics from blue inspiration and production
- Novel Blue medicines to heal current untreatable diseases
- Seawalls made out of corals to protect our coasts
- Marine bacteria recycling and purifying water and waste
- Healthy and sustainable protein to feed our population
- Innovative blue cities
- A world in blue harmony….

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THANK YOU!


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