# Holistic resilience solutions for Egyptian MSMEs

## Focus note

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# List of abbreviations

| | |
|---|---|
| ADB | African Development Bank |
| CBE | Central Bank of Egypt |
| EGP | Egyptian pound |
| ELMPS | Egypt Labor Market Panel Survey |
| EMPAEG | Egyptian Milk Producers Association |
| FAO | Food and Agriculture Organization |
| FGD | Focus group discussion |
| FSP | Financial services provider |
| GDP | Gross Domestic Product |
| IDI | In-depth interview |
| ILO | International Labour Organization |
| MSMEs | Micro, small, and medium-sized enterprises |
| OECD | Organisation for Economic Co-operation and Development |
| MT | Metric tonne |
| POS | Point of Sales |
| P&J | Paste & Juice |
| SSA | sub-Saharan Africa |
| VAS | Value-added service |

# Executive summary

*MSMEs in Egypt are underserved by insurance but are a significant potential target market.* Aspirational micro, small and medium-sized enterprises (MSMEs) play a fundamental role in the Egyptian economy as drivers of more than 80% of GDP growth and 40% of total employment, but they face considerable risks that hinder their capacity to thrive (OECD, 2018). Insurance could bolster MSMEs' resilience in the face of the risks and challenges they face; but, at present, it does not sufficiently fulfil this role. From a business perspective, there is also a considerable commercial opportunity for insurers to reach this largely untapped market – boosting profits in the short-to-medium term as well as expanding the addressable market in the long term if a sufficiently resilient and thriving MSME market is enabled.

*Insurers challenged in serving MSMEs.* Despite the business opportunity that this group represents, MSMEs are a heterogenous market that insurers generally struggle to distribute products to and gather data on. These challenges in turn significantly reduce the willingness and ability of insurers to develop tailored products that meet the unique needs of MSMEs. For many insurers, the costs are perceived to outweigh the potential benefits of serving markets that MSMEs operate within, many of which are typically weakly coordinated and lack the lucrative returns that larger enterprises attract on a per customer basis. On the demand side, insurers also face indifferent or negative perceptions from MSMEs towards insurance based on a lack of realised or experienced value from insurance. These perceptions are often driven by poor past claims experience, a weak insurance culture or simply a lack of tangible benefits that make an insurance policy worth its monthly premium.

*An alternative value-driven and customer-centric approach to insurance is needed.* It is time for insurers to urgently rethink their approach to serving MSMEs if they are to achieve the goal of effectively tapping into this potentially sizeable and profitable market. More specifically, insurance providers must deepen their understanding of MSME needs to design business-centric, fit-for-purpose resilience solutions. This requires an approach that:

1. segments MSMEs not as a homogenous group but based on the bespoke needs associated with their specific economic activities, and
2. reconsiders what it means to enable MSME resilience through different types of holistic risk-management and mitigation services that can be bundled together to amplify the value proposition of traditional insurance for MSME customers.

There are five key steps that insurance providers can follow – outlined in Figure 1 – to implement this new approach, which uses a value chain lens to inform, develop and test holistic, value-driven and customer-centric resilience solutions[1].

1 See Section 3 for a detailed explanation of each step of the proposed alternative value-driven and customer-centric approach that insurers can adopt to serve the MSME market.

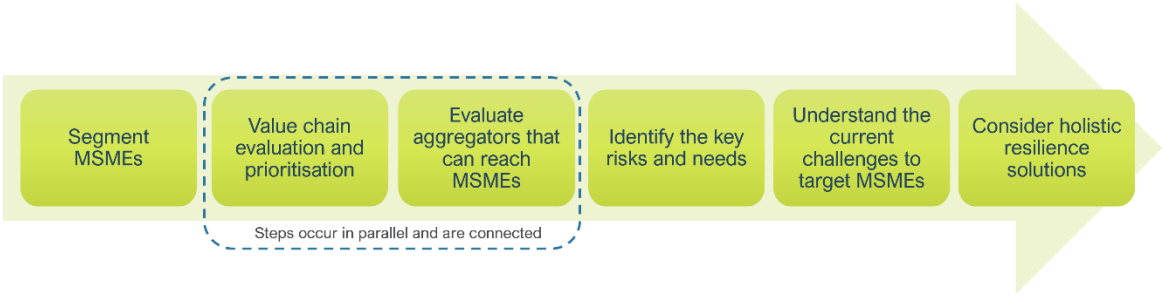


**Figure 1: Value chain segmentation approach for holistic MSME resilience solutions**

*Source: Authors' own*

*Study objective.* The objective of this project is to apply and test this value-driven and customer-centric approach in the Egyptian context in order to demonstrate the commercial viability for insurers to serve the MSME market with holistic risk solutions in three prioritised value chains: retail/fast-moving-consumer goods, dairy, and tomatoes. These value chains were selected, in collaboration with the project partners, for their current and potential contribution to inclusive economic development priorities, as well their commercial viability. By making these findings available to the Egyptian industry more broadly, this study also aims to catalyse other industries and players to innovate to better serve MSMEs using a segmented and value-driven holistic approach.

*Study results*. Research findings from this study (achieved through a combination of qualitative interviews, desktop research and industry stakeholder engagement) reveal the following key insights:

- *Steady cashflow a key cross-sectoral risk.* Although MSMEs across the three value chains reported a diverse array of risks, Figure 2 highlights cashflow management as a key cross-sectoral challenge experienced by sampled MSMEs. In most cases, this challenge manifested itself in terms of (i) being unable to pay for inputs/supplies while existing produce/stock is unsold; and (ii) the lack of access to affordable credit on suitable repayment terms resulting from cashflow volatility.
- *Climate events notably challenging for agricultural sectors:* While this challenge is top of mind for aspirational smallholder farmers, climate-related events – such as extreme heat, unpredictable pest and disease outbreaks and weather changes exacerbated by climate change – were also highlighted by MSMEs in dairy and tomato value chains as increasingly concerning secondary or tertiary risks. The lack of coping strategies used to proactively manage, rather than purely responding to, these risks highlight the vulnerability of these farmers to increasing common climate events in the absence of access to effective risk management and mitigation solutions.

