

The image shows a person from the chest down, wearing a red and white plaid shirt, holding a black tablet computer. They are standing in a lush green field of young plants. Overlaid on the image is a network of white circular icons connected by thin white lines. These icons represent various aspects of precision agriculture and farm technology, including: a hand holding a seedling, a tractor, a person walking, a location pin, a map, solar panels, a wind turbine, a storage bin, a person wearing a hat, a bar chart, a Wi-Fi signal, a laurel wreath, a shovel digging, a sensor or probe, and a truck. The background is a bright, sunny day with mountains visible in the distance.

[illegible]

Gerben Dijksterhuis

Startup & Scale-up Banker F&A



Where is it about?

1. *Drivers of change for Dutch agriculture towards 2030*
2. *Innovation trends - the role of advanced technology*
3. *Deep dive Robotics and AI*
4. *The role of Rabobank*



*1. Our view on
Dutch Agriculture
towards 2030*



A Realistic Perspective

The Importance of Agriculture Goes Beyond The Economic Value

Nutrition

Economy

*Entrepreneurship
& innovation*

Clean Production

*Contribute to
Climate, Water,
and Biodiversity
Goals*

*Attractive
Countryside*

Culture

Drivers of Change



Price

Data

Consumer

Export

Environment

Innovation

Financiers

Energy

Government

Soil

Succession

*Public
acceptance*

Nature

Necessary Transitions

The Road Towards a Future Proof Arable Crop Sector

2030

Demand driven supply chains

Circularity

Diversified spatial planning

Climate transition

Precision agriculture

Strong entrepreneurs

2. Innovation Trends

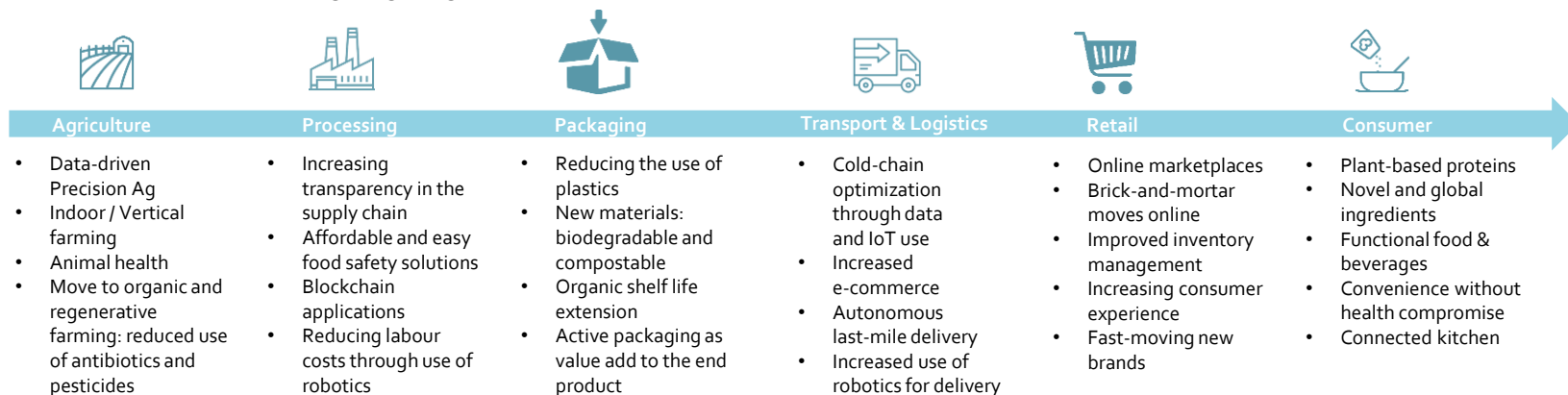
The role of advanced technologies



Innovation trends through the entire F&A supply chain

F&A Start-up Innovation

Over the years, Rabobank connected with innovators around the globe and came across the most groundbreaking innovations that impact the F&A supply chain, while giving insights in the latest innovation trends.



