Ramboll: Spearheading a Sustainability Revolution within Global Agriculture

Sapphire Consulting
Alice, Shani, Matthew, and Eliano
24% of global GHG emissions

5.3B tCO₂

1.7B tCO₂

2.5B tCO₂
Opportunity and recommendation overview

Ramboll must position itself as a leader in sustainable solutions

Underlying opportunity

How can Ramboll prove its position as a sustainable solutions leader and increase profitability by 2025 through a scalable and sustainable business model?

Solution

- Leverage existing competencies to design Smart Agriculture systems
- Develop Smart Agriculture consulting service
- Build a scalable customer acquisition and pricing strategy
- Create a lasting sustainability and financial impact

<table>
<thead>
<tr>
<th>Denmark</th>
<th>Sweden</th>
<th>Norway</th>
<th>Finland</th>
<th>UK</th>
<th>MEA</th>
<th>Americas</th>
<th>Germany</th>
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<tbody>
<tr>
<td>Buildings</td>
<td>Transport</td>
<td>Energy</td>
<td>Environment &amp; Health</td>
<td>Water</td>
<td>Management Consulting</td>
<td>Agriculture</td>
<td></td>
</tr>
</tbody>
</table>
What are Ramboll’s potential growth opportunities?

Ramboll should pursue growth opportunities in Smart Agriculture to apply Spearhead Services expertise to innovative applications.

Alternatives considered

1. Strengthen existing Spearhead Services
   - New geographies, familiarity, high margin
2. Downstream integration into Construction & Operations
   - Insufficient for market leadership
   - Knowledge exchange, cross-selling opportunities
   - Strength misalignment, requires time to execute
3. Focus on incubators
   - Potential for innovation
   - Difficult to scale and unpredictable

Source(s): Ramboll
Analysis: The case for Smart Agriculture

Ramboll’s expertise and values align with Smart Agriculture

Spearhead Services apply to agriculture

Unpredictable weather: flooding

**Case:** Cloudburst Resiliency Planning Study

**Spearhead:** Climate Adaption and Landscape

Unpredictable weather: droughts

**Case:** Climate Adaption: Kool København

**Spearhead:** Climate Adaption and Landscape

Tackling food waste

**Case:** Pre-treatment of waste in Oslo

**Spearhead:** Energy from Waste

Energy inefficiency in processing

**Case:** Beijing Least Cost Master Plan

**Existing Service:** Energy Strategy and Planning

Agriculture builds on existing strategy

Develop strongholds with local farms

Spearhead Services in international agriculture

Client Centric

Agriculture leader in Sustainable Solutions

Accelerate Digitalisation in agriculture

... and aligns with values

💡 Insight & Excellence

🖼 Integrity & Empathy

🤝 Empowerment & Collaboration

💖 Enjoyment & Passion

Source(s): Ramboll
**Analysis: A sizable threat**

Sustainable agriculture is a global opportunity

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**A double-edged sword**

Agriculture both causes and bears the consequences of climate change

<table>
<thead>
<tr>
<th>The 2nd greatest emitter</th>
<th>Energy</th>
<th>Transportation</th>
<th>Industry</th>
<th>Agriculture</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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</table>

**The 2nd most impacted**

<table>
<thead>
<tr>
<th></th>
<th>Energy</th>
<th>Agriculture</th>
<th>Other</th>
<th>Insurance</th>
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<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>5</td>
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</tr>
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</table>

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**The magnitude of the threat**

![Pie chart showing the impact of different types of disasters](chart)

- **Drought**
- **Floods**
- **Earthquakes**
- **Meteorological Disasters**
- **Biological Disasters**
- **Wildfires**

**DKK 650B worth of losses globally**

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*Source(s): CNBC; United States Environmental Protection Agency; Food & Agriculture Organization of the United Nations*

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*Is anyone tackling this crisis?*
Analysis: Understanding the opportunity

Sustainable agriculture is an unaddressed opportunity

SDG goals ranked by company action

1. 66%
2. 61%
3. 32%
4. 29%
5. 25%
6. 21%
7. 20%
8. 13%

Source(s): UN Global Compact; Glassdoor; Owler

Current competitive landscape

Focusing on sustainable agriculture will allow Ramboll to reach the SDGs that are currently being the least exercised globally.

Global Presence
Recommendation overview

Ramboll will become the world leader in Smart Agriculture consulting

Part I

Develop Smart Agriculture consulting service

Part II

Build a scalable customer acquisition and pricing strategy

Part III

Create a lasting sustainability and financial impact
Recommendation Part I: Developing Smart Agriculture services

What does Smart Agriculture look like in practice?