| Value Chain | Top risks | Final top risk management solutions | Final top insurance products | Demand for product bundling | Top aggregators |
|---|---|---|---|---|---|
| **Retail*** | 1. Cashflow challenges<br>2. Shoplifting<br>3. Expired or damaged goods | 1. Anti-shoplifting technology<br>2. Business Management solution<br>3. Customer order management system | 1. Theft cover<br>2. Personal accident cover<br>3. Life insurance | Majority of sampled retailers sees value in bundling | • Digital payment platforms<br>• Online B2B marketplaces<br>**Findings for small retailers reported* |
| **Dairy** | 1. Cashflow challenges<br>2. High temperatures<br>3. Milk storage | 1. Veterinary solution<br>2. Bridging credit<br>3. Solar powered milk cooling system | 1. Life insurance<br>2. Livestock death insurance cover<br>3. Veterinary cost cover | Majority of dairy farmers see value in bundling | • Financial service providers<br>• Milk collection centres<br>• Processing firms |
| **Tomato** | 1. Cashflow challenges<br>2. Pest and disease<br>3. Price fluctuations | 1. Sustainable pest/disease farm management solution<br>2. Bridging credit<br>3. Market price information aggregation solution | 1. Crop insurance<br>2. Life Insurance<br>2. Personal health and accident insurance cover | Majority of tomato farmers see value in bundling | • Financial service providers<br>• Online marketplaces<br>• Processing firms |

**Figure 2: Study summary of results**

*Source: Authors' own*

*Insurance not currently used by MSMEs to cope but positive perceptions suggest untapped opportunity*. Financial services, including insurance, did not emerge as a top coping strategy used by sampled MSMEs. Although some retailers sought supplier credit to bridge cashflow issues, most MSMEs reported formal credit to be either too expensive or unsuitable based on the repayment terms offered. Although none of the sampled MSMEs owned an insurance policy, many MSMEs across the three sectors were aware of its availability and reportedly trusted insurance companies, albeit those primarily government owned. These findings reinforce the importance of trust and efficient service delivery when it comes to delivering value to customers, as well as the business opportunity for Egyptian insurers if they can capitalise on MSME openness to insurance that provide value.

*Digital and tech solutions are already present and offer potential for insurers to reach customers at scale.* Limitations on face-to-face interactions imposed by the COVID-19 pandemic, coupled with an increase in the uptake of mobile products, have opened new channels and digital platforms[2] for insurers to explore. Platforms most popularly used by MSMEs (particularly in retail) currently include digital payment services like Fawry and Vodafone Cash, and retail solutions such as MaxAb and Cartona. These financial and non-financial digital platforms can be used to disseminate information about the benefits of risk management products as well as to distribute insurance. Moreover, leveraging data from platforms can enable improved insurance product design, more targeted sales efforts and appropriate pricing.

2 Digital platforms are "online businesses that facilitate commercial interactions between at least two different groups, with one typically being suppliers and the other consumers" (Information Technology & Innovation Foundation, 2018).

*Simple risk management solutions that meet clearly defined risks and needs resonate most among sampled MSMEs*. Various risk management solutions were proposed and tested with MSMEs across the three value chains to determine how insurers could add more value to their MSME offerings. While most preferred solutions varied across value chains, a theme of simplicity resonated across all enterprises. In other words, solutions that are most intuitive and already established or known, were identified as most likely to be purchased by sampled MSMEs.

*Retail sector: business management solutions are most desired by small retailers and represent most viable target market for insurers*. While cashflow emerged as a top challenge for retailers, access to a suite of business management solutions rated as the highest priority need among small retailers. Business management solutions therefore presents the most attractive untapped prospective market opportunity for insurers. In particular, this solution would help retailers to manage inventory (including monitoring expired goods), source goods from suppliers, access accounting software and facilitate sales through digital point-of-sale devices. Retailers were also eager to access credit, directly or indirectly, via this solution by leveraging their accumulated data on the platform to de-risk their credit profile for lenders.

*Agricultural sector: solutions that enable sustainable and profitable farming practices are most demanded by aspirational farmers*. Although dairy farming is identified as a key contributor to worsening climate change, sampled dairy smallholder farmers were most interested in solutions that enabled proactive management of their cows' health, thus enabling greater milk production with fewer cows. Coupled with access to solar-powered cold storage, selected solutions have the potential to enhance milk production with fewer cows, thus enabling a lower overall effect on the environment. Although accessing credit was favoured across value chains, tomato farmers similarly desired solutions that enabled better oversight of current and future weather patterns, and a solution that informs farmers of sustainable ways to manage pests and diseases.

*MSMEs are interested in conventional insurance but recognise enhanced value of bundled offerings.* Theft and personal health/accident cover resonated most among small retailers, while life insurance and crop insurance were most desired by dairy and tomato farmers, respectively. Yet, while these traditional insurance offerings were preferred by sampled MSMEs when asked, consumer research found that when offered the option of purchasing preferred insurance policies together with preferred risk management solutions, the majority of MSMEs saw the enhanced value of this option relative to purchasing a risk mitigation and risk management solution individually. These findings highlight the consumer use case for insurers to consider more value-driven bundled offerings for MSME segments.

*Partnerships for aggregation, service delivery and ecosystem support are crucial for solution development and distribution.* Results both from Figure 2 and the study overall prove the attractiveness of more value-driven bundled insurance products to MSMEs in Egypt. To effectively design and distribute identified solutions, however, it is essential to find partnerships that can navigate fractured value chains and marketplace informality. To ensure that building blocks for technology-enabled and profitable MSMEs are in place, these partnerships should ideally include established actors such as:

- Aggregators that already effectively coordinate MSMEs within the value chain to help insurance providers tap into scale

- Value-added service providers that have market presence to cater for risk management solutions
- Adaptive supporting ecosystem actors such as development partners and policymakers

Although brokering these partnerships may be daunting and costly, if equipped with the data collected in studies such as these, insurers will be best placed to make informed decisions that can inform the development of commercially viable and valuable holistic resilience solutions for MSMEs.

# 1. Introduction

*MSMEs are cornerstones of economic development across Africa*. In many parts of the developing world, particularly in Africa, MSMEs act as essential drivers for employment, growth, and economic welfare. MSMEs account for over 90% of all businesses in sub-Saharan Africa (SSA) and Northern Africa and contribute upwards of 40%[3] to Gross Domestic Product (GDP) on average within each region (International Trade Centre, 2018). Moreover, approximately 60% of workers in SSA[4] are employed by MSMEs and MSMEs account for at least 45% of new jobs in Northern Africa (including Arab economies), many of which are taken up by women and youth (IMF, 2019). These figures highlight that the promotion of MSME development is crucial not only for a thriving economy, but also for sustainable livelihoods and enhanced income generation.