Serving our global community with sector knowledge

With 3000+ startups in our database, we have developed a unique expertise in F&A innovation, making us a trusted partner to provide sector-specific knowledge on innovation to our community of investors and corporates:



anterra capital



TATE & LYLE



AgroFresh



BASF
We create chemistry



Rabo Frontier Ventures



Rabo
F&A Innovation Fund



Rabobank

Snapshot of the Dutch Startup Landscape within Arable Farming & Horti

Major trends driving innovation in the arable farming and horticulture

The sector is going through a time of unprecedented innovation and change, brought about by a growing awareness of issues relating to the environment, health and resource efficiency. The farmer of the future cultivates resilient crops and performs operations and treatments as precisely as possible. Automation & Digitization on the farm will accelerate?

Description of Innovation categories

Snapshot of startups



On-Farm/site Robotics

- One of the most promising technologies, which addresses a lack of reliable and skilled labour. Weeding and picking robots and on-farm packaging for arable farming.
- In the horticulture there are mechanical tools for harvesting increase the picking and transportation efficiency and reduces farmer dependence on manual labour



Farm digitization: Field mapping, sensing and crop monitoring

- Soil and plant health monitoring via real-time sensors allow farmers to improve plant yield through applying inputs, such as fertilizer and water, in a precise and cost-effective way.
- IoT within greenhouses support the growth of vegetables and fruits in a controlled environment and enable remote monitoring of critical parameters in crop growth



Vertical/Indoor farming

- Vertical farming has many advantages. For example, no pesticides are required because it is grown in a fully controlled environment. And the use of water and other resources, such as fertilizers, is very efficient and accurate
- Use of new technology makes it possible to grow crops anywhere in the world very close to the consumer.