Use Case: Building Healthy Farms

The Ramboll Solution

- IoT + precision feeding
- Welfare monitoring
- Energy from waste
- Using automated precision feeders to save on input costs
- Ensuring animals are healthy with computer vision and soil testing
- Utilizing waste to power the heating of the farm

In November 2019, 25% of the planet’s pigs died due to African swine fever. This packaged solution would have saved millions of pigs while allowing farms to sustain with increased cost savings.

Source(s): Ramboll; Deloitte; NewScientist
Recommendation Part I: Developing Smart Agriculture services

Sustainability issues along the agriculture value chain

**Inputs and producing**
- Preparing the environment and laying down inputs (soil, seeds, etc.)

**Harvesting and processing**
- Growing plants, feeding livestock, harvesting crops, and preparing goods for wholesale (cutting, packaging, etc.)

**Wholesale and retail**

**Activities**

**Actors**

- Commercial farms and processing plants

**Key Challenges**

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<td>Preparing the environment and laying down inputs (soil, seeds, etc.)</td>
<td>Growing plants, feeding livestock, harvesting crops, and preparing goods for wholesale (cutting, packaging, etc.)</td>
<td>Beyond current scope</td>
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<tr>
<td>Unpredictable weather (drought, floods, natural disasters)</td>
<td>Waste from processing (technical malfunction, product trimming)</td>
<td></td>
</tr>
<tr>
<td>Livestock + crop contamination (disease spreading)</td>
<td>Miscalculated demand (overestimated order quantity)</td>
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<td>Unstable input prices</td>
<td>Inefficient manufacturing processes</td>
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## Recommendation Part I: Developing Smart Agriculture services

### Ramboll’s Smart Agriculture offerings

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<td><strong>Problem</strong></td>
<td><strong>Offering</strong></td>
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<tr>
<td>Unpredictable weather</td>
<td>Climate resiliency and adaptation</td>
</tr>
<tr>
<td>Resource pollution</td>
<td>Water management + ground mapping</td>
</tr>
<tr>
<td>Miscalculated supply</td>
<td>IoT + precision feeding</td>
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<td>Unstable input prices</td>
<td>Automation + IoT + precision feeding</td>
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Ramboll will be able to provide services to help farms across their entire value chain.

Source(s): Ramboll, Deloitte, Food Nation
Recommendation overview

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Part I
Develop Smart Agriculture consulting service

Part II
Build a scalable customer acquisition and pricing strategy

Part III
Create a lasting sustainability and financial impact
Recommendation Part II: Building a scalable customer acquisition and pricing strategy

Developing a scalable customer acquisition strategy

Customer profile

- Large (2000+ Ha) and midsized commercial companies that focus on sustainability
- Crop farmers
- Livestock farmers
- Fish farmers

Sizeable Market: DKK 200B vs. DKK 18B
Sustainability: Higher impact on SDGs
Growth: Potential for geographic expansion

Example: Denmark
Freerslev Kotel

- 200 cows
- Self-sufficient animal food
- 126 Ha
- 50% of land grown ecologically

Long-term geographic growth

1. 2021
   Launch in Denmark
   11M tCO₂
2. 2022
   European expansion
   426M tCO₂
3. 2025+
   Global expansion
   7,100 M tCO₂

Source(s): CCAFS; Eurostat
Recommendation Part II: Building a scalable customer acquisition and pricing strategy

Value-based revenue model

2021-2023:
Hourly billing
*Ramboll to track impact*

2023-2025+:
Value-based billing
Clients charged based on improvements realized in negotiated metrics

Example: Freerslev Kotel

Midsized farm with 200 cows and 126 hectares of crops

**Sample Impact:** 2% cost reduction, 8% yield increase

**Traditional Fee Structure:** DKK 115,000

**Value-based Fee Structure:** DKK 165,000 (70% of first-year yield increase)

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**Source(s):** Freerslev Kotel
Recommendation overview

Ramboll will become the world leader in Smart Agriculture consulting

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Create a lasting sustainability and financial impact
Recommendation Part III: Assessing the feasibility and impact of the Smart Agriculture strategy

How sustainable impact can be measured

- Emissions
  - Ambient air analysis
- Water & Water Use
  - Usage through meter-regulators
  - Runoff analysis
- Land Use
  - Crop yield
  - Average revegetation time
- Waste Reduction
  - Crop waste reductions
  - Biomass usage
  - Landfill contributions