*Egyptian MSMEs form the backbone of the local economy.* The powerful economic role of MSMEs in SSA and Northern Africa is notably reflected in Egypt. As one of the largest and fastest-growing markets in Northern Africa with an annual growth rate of 3.6% between 2019 and 2020, Egypt possesses a strong MSME market that has historically been a key driver of its economic growth (World Bank, 2020b). It is estimated that MSMEs account for over 90% of active enterprises in Egypt (3.7 million) and represent the third-highest density of MSMEs in the whole of Northern Africa[5] (IMF, 2019; CAPMAS, 2021a). In 2017, MSMEs in turn contributed nearly 80% of GDP and nearly 75%of total private sector employment (Said, et al., 2017).

*MSMEs often struggle to survive and cope amidst high exposure to risks.* Despite their importance in Egypt and many other developing economies, MSMEs are inherently prone to failure and face considerable rates of attrition. It is estimated that around two-thirds of new businesses in Africa fail during their first year alone (Muriithi, 2017). This attrition partly stems from the variety of risks MSMEs face daily to survive. These risks range from high of levels of informality (more than 70%[6]) to theft, fire, floods and other natural perils exacerbated by climate change, all of which differ notably by business size and sector of operation (IMF, 2019). In Egypt, unreliable access to infrastructure (such as broadband), inadequate access to financing, as well as extreme weather and climate events are among the top risks constraining the survival of MSMEs (IMF, 2019).

*Insurance can contribute to MSME risk management.* In addition to their high-risk operating environment, the attrition rate of MSMEs is also a function of their limited access to effective and appropriate mechanisms to cope with risks. Much of the focus on MSME financial services to date has been on facilitating access to finance.

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3 MSMEs' contribution to GDP in Northern African or Arab economies ranges between 4% and 40% (IMF, 2019)

4 Promoting SME competitiveness in Africa: Data for de-risking investment (ITC, 2018)

5 Egypt has the third highest MSME density in Northern Africa (including Arab world) after Tunisia and Lebanon, at approximately 35 MSMEs per 1000 people, and exceeds the emerging market average of 22 MSMEs per 1000 people (IMF, 2019)

6 Muriithi, 2017; FinScope Swaziland, 2017; FinScope Lesotho, 2016; FinScope South Africa, 2010 and FinScope Malawi, 2019

Yet, beyond the common financing-related solutions necessary in markets such as Egypt, appropriate insurance and risk management tools (to manage, mitigate and reduce risk) are fundamental in promoting MSME growth. For individual enterprises, risk management solutions can smooth consumption, build assets, absorb shocks and manage risks linked to unpredictable income (ADB, 2017). By improving enterprise resilience and longevity, these MSMEs can, in turn, strengthen the value chains in which they operate – and in which they are relied upon by other value chain actors for inputs or services. In doing so, robust value chains, with a bedrock of resilient MSMEs, can further act to lower and/or mitigate against the real and perceived risks that lenders face to finance key MSME markets, thus stimulating further MSME growth and employment dividends.

*Insurers challenged to serve MSMEs as a relatively untapped market*. Despite facing a plethora of business and systemic risks, it is estimated that less than 2% of all MSMEs in sub-Saharan Africa and North Africa have any form of insurance (Sahler & Gray, 2020; AIG, 2020). Although this low uptake of insurance is partly driven by low levels of trust and low perceived value of insurance by MSMEs, insurers across the developing world are constrained by a number of challenges that hamper their willingness and ability to effectively serve this market. Specifically, while large enterprises[7] may be sufficiently lucrative customers for insurers to design bespoke products for on a case-by-case basis, MSMEs are not. MSMEs are highly heterogenous in the activities and risks they face, meaning that a single, standard "MSME" product is rarely appropriate to meeting the individual needs of a given MSME in a specific sector. In addition, MSMEs are often weakly coordinated or aggregated, making them difficult to reach from a distribution point of view. These constraints effectively leave insurers with a challenging business case to make MSME products commercially sustainable and valuable to MSMEs, especially in the absence of data on MSMEs needs, known or viable distribution channels, and a supportive insurance culture that recognises the value proposition of insurance.

*An alternative value-driven and business-centric approach to insurance is needed.* MSMEs represent a sizeable untapped market in developing economies, which, if sufficiently enabled in terms of their resilience to heterogenous shocks, has the potential to drive substantial demand for financial services – not only for themselves but also for their employees. To take advantage of this potential, however, insurers need to rethink their approach to this market by designing solutions aimed at meeting the actual needs of MSMEs – instead of merely offering products that cover commonly insurable risks. This requires an alternative approach that:

- targets MSMEs not as a homogenous group but based on their bespoke needs and risk profiles, and
- reconsiders what it means to enable MSME resilience through different types of holistic risk-management and mitigation services that will also strengthen the value proposition of traditional insurance for MSME customers.

[7] Large enterprises in the Egyptian context refer to formalised enterprises with a turnover of more than 200 million EGP, Capital of >15 million EGP in the manufacturing sector and more than 5 million in the non-manufacturing sector (DCode, 2020).

With (approximately) less than 7% of Egyptian MSMEs having access to formal credit, and an insurance penetration rate of less than 1%[8], a clear need – and commercial opportunity – exists in Egypt for alternative approach to MSME resilience (World Bank, 2020).

*Project objective.* The objective of this project is to apply the aforementioned value-driven and business-centric approach in the Egyptian context to demonstrate the commercial viability for insurers to address MSME markets through the provision of holistic risk solutions within specific value chains. As such, it aims to scope out the feasibility of – and options for – combining innovative risk management solutions with traditional insurance products. By making these findings available to the Egyptian industry more broadly, this study aims to catalyse other industries and players to similarly innovate to better serve MSMEs by way of a segmented and value-driven holistic approach.

*Report structure.* This report begins with an overview of MSMEs and their characteristics in the Egyptian economy in Section 2. This is followed by Section 3, which provides an overview of the conceptual approach applied to identify, investigate and build the business case for insurers to better serve MSMEs with holistic risk solutions, using a value chain lens. Section 4 briefly describes the methodology that underpinned this approach across three selected value chains in Egypt. Section 5 details the outcomes of the research approach as well as the opportunities identified across the three value chains. Section 6 concludes the report with recommendations targeted at key stakeholders interested in working to catalyse the provision of appropriate and holistic resilience solutions for MSMEs in the developing world.

8 MENA Insurance Markets: A mini guide (2013)

# 2. Overview of MSMEs in Egypt

*MSMEs are core to the Egyptian economy*. In 2017, Egypt recorded a total of 3.7 million MSMEs[9], accounting for 98% of total enterprises (CAPMAS, 2020a). Of these enterprises, approximately 200,000 are SMEs while more than 3 million are microenterprises (CAPMAS, 2020a). Although SMEs make up a small share of enterprises, these enterprises are critical in Egypt's economy, as they absorb approximately 15% of the total workforce and contribute around 20% of total production (CAPMAS, 2020a; OECD, 2018).

