



Driving innovation and adding value through Agri-Tech



Across the island of Ireland (IOI), agriculture annually produces significantly more times the amount of food than it consumes, with a food and drink sector worth more than €30bn. This strong agricultural base provides an ideal market for Agri-Tech solutions, which can deploy to end users from farmers to food processors. Agri-Tech offers this strategically significant sector enormous potential to grow yields and productivity while cutting input costs and greenhouse gas (GHG) emissions, and has the potential to be a world class industry in itself, given appropriate support.

Agri-Tech across Ireland

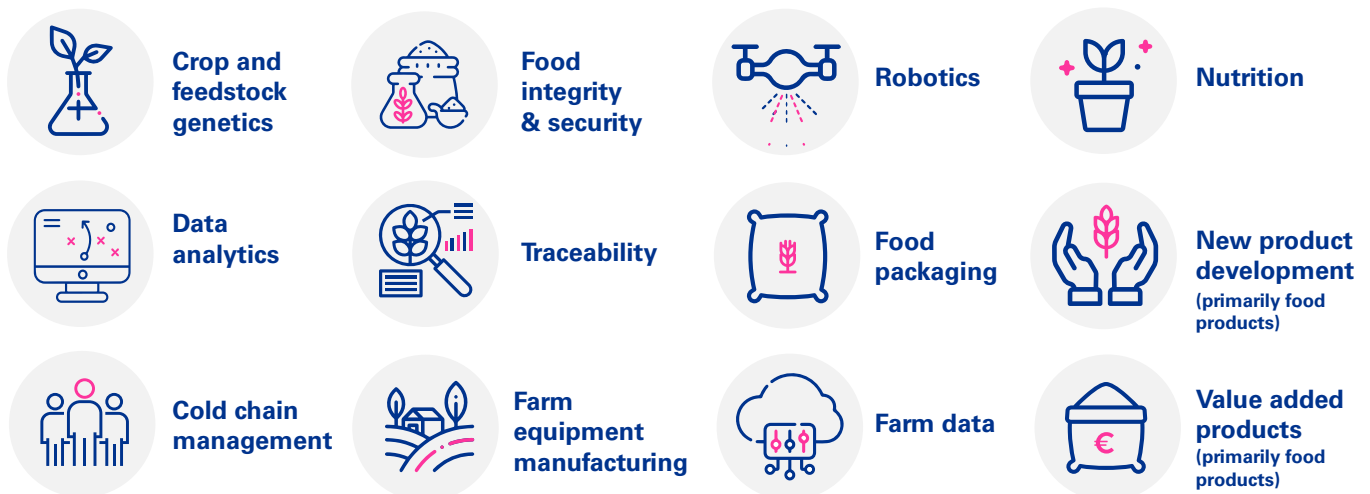
Agri-Tech has no consistent definition, but generally describes those businesses supplying solutions to end users across the food and drink value chain, including farming, food and drink, processing, logistics, cold chain, and retail. In the (IOI) context, such providers largely break down into these six subsectors:

- Advanced materials and supply chain
- Agri-engineering
- Food processing
- Information and communications technology (ICT)
- Life sciences
- Nutrition and animal feeds

The Agri-Tech sector exists in an ecosystem that includes Agri-Tech businesses, end users of Agri-Tech solutions, and organisations that support the sector, such as education and research bodies, funding providers and investors, and central government departments.



IOI has particular strengths within this ecosystem, relative to international competitors. Its strong base of research institutions and high-tech companies give it competitive opportunities in:



Global context: agriculture 4.0

At the global level, agriculture is undergoing revolutionary change, driven by a confluence of factors including Fourth Industrial Revolution technologies and global sustainability goals. Specifically, we identify seven key trends expected to shape the sector in the coming decade:



Agriculture is undergoing revolutionary change driven by a confluence of factors

01

Efficiency:

adopting technology to make inputs go further through automation, waste elimination, and human replacement.

02

Environmental sustainability:

agri-food's impact on GHG emissions, river and sea pollution, and biodiversity is now widely understood, fuelling a market for technologies that can mitigate such impacts.

03

New product development:

driven by trends one and two above, there is an increasing focus on developing novel/value-added products and developing waste streams for both the primary agriculture and the food processing industry.

04

Novel meat products:

concerns about animal welfare and carbon emissions are driving interest in alternative proteins, such as plant-based and lab-grown meat alternatives.

05

Data systems:

the collection and exploitation of data is a challenge for the wider adoption of smart data/data analytics and the interoperability of technology solutions.

06

Skills and training:

a lack of relevant skills, STEM qualifications, and technical training, is generally a constraint in the sector.

07

Funding and capital investment:

in terms of technology adoption, access to capital funding for investment can often be an issue for the food processing sector.



Difficulties with recruitment and retention in a high-skill sector

What's stopping us?

Five key challenges for the sector

For IOI to realise its potential in Agri-Tech, it will need to address a range of barriers to innovation and adoption of new technologies.