Source(s): United Nations
Recommendation Part III: Assessing the feasibility and impact of the Smart Agriculture strategy

Conservative estimates show tremendous impact within five years

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<th>Equal to</th>
<th>Assumptions</th>
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<tr>
<td>1.640.000+ ton of GHG emissions reductions</td>
<td>7,38 billion kms of vehicle emissions</td>
<td>Mix of midsized and large farms</td>
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<td>17,1 billion litres of water saved</td>
<td>Running a shower non-stop for 5.000 years</td>
<td>Improvement estimates based on research reports; scaled down for conservatism</td>
</tr>
<tr>
<td>31.000+ hectares of land saved</td>
<td>43.500 football pitches</td>
<td>Projects will result in an average of:</td>
</tr>
<tr>
<td></td>
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<td>• 3% water use reduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1,07 ton greenhouse gas reduction per hectare</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2% lower land requirements</td>
</tr>
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Most Relevant SDGs Addressed:

Source(s): United Nations
Recommendation Part III: Assessing the feasibility and impact of the Smart Agriculture strategy

Initiative will increase pre-tax profits by up to DKK 55 Million in 2025

![Graph showing revenue and contribution margin growth from 2021 to 2025.]

### Supporting Estimates

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Recommendation Part III: Assessing the feasibility and impact of the Smart Agriculture strategy

Smart Agriculture strategy can be deployed within five years

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<tr>
<td>Develop in house expertise for Smart Agriculture</td>
<td>Continuous client acquisition efforts (external and internal)</td>
<td>Talent acquisition at offices in Nordics (Sweden and Finland)</td>
<td>Empower clients to track basic sustainability metrics such as water use, crop yield, and biomass usage</td>
<td>Regular (internal) monitoring of risk metrics (for example, Co2 emissions)</td>
<td>Sourcing clients in Asia Pacific, Southeast Asia and North America</td>
</tr>
<tr>
<td>Local client acquisition efforts (marketing and sales)</td>
<td>Debuted in Denmark (at 9+ offices)</td>
<td>Best practices transferred from Denmark offices</td>
<td>Publishing of case studies and thought leadership on Ramboll website</td>
<td>Continuous engagement with clients to monitor sustainability results</td>
<td>Adjusting practices to region environmental and infrastructure challenges</td>
</tr>
<tr>
<td>Preparing previous project portfolio, seeking cross-selling opportunities</td>
<td>Continuous feedback sessions with Ramboll staff</td>
<td>Continuous client acquisition, data monitoring to refine strategy</td>
<td>Empower clients to track basic sustainability metrics such as water use, crop yield, and biomass usage</td>
<td>Regular (internal) monitoring of risk metrics (for example, Co2 emissions)</td>
<td>Recruiting local talent</td>
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Client and Talent Acquisition Team, Danish Clients

Ramboll team in Denmark, Finland, Sweden, broader Europe

Ramboll team members (data and analytics teams), clients, regional Ramboll teams

**Stakeholders**

- **Morten Peick**: Senior Group Director, Clients, Communication & Marketing
- **Michael Høstved**: Recruiting Lead, Talent Acquisition, Employer Branding
- **Erik G. Christoffersen Jensen**: Freerslev Kotel Farm in Denmark
- **Jesper Delsgaard**: Managing Director, Environment and Health
- **Anna Essehag**: Manager, Sustainability Transformation
- **Jakob Kirkeskov**: Director of Environment & Health
- **Trine Stausgaard Munk**: Head of Climate Resilience
- **Michael Falkner**: Head of Global Talent Acquisition
- **Xiao-Jian Zhou**: Managing Principal, Ramboll China
Recommendation Part III: Assessing the feasibility and impact of the Smart Agriculture strategy

Risks and mitigations

- Initial launch in Denmark will allow Ramboll to leverage their strong brand recognition to acquire clients.
- Empathize economic as well as social benefits associated with recommendations.
- Delayed launch of fee-at-risk model allows firm to gain knowledge needed to price under this model.
- Fee-at-risk business model empowers smaller firms to seek our services without financial risk.
Conclusion

Ramboll can become a global leader in Smart, Sustainable Agriculture

Strategy overview

Use existing and new competencies to design Smart Agriculture systems across the world