*MSMEs are important for the wholesale and retail sector and operate primarily in Cairo.* As illustrated in Figure 3, the majority of MSMEs operate in the wholesale and retail sector (58%), followed by the manufacturing sector (14%) and the services sector (9%) (CAPMAS, 2020a). Most of these MSMEs are located in Cairo (13%) followed by Giza (9%) and Dakahliya (9%) (CAPMAS, 2020a).

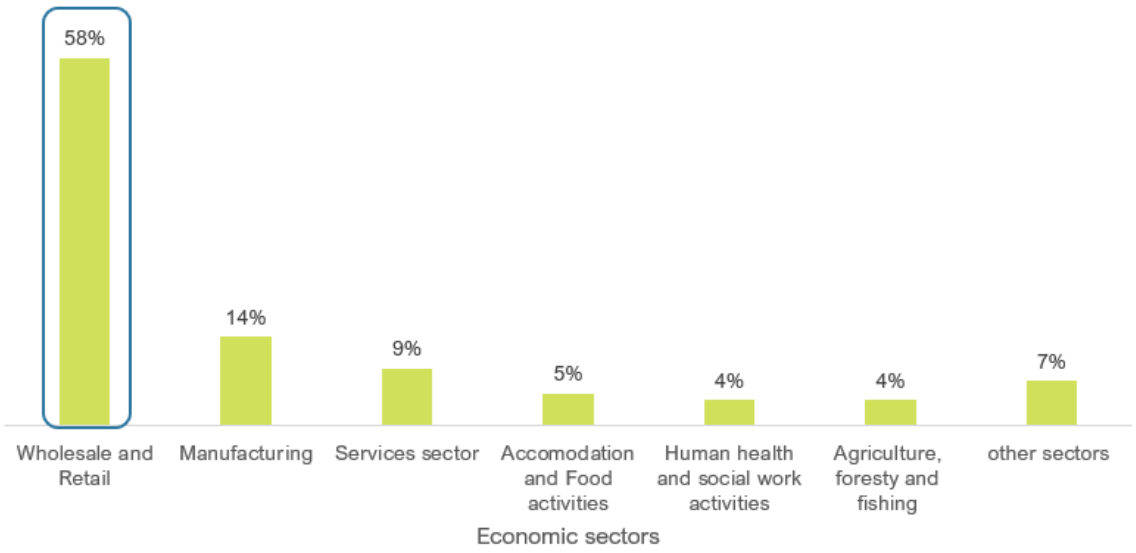


**Figure 3: MSMEs disaggregated by economic sector**

*Source:* (CAPMAS, 2020a)

*A large proportion of MSMEs in Egypt are informal.* The informal sector in Egypt is estimated to account for between 30% and 40% of the economy, employing approximately 63% of Egypt's labour force in 2020 (Mabrouk, 2020). Furthermore, a large majority of micro-enterprises and SMEs more broadly are informal and are characterised by a lack of formal registration and licence to operate (World Bank,

[9] The definition of MSMEs applied in this study is based on the Egyptian MSME Development Law no.152 of 2020. According to this law, micro enterprises have an annual turnover of less than 1 m EGP, small enterprises have an annual turnover of 1 - 50 m EGP and medium enterprises have an annual turnover of 50 - 200 m EGP (DCode, 2020).

2012). In 2020, it was estimated that small and micro enterprises account for at least 90% of informal enterprises in Egypt (ECES, 2020).

*Low usage of credit and savings among MSMEs.* An estimated 80% and 93% of small and medium-sized enterprises in Egypt own a bank account, respectively (World Bank, 2020). Among those who have bank accounts, most MSMEs use these accounts primarily for deposits and transacting rather than for savings or credit. Only 4% and 7% small and medium-sized enterprises respectively have access to credit from a bank (World Bank, 2020). Enterprises are more likely to rely on supplier credit to finance their working capital, as suppliers are often able to offer credit at lower interest rates and more suitable repayment schedules than banks (World Bank, 2020).

*Insurance penetration low among MSMEs*. While there exists a variety of insurance providers in Egypt, the total number of written insurance policies is relatively low compared to the number of Egyptian MSMEs. From the supply side, only few insurers in Egypt even offer insurance products specifically designed for MSMEs. Moreover, existing products often only target the medium-sized companies within the MSME segment and do not reflect the heterogeneity of MSMEs regarding their risk profiles and insurance needs. Drivers of low insurance uptake among MSMEs include cost and a lack of faith in insurance providers to pay out in the event of a loss (Atlas magazine, 2021). While these findings suggest a poor perception towards the value of insurance among MSMEs, the recent 21% annual compound growth of insurance over five years in Egypt[10] in terms of gross premiums suggests scope and feasibility for the local industry to tap into the MSME market (American Chamber of Commerce in Egypt, 2019).

# 3. An alternative approach to insurance

Egyptian insurers and other financial service providers need a new way of thinking to enhance MSME access to growth and resilience opportunities, as illustrated in Section 2 by the weak existing access of Egyptian MSMEs to finance and risk solutions. This section outlines the key steps insurers and other players can apply to identify opportunities to enhance the perceived and actual value of solutions offered by insurers to MSMEs.

This approach involves prioritising MSME segmentation as a starting point. It then shows where and how to target desired MSMEs using a value chain approach to uncover key aggregation points, before illustrating the importance of designing holistic risk mitigation and bundled solutions from a needs perspective (as illustrated in Figure 4Figure 4).

[10] Between 2014 and 2019.