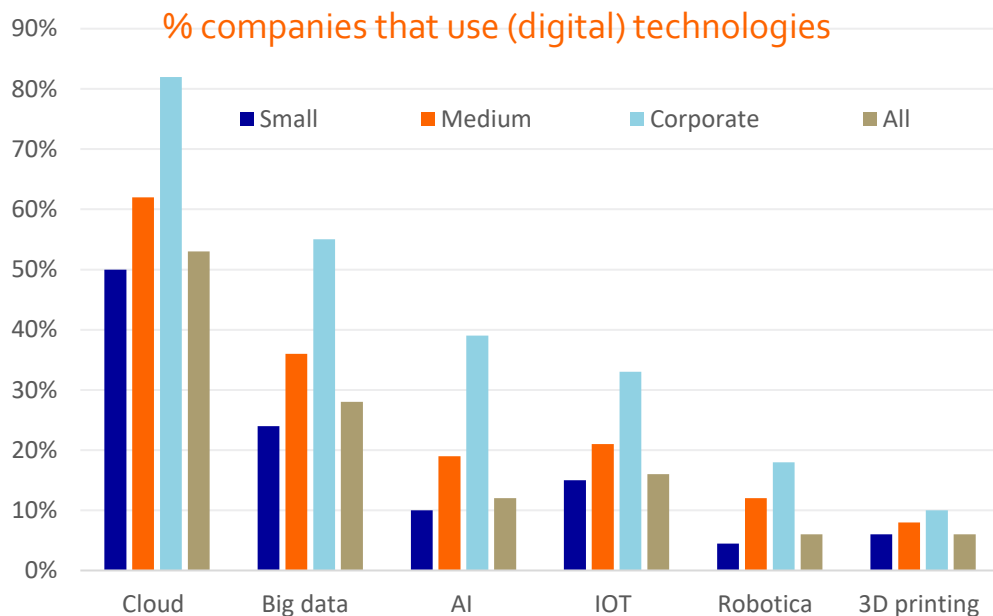


3. Robotics and AI



Only 6% of the Dutch SME companies use robotics

- With even a lower rate in F&A



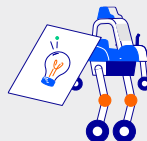
Source: CBS / Min. EZK, period 2020

Key reasons for companies not to use robotics

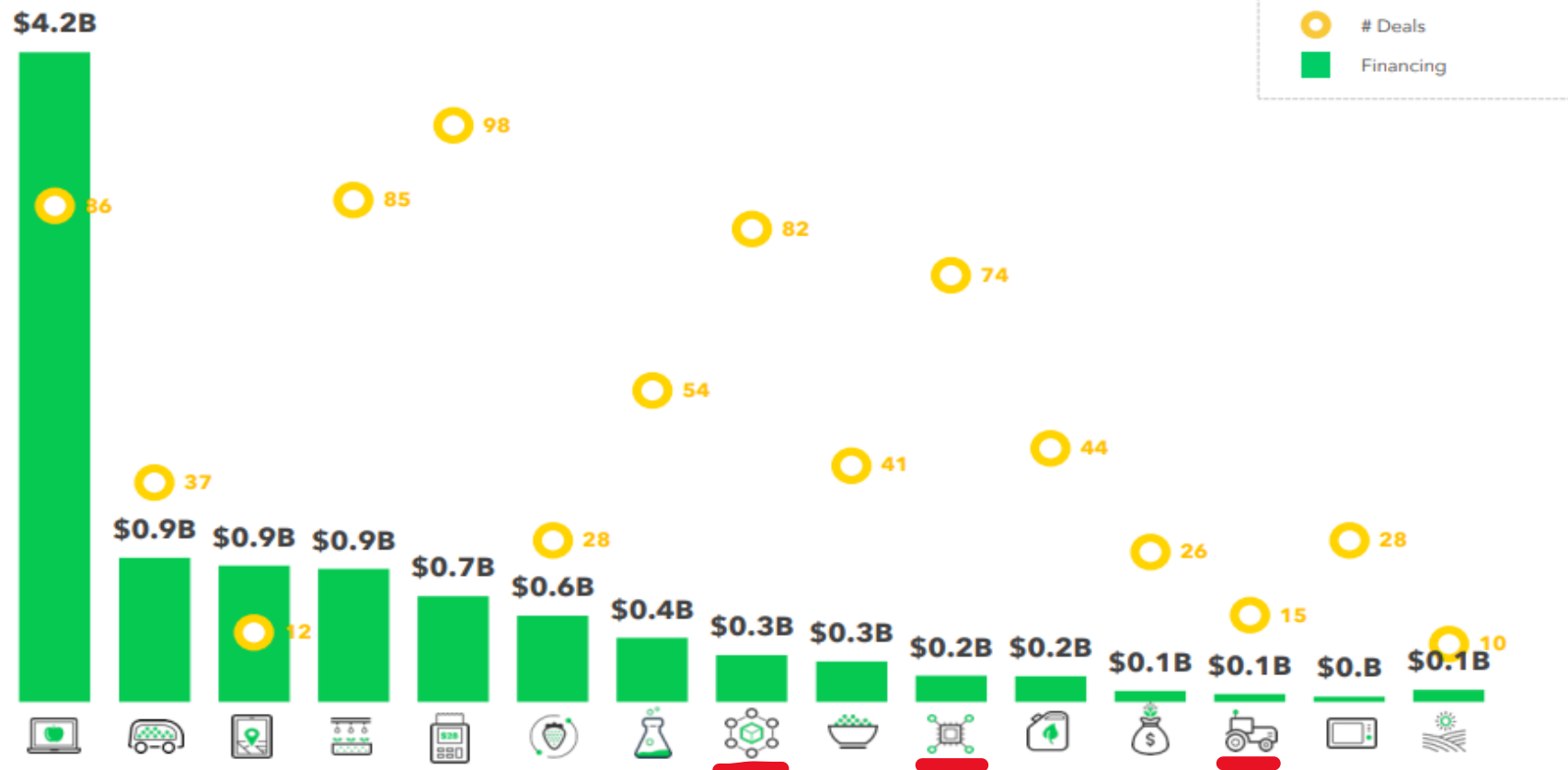
- Particularly the smaller companies have
 - No time
 - No knowledge
 - No means
 - Capacity to implement
- This negatively impacts their outlook

While challenges are increasing

- Modest increase in productivity
- Rising labour costs
- Labour shortages
- Repetitive actions



2021 Deal Volume and Activity by Category



A relatively small category

With a positive outlook

Robotics investment trends

- Still surprisingly low - USD 0,1bln over 15 deals
- Scepticism over efficacy, durability and flexibility in application remains
- The space is crowded, with differences in value proposition, target markets and levels of autonomy
- Outlook is positive with renewed interest from labour-challenged farmers



Dynamics

Market dynamics and industry pain points underpin high growth in the Agri Robotics market

Several factors leading to..