Part I
Develop Smart Agriculture consulting service

Part II
Build a scalable customer acquisition and pricing strategy

Part III
Create a lasting sustainability and financial impact

Impact of recommendations by 2025

Can prove its position as a sustainable solutions leader

1.640.000+ tons of GHG emissions reductions

17,1 billion litres of water saved

And increase profitability by 2025

DKK 55M in annual profit by 2025
Appendix
Appendix

Sample emissions measurement techniques

Air sampling

Gas concentration in the air (g.m$^{-3}$) \( \times \) Air flow (m$^3$.s$^{-1}$) = Gas emissions (g.s$^{-1}$)

Source(s): Inrae France
Appendix

Sample emissions measurement techniques

<table>
<thead>
<tr>
<th>Improvements</th>
<th>Value</th>
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</table>

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<th>Annual Impact</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farms Served (this year)</td>
<td>59</td>
<td>135</td>
<td>270</td>
<td>368</td>
<td>435</td>
</tr>
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<td>Water Reduction (L)</td>
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<td>178.660</td>
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<td>574.264</td>
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</table>

<table>
<thead>
<tr>
<th>Cumulative Impact</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
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<tbody>
<tr>
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<td>833</td>
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<td>Land Use Reduction (Hectares)</td>
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<td>20.569</td>
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Source(s):
## Appendix

## Financial calculations

### Average Billable Rate Estimation

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<tr>
<td>Revenue</td>
<td>DKK 11,351,000.000</td>
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<tr>
<td>Employees (FTE)</td>
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<td>Estimated % of Support Staff</td>
<td>15%</td>
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<tr>
<td>Estimated Utilization</td>
<td>75%</td>
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</tr>
<tr>
<td>Estimated Billables (p.p., per week)</td>
<td>DKK 18,635</td>
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</table>

### Key Figures From Financial Statement

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<tbody>
<tr>
<td>Project Costs (% of Rev)</td>
<td>13,5%</td>
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<tr>
<td>Staff Costs (p.p., per week)</td>
<td>DKK 560,397,71</td>
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### Yearly Financial Statement

<table>
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<tr>
<th>Year</th>
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<th>2025</th>
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<tr>
<td>Revenue</td>
<td>19,380,034</td>
<td>44,089,578</td>
<td>88,179,155</td>
<td>119,913,961</td>
<td>141,716,500</td>
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<tr>
<td>Project Costs</td>
<td>2,613,940</td>
<td>5,946,713</td>
<td>11,893,427</td>
<td>16,173,753</td>
<td>19,114,436</td>
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<td>Staff Costs</td>
<td>22,415,908</td>
<td>39,227,840</td>
<td>72,851,702</td>
<td>92,465,622</td>
<td>109,277,553</td>
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<tr>
<td>Launch Expenses</td>
<td>1,500,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Contribution Margin</td>
<td>-DKK 4,149,814</td>
<td>-DKK 1,084,975</td>
<td>DKK 3,434,026</td>
<td>DKK 11,274,586</td>
<td>DKK 13,324,510</td>
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### Supporting Figures

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Fees-at-risk structure expected to increase billables by 20% in 2024 and 30% in 2025; figures supported by academic literature
## Appendix

### Sustainability impact

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### Source(s):

- Intergovernmental Panel on Climate Change Agriculture Report
- American Society of Plant Biologists
- Intergovernmental Panel on Climate Change Agriculture Report
- Intergovernmental Panel on Climate Change Agriculture Report
- American Society of Plant Biologists
**Appendix**

Application of new services explained

**Precision Feeding**

“Automating the collection, analysis and use of production related information. Electronically-controlled livestock production systems with an information and communication technology (ICT) focus.”

**What we would do:**
- Develop barn layout to minimize feeders required
- Create comprehensive production and water irrigation system
- Software recommendations and implementation based on farm monitoring needs

**Welfare Management**

“What we would do:
- Determine most feasible data collection method for farm (image, wearables, weight, etc).
- Design camera and sensor layout
- Determine most relevant monitoring equipment and software

“Through ICT and the IoT, more performance-related data can be collected from the animals, for example through cameras and image recognition software, wearables, as well as weight or sound monitoring.”

**Smart Waste Mgmt**

“Smart waste management offers high potential to first identify such root causes and second, to improve existing processes and thereby decrease waste amounts. The intelligent collection and use of data is key to understanding what is produced and what is thrown away.”