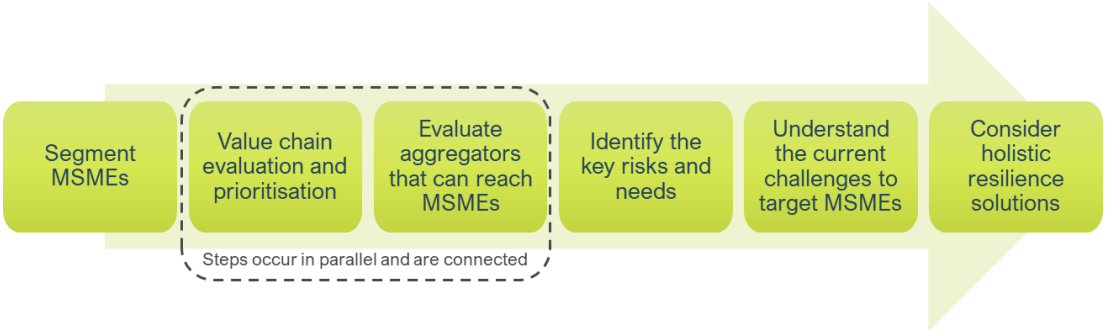


**Figure 4: Value chain segmentation approach to effectively serve MSMEs**

*Source: Authors' own*

1. *Segment MSMEs.* The degree of heterogeneity across different types of MSMEs means that the process of defining and segmenting them is critical in designing an intervention that adds value to the business, society and the economy. Annual turnover is the most popular criterion used to segment MSMEs in Egypt[11]. However, this criterion is not a particularly useful proxy to use to segment MSMEs by their specific risk profiles and needs. A more important initial segmentation could be to distinguish between survivalist and aspirational MSMEs, with the latter serving as the core target market for this approach and study. Unlike survivalist enterprises, whose primary objective is to earn income to maintain their livelihoods, aspirational enterprises are usually slightly larger and most critically see their business as more than just a means of survival – that is, having the ability to grow. From an insurer's perspective, aspirational enterprises are – *inter alia* – those that distinguish between personal and business expenses and risks and, unlike survivalists, would have the need for enterprise-specific insurance solutions as well as for personal risk cover. Aspirational enterprises are therefore more likely to see the value in holistic risk solutions if they are offered, and they are more likely contribute to growth and employment.
2. *Value chain selection and prioritisation*. The next step is to further disaggregate MSMEs based on their primary economic activities within specific economic sectors or value chains. A small hotel and a small factory may both be classified as part of the "small" or "medium" category of businesses (according to the formal definition) and are both "aspirational"; yet, given how different the activities and markets are within which these two businesses operate, the risks that they face are almost certainly substantively different. The mapping of economic sectors/value chains can therefore identify sub-groups of MSMEs facing similar cross-cutting risks, and thus serves as a means to group/cluster enterprises that have similar needs. This clustering can enable insurance providers to develop tailored products that address the specific needs of each enterprise segment.
3. *Evaluate aggregators that can reach MSMEs.* In addition to identifying clusters of MSMEs with common risks, a key parallel step to prioritising MSME value chains is to identify suitable actors that can aggregate segmented MSMEs for the purpose of product/service distribution. These aggregators are essential not only to selecting the most coordinated value chain, but also to determining the most commercially viable market with existing structures to sell products through.

11 Other frequently used parameters include geographical location and size of assets.

Identifying the most appropriate aggregators for the target segments, however, requires an in-depth understanding of the economic sector/value chain to identify which key nodes target groups connect to.

Considered together, insights from implementing the first three steps described above can be used to identify viable MSME segments for insurers to target – in other words, MSME segments that constitute a promising business case for which insurance providers can explore the potential to design tailored solutions.

4. *Identify the key needs and risks that similar MSMEs face.* As mentioned above, value chain segmentation can provide a lens through which MSME risks can be identified. Yet, once specific MSME value chains have been selected, an additional deeper layer of analysis is required to understand the exact needs and challenges of respective MSMEs to survive. Conducting demand-side/qualitative research to engage these groups or sub-sets on their key needs and risks constitutes a crucial source of this information. Additionally, discussions and partnerships with key value chain actors, such as aggregators, will provide useful insight into the risks, realities, challenges and needs of the target market. Increasingly, tech-enabled ecosystem actors and aggregators may also collect substantial amounts of data on the target group, which can be further analysed to better understand their needs and more accurately model their risks. Examples include mobile-enabled digital financial service providers and mobile-based digital platforms that serve a value chain integration role.
5. *Understand the current challenges to serve targeted MSMEs.* In parallel to identifying the target MSME risks and needs, it is important to gather an understanding of how these MSMEs are currently being served or underserved, and why. A clear understanding of the existing challenges to better serve the market provides a useful guideline for insurers on how and where to adapt to overcome these constraints and to better reach MSMEs with value-driven solutions.
6. *Consider holistic resilience solutions.* Once groups with similar needs have been selected, aggregation points identified, and the groups' risks understood, insurers need to consider solutions that can best speak to MSMEs' risks and needs. Uptake and usage will depend on customers' perceptions of these solutions as valuable and tangible. In many cases, stand-alone "pure insurance"/traditional risk transfer mechanisms will not be a perfect or even sufficiently comprehensive answer, or even the main selling point. As such, it is important to consider the development of solutions that can mitigate and manage specific risks and reduce the likelihood of occurrence or the scale of the risk when it does occur. New technologies, such as sensors that are sensitive to increases in temperature, low-cost management software and apps that can enable users to identify pests and diseases, increasingly allow for these types of offerings to be incorporated as a part of a quantifiable, "holistic" resilience solution. Non-technological solutions, such as training and information sharing, will likely also be important to consider in enhancing MSMEs' risk management. In this way, industry players can transition from being providers of insurance to being risk management partners.

*This paradigm shift can be advantageous for insurers and MSMEs alike.*
The proposed approach may constitute a paradigm shift for some insurers, as the emphasis moves away from considering which insurance products can be sold,

towards starting by asking which solution is most relevant to the potential MSME customer. However, this approach, when effectively implemented, has the potential to not only offer greater value and tangibility to consumers, but also to enhance the business case for insurers. Firstly, MSMEs engaging in effective and proactive risk management and risk mitigation are less risky clients. For example, an MSME that has effective fire mitigation strategies in place is less likely to experience a fire and therefore less likely to claim on their fire insurance policy. Secondly, tech-enabled risk management solutions are frequently also able to collect significant amounts of data related to the risk exposure of the insured client, thus enabling insurers to:
a) further tailor their solutions as they better understand clients' needs; and
b) enhance the quality of their own risk modelling.

Therefore, although the adoption of this alternative and more holistic approach may require some initial risk in terms of working with new partners and venturing into perceived risky markets, the rewards of taking these bold, but necessary, steps can be substantial. The following section outlines the application of this approach to the Egyptian context.

# 4. Research methodology

This section describes the mixed methodology applied to put the research approach, outlined in Section 2, into practice. The various steps comprising the methodology include desktop research, consumer research and stakeholder interviews.

## 4.1. Value chain selection

*A two-step segmentation process* . Value chain segmentation was conducted in this study using a two-prong desktop research approach, as displayed in Figure 5. As the first step, economic sectors with the highest economic potential and highest contribution to livelihoods were identified. Following this sector prioritisation, the most promising value chains within these economic sectors were selected based on their commercial viability for a holistic resilience solution. The selection criteria applied per step, as well as the outcomes of each selection process, are displayed in Figure 5[12].