Market dynamics

- Large market opportunity: global agricultural robots market reached a value of USD 7.4bln in 2020
- Projected to reach a value of USD 20.6bln by 2025
- The field crops segment has the highest CAGR > 20%
- Labour shortages average c. 30% of demand in Europe & US (DEFRA)

Supporting trends

- Limit waste: 30% of all crop wasted at harvest, up to 75% for some growers
- Data collection: Increase operating efficiency
- Governments supporting initiatives to replace labour-intensive tasks (GRAPE and MARS)

Industry pain points

- Increasing labour challenges
- Picking quality and consistency
- Regulatory & ESG pressure to reduce chemicals
- Hygiene and food safety
- Need to optimise margins and reduce waste

.. High forecasted growth

22.8%

Projected CAGR 2020-2025

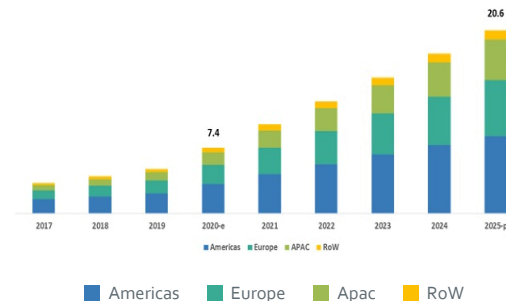
> 75%

of UK fruit growers scaling back production due to labour shortages

30%

shortfall in labour in US

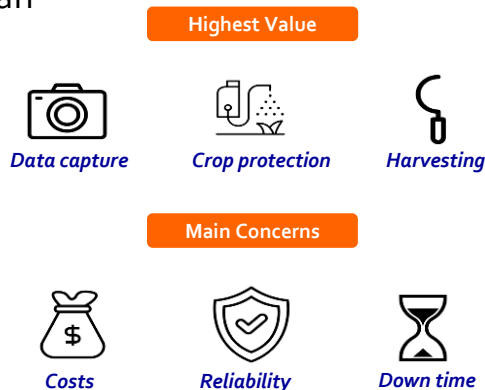
Agri Robotics Market Value (\$) 2017-2025



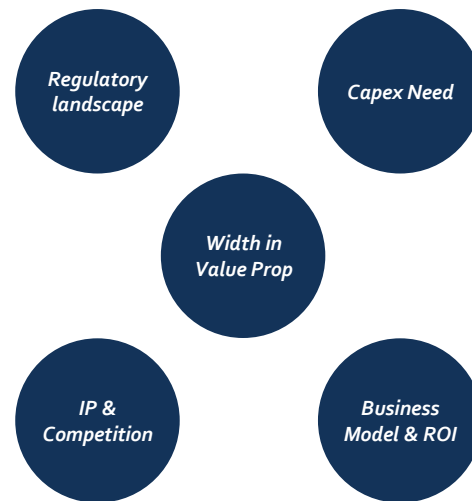
RCI's view on robotics investments

Survey among strawberry growers in NL, Australia, UK and US

- Labour accounts for the largest production cost and the greatest production challenge, followed by plant disease issues (e.g. mildew)
- 83% of respondents wouldn't mind some level of human intervention, and half of them are prepared to train staff