**What we would do:**
- Develop waste management detection system to determine highest waste points across value chain
- Modify farm layout so waste can be minimized

*Source(s): Deloitte, Ramboll*
Appendix

Application of current services explained

Climate Resiliency

“Utilizing the application of new infrastructures to determine how cities and areas can adapt to unpredicted weather”

What we would do:
- Analyze geographic areas and plan out farm development based on patterns
- Modify infrastructure, equipment, and layouts to accommodate for unpredictable weather
- Implement tools to make it easier for farms to plan around variable climate

Groundwater Mapping

“Ramboll’s services include performance of field surveys, data processing and interpretation, geological and groundwater 3D modeling and conclusive general recommendations regarding water supply strategies for specific abstraction areas.”

What we would do:
- Determine how each farm should measure its groundwater and the impact it has on soil, plants, and livestock
- Modify layouts to maximize irrigation through groundwater to cut costs

Energy From Waste

“Our knowledge and experience of how to best plan, procure and manage the implementation of waste-to-energy projects, in combination with our detailed technical knowledge of the involved mechanical and electrical equipment, underpins our strong position in the market.”

What we would do:
- Determine waste-to-energy opportunities for farms
- Optimize farm layouts to efficiently fit and operate waste-to-energy equipment

Source(s): Deloitte, Food Nation, Ramboll
Incorporating the three-step innovation process

1. Disruption Radar
   - Identify key trends within the Smart Agriculture start-up scene

2. Innovation Accelerator
   - Encourage, seek, & reward innovative Smart Agriculture ideas

3. Scalability
   - Provide robust support and apply to consulting service

Source(s): Ramboll
# Identifying customers in key expansion areas

<table>
<thead>
<tr>
<th>Scandinavian Countries</th>
<th>Asia Pacific</th>
<th>United States</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Danish Agro</strong>&lt;br&gt;Agria Corporation&lt;br&gt;Hong Kong</td>
<td><strong>Kambeitz Farms</strong>&lt;br&gt;<strong>Canada</strong></td>
<td><strong>Ingleby Farms</strong>&lt;br&gt;<strong>United States</strong></td>
<td><strong>Based in Lajord, Saskatchewan</strong>&lt;br&gt;- 43,000 acres&lt;br&gt;- Has KF Agri-Innovation Centre which is a nucleus for evaluation, testing, and product improvement operations&lt;br&gt;- Crop agriculture (wheat, durum, lentils, mustard, flax)</td>
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</tbody>
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- Based in Denmark, Sweden and Finland
- Crop (seed and organic produce) and livestock (eggs)
- 5.9M tonnes of crop
- Since 2014, Danish Agro has been a part of the UN Global Compact, committing to 10 fundamental principles including environmental sustainability
- Global agriculture company, founded in 2004 out of ShenZhen, China and subsequently moved to Hong Kong
- Primary product is crop: seeds, corn, vegetables

- Livestock (beef, lamb) and crop (table grapes, avocados)
- 100,000+ hectares of land under management
- Sustainable farming integral to strategy, with a focus on crop diversity, animal welfare, resource use, technology

Source(s): Agria Corporation, Danish Agro, Ingleby Farms and Forests, Kambeitz Farms
Evaluating international markets for expansion

1. Scandinavian Expansion (Denmark, Finland, Sweden)
   - Existing expertise and established roots in Scandinavia
   - Strong market outlook in environment, health, water
   - Not expanding into Norway, given that the growth rate of the market in energy and water are decreasing

2. Asia Pacific and Southeast Asia
   - Sizeable market
   - Attractive region for growth
   - Ramboll is building existing presence in Buildings and Water related sectors, thus allowing them to cross sell Smart, Sustainable Agriculture solutions

3. North America
   - Sizeable opportunity
   - One of the greatest emitters in agriculture
   - Need to enter with established name and capabilities, given the intensity of competition and fragmented industry

Short-term Expansion

Long-term Global Expansion (2025 onwards)

Source(s): Ramboll
### Appendix

## Customer acquisition strategy

<table>
<thead>
<tr>
<th>Leverage Network</th>
<th>Leverage Reputation</th>
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Ramboll’s partnership with State Of Green has granted Ramboll access to the Danish Agriculture & Food Council, an organization that represents the nation’s agricultural industry. Ramboll can leverage this connection to find suitable farms they can work with.

Ramboll’s strong reputation will simplify business development activities within Denmark. Ramboll should highlight high-profile projects in relevant fields (e.g. Copenhagen’s waste water handling system, the waste to fertile land project in Sisimiut, Greenland) to prospective clients.