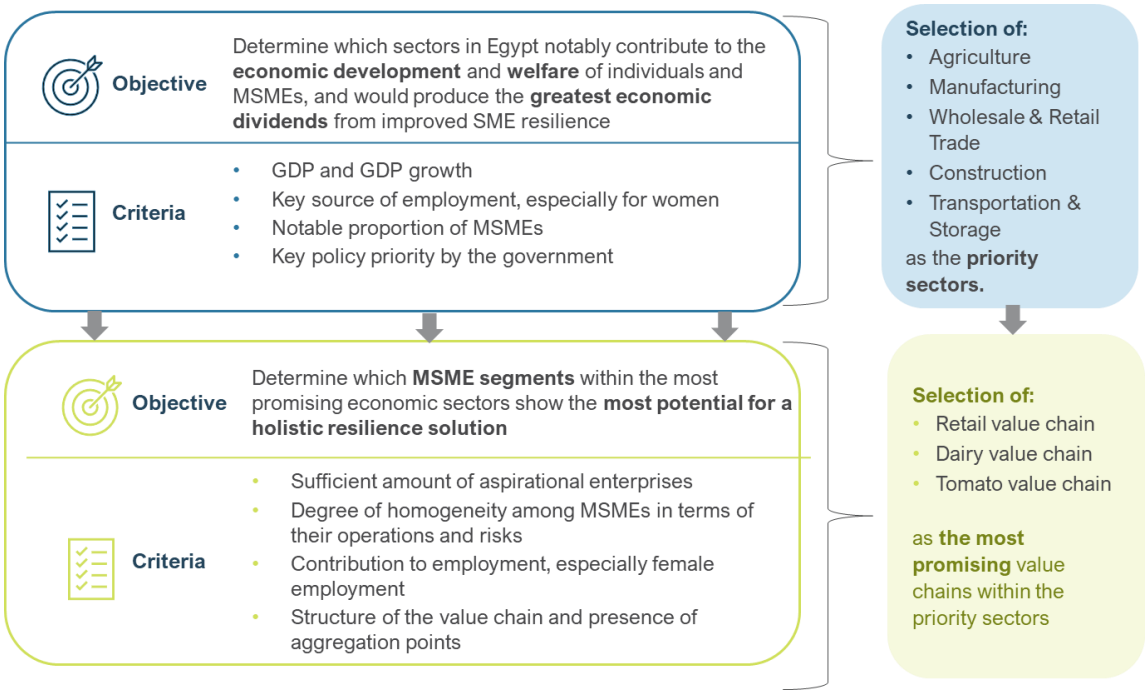


**Figure 5: Overview of two-step process for value-chain selection**

*Source: Authors' own*

12 The detailed outcomes of the two steps of the value chain selection process are in Appendix A.

*Retail, tomato and dairy targeted as high-potential value chains.* Three value chains emerged as having a high potential in terms of commercial viability and contribution to livelihoods, especially female livelihoods. This implies that they showed not only a market with a large potential pool of profitable MSMEs to reach scale with, but also a sufficiently structured value chain through which to access and distribute a resilience solution. Although agricultural value chains like dairy can have adverse environmental impact and contribute to greenhouse gas emissions, the rationale for their inclusion is also driven by the potential of resilience solutions to offset or reduce these impacts. Through more holistic resilience solutions, improved MSME resilience could not only mean strengthened livelihoods and growth, but also inclusive and environmentally sustainable growth.

## 4.2. Consumer research to understand MSME needs and preferences in Egypt

*A funnel approach applied to understand the realities of Egyptian SMEs per value chain.* A funnel approach was used to conduct qualitative research among 108 aspirational MSMEs across the three value chains in total[13]. As displayed in Figure 6Figure 6: Funnel approach for the consumer research, the funnel approach starts by understanding the risks and challenges. Based on this, an extensive list of potential value-added services (VAS) and insurance products that speak to these challenges is proposed and tested. In the final round, only those solutions that resonate most among the target market are tested as product bundles, including testing of the key design features related to these bundles.

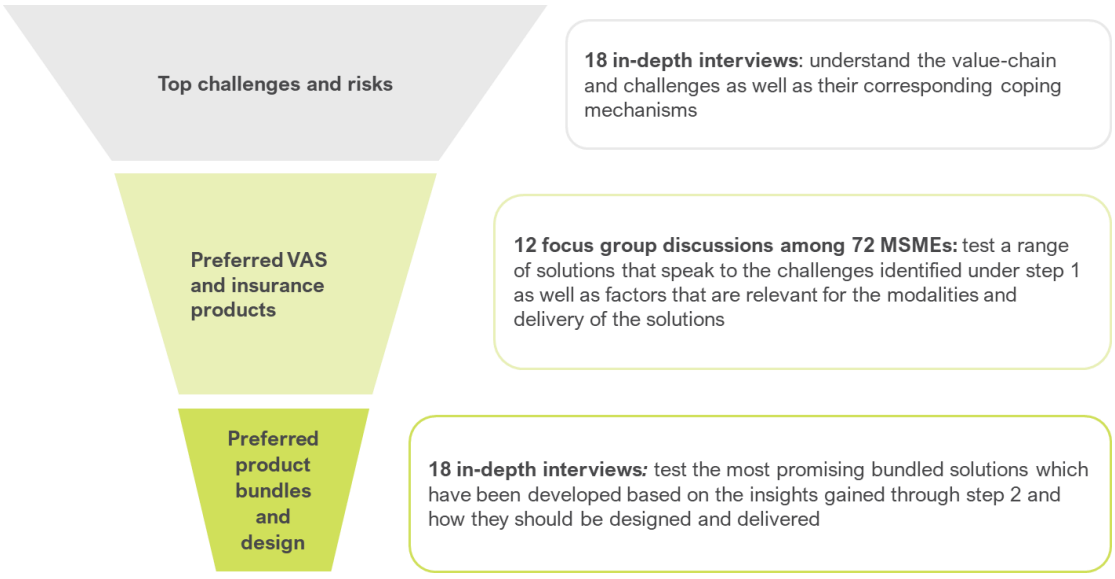


**Figure 6: Funnel approach for the consumer research**

*Source: Authors' own*

13 The research was conducted by Frontier between August 2021 and November 2021 in Cairo and Nile Delta regions. The sampling details are included in Appendix B.

## 4.3. Stakeholder interviews for supply-side insights

*Various stakeholders consulted to understand market challenges to serve Egyptian MSMEs.* Consultations with various industry stakeholders were conducted remotely over the course of 2021. The objectives of the stakeholder interviews were four-fold:

1. Understand the structure of the identified value chains and their respective market potential.
2. Understand what industry players are currently doing or have done in the market to address the resilience needs of MSMEs/smallholder farmers.
3. Explore the challenges faced by providers to serve SMEs/smallholder farmers
4. Test the existence and viability of existing value chain aggregators as potential distributors.