Key investment considerations



4. The ambition of Rabobank



Onderzoek

Bedrijven die digitaliseren zien omzet vaker groeien

1 april 2022 5:01



Sjoerd Hardeman
Senior-econoom



Niels Snoep
Themamanager Innovatie



Mark van Kampen
Sectormanager ICT Dienstverlening

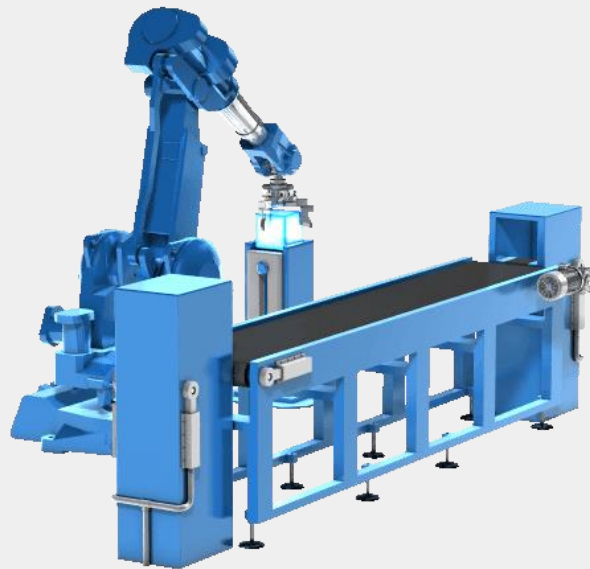
Bedrijven die (zwaar) inzetten op digitalisering maken een grotere kans op omzetgroei. Toch zegt slechts veertig procent van de Nederlandse bedrijven nadrukkelijk te kiezen voor digitalisering van hun bedrijfsvoering. Vooral in de informatie- en communicatiesector en de zakelijke dienstverlening staat digitalisering hoog op de agenda van bedrijven. Die in de bouw en de horeca lopen wat dit betreft wat achter.

Meteen de diepte in?

[Lees de volledige studie](#)

Enable the digital transformation

- Partnership with RoboHouse
 - Demonstration by 'SME influencers' – front runners in physical meeting @ Robohouse for 10-25 clients.
 - Knowledge transfer in 3 days via coaching, company visit and coaching on the floor
 - From Use Case to Action in 8 days
- Digitale werkplaatsen
- Nationale Proeftuin Precisielandbouw



Startup & Scale-up Team Rabobank

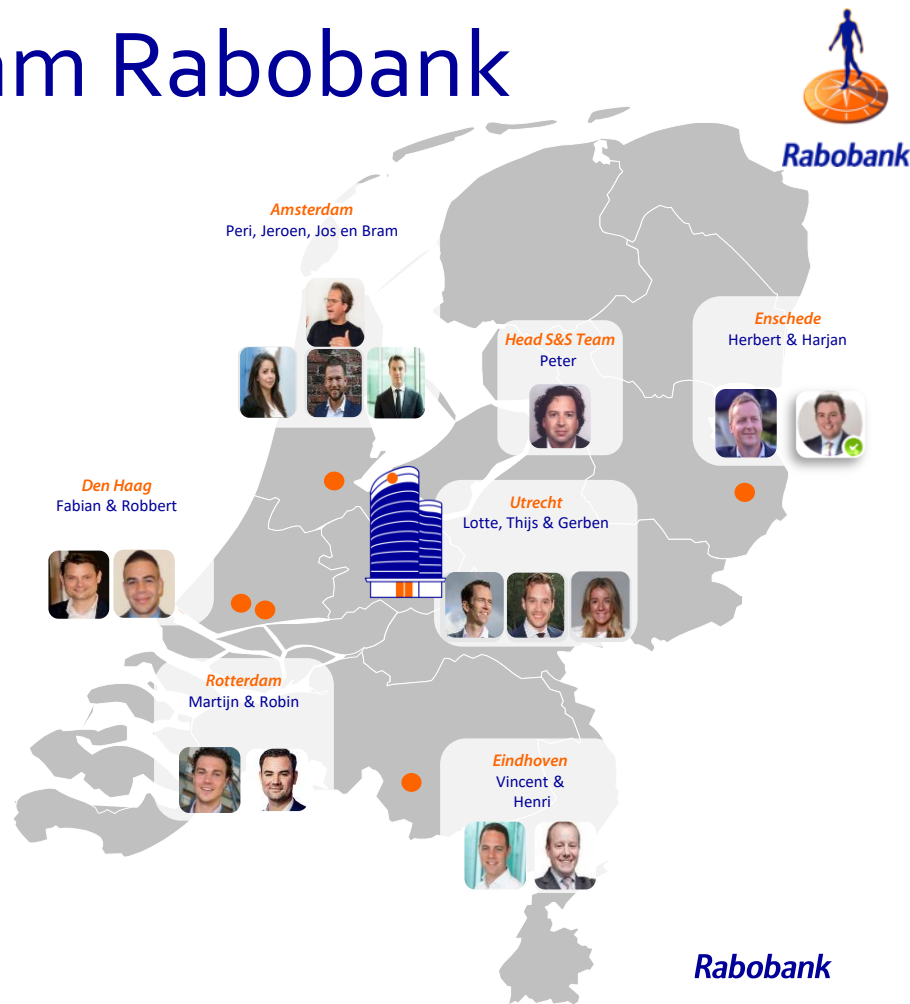
“The first bank of choice for
Startups and Scale-Ups”