Strong competition:

especially from Agri-Tech leaders like Australia, New Zealand, Israel and the Netherlands.



Labour, skills and training:

NI in particular has a net outflow of higher education (HE) students and a shortage of migrant labour post Brexit, exacerbating difficulties with recruitment and retention in a high-skill sector.



Inflation:

rising costs and pressures on margins are depressing end-user investment in new technologies.



Availability of capital:

rising interest rates, cooling venture capital interest and a lack of specific funding available for capital support means few businesses are materially investing in productivity-improving technologies.



Lack of environmental and sustainability metrics:

sustainability readiness is a key issue in the sector, with many Agri-Tech and Food Supply Chain/Safety (FSCS) technology businesses yet to prepare a decarbonisation plan. Engagement is hampered by changing sustainability goals and unclear metrics.

How to respond

No single solution can ensure the success of IOI's Agri-Tech sector, which requires instead a systemic response, delivered through collaboration between government, businesses, and industry bodies. Here we outline key suggestions by player profile:

Farmers and processors

- Be an early adopter: many of today's cutting edge Agri-Tech innovations, like generative AI, can be easily adopted via a farmer or processor's phone, without significant outlay.
- Inform yourself on support that exists to encourage Agri-Tech uptake.

Startups

- Focus on markets that dovetail with IOI's competitive advantages and market trends, i.e.: domestic solutions that can increase yield, efficiency, profitability, sustainability, reliability, and quality; international solutions that can increase efficiency in major developing country markets, like India and China; productivity solutions for the growing poultry markets in Sub-Saharan Africa, and Near East and North Africa; solutions for emissions reduction and animal welfare in the West.
- Align sustainability-focused innovation with relevant government level strategies such as NI's Green Growth Strategy and Energy Strategy, Ireland's Food Vision 2030 and Climate Action Plan, e.g., by monetising current waste streams.

Manufacturers/Agri-Tech businesses

- Grow the Agri-Tech sector's global footprint by focusing on the international windows of opportunity for Agri-Tech technologies.
- Engage proactively with higher education institutions (HEIs) on skills gaps, both for current employees and prospective recruits.
- Establish innovation hubs, incubators, and accelerator programs to enable start-ups and established businesses to get involved in the R&D process.
- Collaborate with counterparts in health, life sciences, and advanced engineering sectors to take advantage of strong indigenous knowledge and best practice.

Investors

- Develop Agri-Tech start-up supports through innovation hubs, incubators, and accelerator programs, as have been used to great effect in other global Agri-Tech leaders like Australia, NZ, and Israel.

Industry bodies

- Establish systems and standards for the collection, processing, storing and interoperability of data in the agri-food sector.
- Foster collaboration within the Agri-Tech ecosystem and with industry bodies in other jurisdictions to promote technology adoption.

Policymakers

- Expand capital grants, especially for large businesses, to support the adoption of Agri-Tech products and services.
- Expand funding for R&D in Agri-Tech, to support the development of new technologies and the adoption of technologies in the agri-food value chain.
- Expand and signpost support available for primary producers and food and drink processors.
- Address skills shortages through active monitoring of industry needs and consultation with HEIs and other course providers.
- Develop an Agri-Tech sectoral plan, clearly spelling out sectoral priorities, ambitions, support structures, and funding (see NZ's Agri-Tech Sector Transformation Plan (2020) which provides a clear outline and plan for the sector).
- Prioritise the development of clear and actionable environmental and sustainability metrics.

Higher Education Institutions

- Upskill sector through graduate, postgraduate, further education, and apprenticeship courses.
- Educate candidates on the career benefits of STEM courses, and on opportunities in Agri-Tech.
- Foster innovation-focused collaboration between Agri-Tech businesses and university research departments.

Contact



Tom McEvoy
Partner
Head of Food & Agribusiness
KPMG in Ireland
e: tom.mcevoy@kpmg.ie



Christopher Brown
Partner
Head of Strategy
KPMG in Ireland
e: christopher.brown@kpmg.ie



Daragh McGreal
Director
Head of Strategic Economics
KPMG in Ireland
e: daragh.mcgreal@kpmg.ie



Requier Wait
Associate Director
Strategy
KPMG in Ireland
e: requier.wait@kpmg.ie



Fraser Clarke
Manager
Strategy
KPMG in Ireland
e: fraser.clarke@kpmg.ie



kpmg.ie/strategy

© 2023 KPMG, an Irish partnership and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavour to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

The KPMG name and logo are registered trademarks of KPMG International Limited ("KPMG International"), a private English company limited by guarantee.

If you've received this communication directly from KPMG, it is because we hold your name and company details for the purpose of keeping you informed on a range of business issues and the services we provide. If you would like us to delete this information from our records and would prefer not to receive any further updates from us please contact unsubscribe@kpmg.ie.

Produced by: KPMG's Creative Services. Publication Date: November 2023. (9770)