Six stakeholder categories were consulted across each of the three value chains. These include financial services providers, digital platforms, value chain associations, government agencies, industry players and relevant development organisations[14].

14 See Appendix C for the full list of stakeholders consulted in prioritised value chains.

# 5. Opportunities for holistic resilience solutions

This section describes the project findings gathered through the methods outlined in Section 3. It presents insights on the respective target market per value chain, the risks and challenges experienced by the target market as well as the solutions that resonated most with aspirational MSMEs within selected value chains.

## 5.1. Retail value chain

### MSME and value chain characteristics

*The retail sector is a burgeoning hub of SME growth and development*. The retail sector (including FMCG) is an important contributor to the Egyptian economy, with the wholesale and retail trade sector contributing 14% to GDP and growing at a rate of 4% in 2018/19 (CAPMAS, 2021a). It is also a key source of livelihoods, with the wholesale and retail sector contributing 14.5% to total employment, and it has the second-highest female participation in Egypt, with women contributing up to 14% of the labour force (CAPMAS, 2021b). Independent and small-scale outlets dominate this market, representing 96% of total outlets and around 80% of total sales (Al-Habbal & Akingbe, 2020). Overall, the retail value chain has a high number of MSMEs, with an estimated total of 1.85 million enterprises, equating to 57% of MSMEs operating in Egypt, of which 45% (840,334 retail MSMEs) are formally registered[15] (CAPMAS, 2020a).

*Value chain structure for the sourcing of stock varies*. The retail value chain comprises two distinct channels that are differentiated according to how retailers source their stock. **Error! Reference source not found.** visualises these two channels as the:

- **Wholesaler/distributor channel:** Retailers, predominantly small in size, source their stock using intermediaries that consolidate desired produce on behalf of retailers.
- **Manufacturer channel:** Goods are directly sourced from manufacturers and transported to retailers. This channel is most common among larger retailers, like supermarkets and large grocers, and it is mostly used to source particular items.

15 Registered businesses practice their activities through holding a permission/ license (CAPMAS, 2020a).

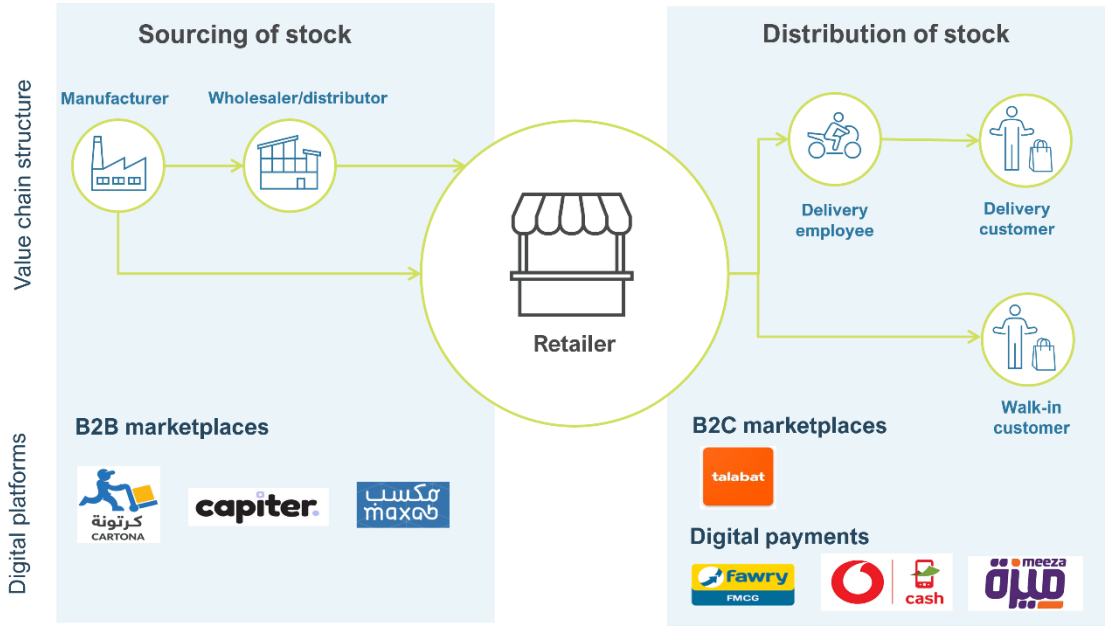


**Figure 7: Retail value chain structure**

*Source: Authors' own, based on consumer research*

*Growing popularity of on-demand delivery among retailers in light of the COVID-19 crisis*. Retail MSMEs distribute their stock to consumers in two ways, as displayed in **Error! Reference source not found.**:

- **Direct selling to customer route**: This route is the traditional route for selling products that consumers purchase in-store. The dominant payment method is cash, although some of the larger retailers accept card and mobile money payments as well.
- **Delivery of products to customer route[16]:** Customers order either via phone call, WhatsApp or mobile-based digital platform – the latter channels are primarily used by larger retail MSMEs. The goods for home delivery are then either delivered by the retailer employees or delivered via a contracted delivery company. Customers pay using cash or mobile money solutions such as Fawry or Vodafone cash.

*Manufacturers and digital platforms aggregate a large pool of retail MSMEs.*
The manufacturer route provides an easier entry point into the retail value chain than the wholesaler/distributor route due to the close relationships that manufacturers have with large retail networks. In this regard, popular local digital platforms, such as MaxAB or Cartona that aggregate several manufacturers through one platform and connect them with retailers, are especially crucial aggregation points in the retail value chain. Moreover, platforms that support the delivery route (e.g. Talabat[17]) are key aggregation points as well as merchant payment platforms such as Fawry.

16 The prevalence of this route in comparison to the direct selling to customers depends on the extent to which the respective retail MSME serves longstanding vs. walk in customers which in return depends on factors such as the area in which the respective retailer is located in.

17 For instance, Talabat is a platform that offers food and grocery delivery solutions to restaurants and retailers.

*Nascent adoption of digital payments and formal financial services among retailers*. Cash remains the preferred payment method for both merchants and customers in Egypt among small-to-medium-sized enterprises. Although larger supermarkets facilitate bank transfers and digital payments via point-of-sale (POS) devices, usage among customers is low. Usage of other financial services is similarly low among retailers. Fewer than 60,000 businesses (3% of all retail MSMEs) received a loan in the last five years of business (CAPMAS, 2020a). This has been driven to a certain extent by hesitancy among retail MSMEs to take up formal credit due to inflexible repayment schedules and high interest rates. Insurance uptake is similarly low for various reasons, such as low trust and limited knowledge and/or understanding of insurance products.