Empowering
entrepreneurs

- To align the needs of this client group with Rabobank's ambition
- Regional teams and 2 sector specialists
- Funding, knowledge and network
- Deal structuring
- Linking pin in the ecosystem

Two fold :

1. Commercial Banking
2. Business Development



F&A Innovation ecosystem NL

Largest financer of startups and scale-ups



Venture capital



Competitions/ challenges



Conferences



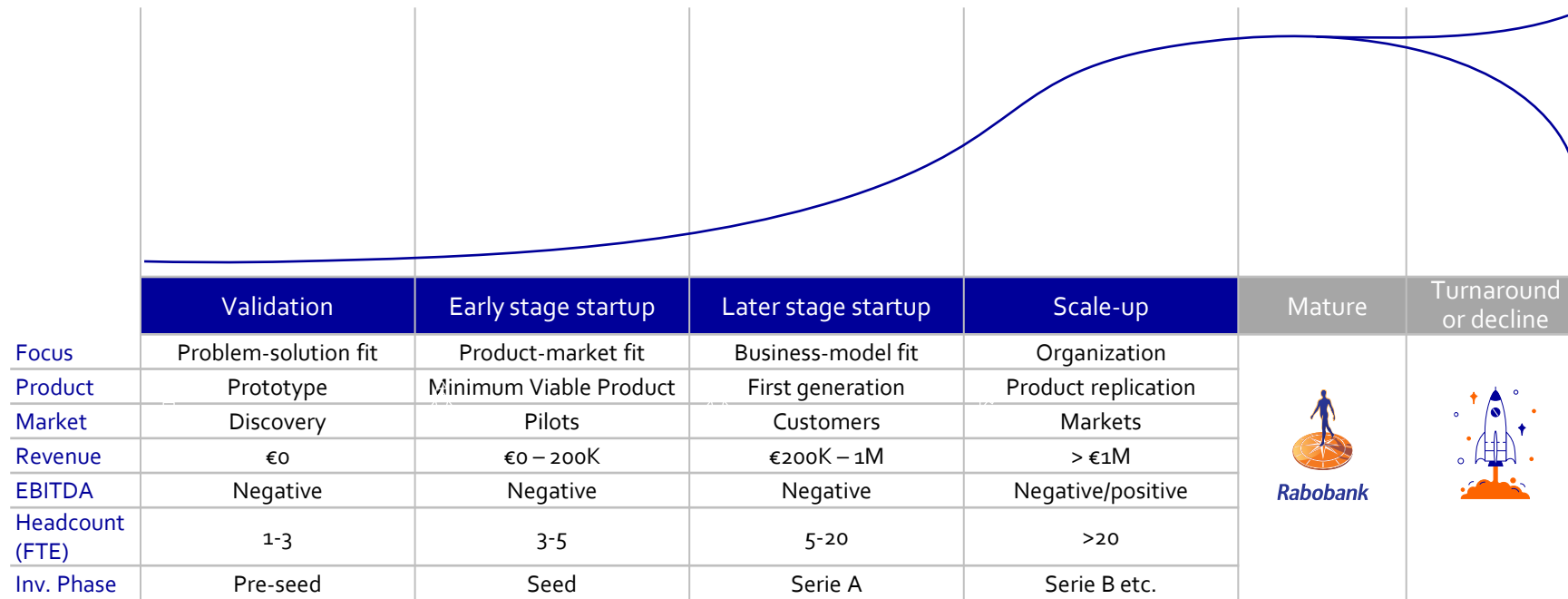
Startup programs



Universities



The life cycle of companies



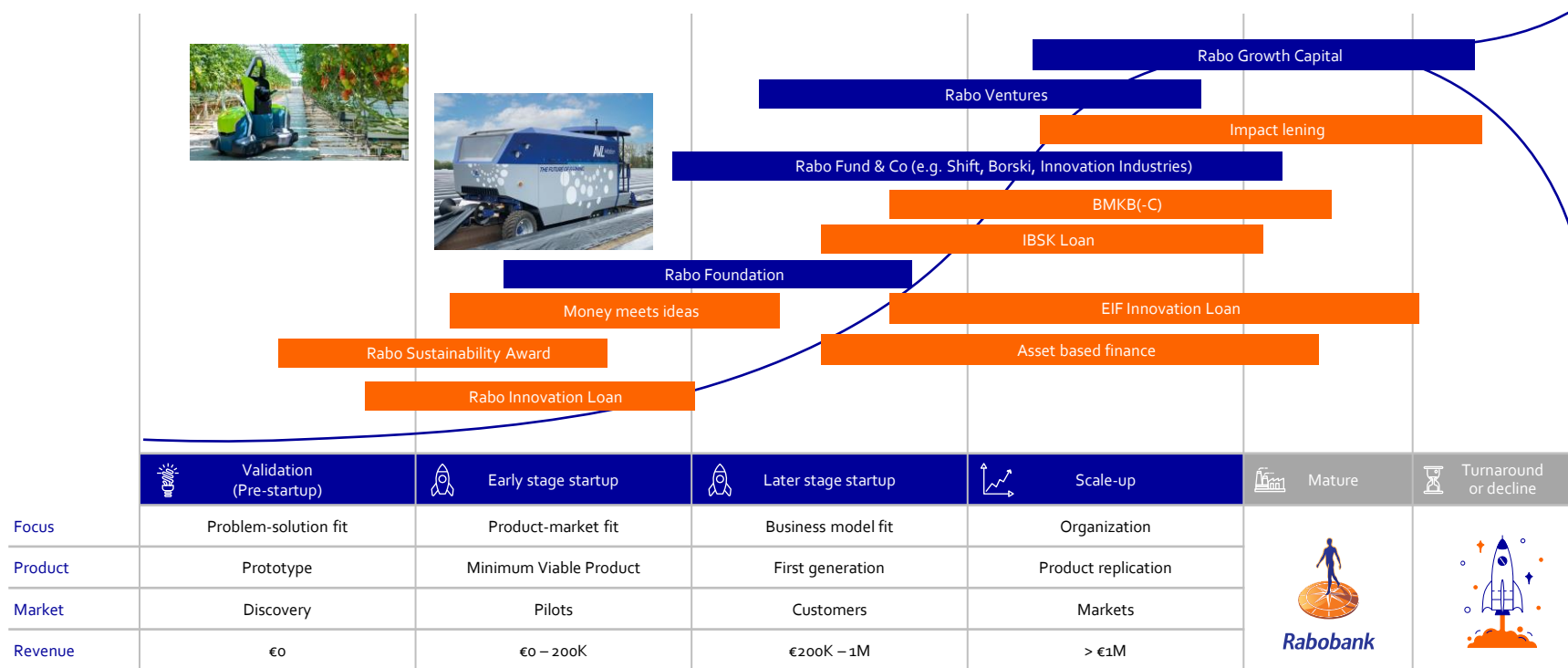
Finding a business model



Execute the business model

Proposition Rabobank

Bank financing and equity



Alle sectoren

Sectorfocus

Rabobank