## Key risks faced and coping mechanisms used

*Cash flow management is a primary challenge faced by retail MSMEs*. Sampled retail MSMEs reportedly struggle to access the short-term capital needed to bridge gaps in their cash flow, as displayed in Figure 8. For example, during focus group discussions, a supermarket owner noted that "*sometimes I don't have the needed cash-flow*" and that "*any supermarket faces a problem when there is low cash-flow*". These gaps in cash flow are often due to suppliers demanding full payment before new stock is delivered. However, retail MSMEs have not yet received the money needed for buying this new stock by selling existing stock.

*Challenges related to stock management and theft are other key concerns for retail MSMEs*. The second-most and third-most common challenge highlighted by sampled retail MSMEs are shoplifting and dealing with expired goods or damaged goods. The impact of these challenges on retailers is illustrated by a statement from the owner of a supermarket which indicated that *"robbery and expiry dates worry me".*


**Figure 8: Top five risks faced and associated coping mechanisms used by retail MSMEs**[18]

18 Other risks experienced by retail MSMEs but that were mentioned to a far lesser extent include insufficient quantities from supplier/missing stock, cash handling and risk of robbery, lost order from telephone ordering, lack of alternative payment methods for customers, and transport challenges related to sourcing of the supply.

*Source: Authors' own, based on consumer research*

*Basic strategies are used to manage risks, with insurance playing minimal role*. Sampled retail MSMEs use a variety of measures to respond to the aforementioned risks, as outlined in Figure 8. Most of the coping mechanisms utilised by retail MSMEs are, however, relatively basic and are not necessarily sufficient to proactively manage risks. For instance, retail MSMEs purchase goods by dipping into revenues, thus constraining their ability to invest in the growth of their business. Similarly, while fire extinguishers are necessary to respond to fires, they're unable to act as early warning systems to prevent fires from taking place. This limitation of current coping strategies was recognised by a supermarket owner interviewee who indicated that *"we have fire extinguishers but we don't have [a] fire alarm".*

## Opportunities for holistic resilience solutions

*Anti-theft technology identified as top desired solution for small retailers.* The top desired solution for small retailers, a segment identified as a primary MSME market for insurers given their likelihood to grow in insurance demand, is anti-shoplifting technology solutions. These solutions refer to soft and hard tags attached to store items, and related entrance sensors or surveillance systems capable of alerting owners when items leave the store without being sold.

*Business management solutions rank as the most desired risk management solution*. Figure 9 outlines the top products demanded, among those presented, by sampled retailers in light of the identified challenges. Technological systems that support retail MSMEs with managing their inventory and cash-flows digitally emerged as most desired solutions by small retailers, together with customer order management systems. Retail MSMEs are keen to apply these tools, as they see direct commercial value in them for improving their current business practices and performance[19].

Order of Prioritisation

| Solution | Description | Drivers for demand |
|---|---|---|
| Anti-shoplifting device | Administer cash-flows digitally and access to cash flow reports. | • Understanding business performance<br>• Accuracy of records |
| Business management solution | Combination of inventory management, stock sourcing through B2B marketplace, basic accounting software, bridging credit and point-of-sales device | • Provides inventory visibility and order in retail management<br>• Helps detection of expired goods<br>• Stock control and re-stock alert and ability to easily restock<br>• Access to affordable working capital |
| Customer order management system | Capturing all customer orders in a single system and tracking them from initial acceptance to final delivery. | • Upgrade to existing practice<br>• Provides accuracy of orders |

19 Although cash flow management is the main challenge expressed by retail MSMEs, bridging credit ranked the lowest among the top five risk management solutions. This result stemmed more from a concern around high interest payments and inflexible repayment schedules, rather than a lack of demand *per se*. Sampled retailers noted that they would be interested in bridging credit if suitably tailored to their needs and circumstances.

**Figure 9: Top three risk management solutions**

*Source: Authors' own, based on consumer research*

*Traditional insurance products linked to theft and fire show highest demand*. Various insurance products were tested for their demand among retail MSMEs to inform the best-suited resilience product bundles for MSMEs. The most demanded insurance overall for small retailers was coverage related to business disruption, such as theft and fire. Life insurance also emerged as a highly demanded offering due to the benefits owners identified for themselves, families and employees. For instance, a female supermarket owner reported that *"Life insurance is something like [a] guarantee for my kids later as they don't have personal income till now."*

*Bundling risk management solutions with insurance products resonates with retail MSMEs*. Retail MSMEs see clear value in the bundling of products, as it enables them to not only better mitigate the risk by utilising the risk management solution but to be protected in case the risk materialises as well. For example, a female grocery shop owner reported that she would *"choose covering theft with technology to fight theft accidents. It is a solution which covers the accidents if you face it.*" This implies that while MSMEs express demand for risk management solutions and traditional insurance products separately, the idea of bundling does resonate among them as well. Existing digital platforms that are already used by retail MSMEs could be leveraged for the distribution of the holistic resilience solution – as could financial institutions.

## 5.2. Dairy value chain

### MSME and value chain characteristics

*Dairy production and processing are a key income source for Egyptian agriculture*. In 2018, the dairy value chain contributed 7.8% to total agriculture production, thus acting as an important source of livelihood for participants in Egyptian agriculture (CAPMAS, 2020b). The dairy value chain is also a growing industry – illustrated by the 10% growth in the total value of dairy milk production between 2017 and 2018, for example (CAPMAS, 2020b).

*MSMEs involved in dairy are primarily smallholder farmers*. MSMEs can be involved in the different steps of the value chain, such as input provision, milk production, milk collection, dairy processing[20] and selling milk. The vast majority of these MSMEs are, however, primarily engaged in the production of milk (ILO, 2020b). There are more than 600,000 dairy farms in Egypt, many of which are owned by smallholder farmers or MSMEs who own nearly 90% of all cows in the country (1 to 10 animals per farm) (ILO, 2020a).

*No one-stop shop exists to source all required inputs*. Smallholder farmers use two different channels to access inputs, as illustrated in Figure 10Figure 10: Dairy value chain structure. Farmers who source bran and salts directly from factories deal directly with the respective factory through a sales representative. For other inputs

20 There are about 2,000 dairy processors in Egypt (ILO, 2020b).

such as fodder and dairy meal, wholesalers are used. The ordering of inputs takes place primarily via phone or WhatsApp, while cash is preferred for input purchases. Purchased inputs are either collected by farmers themselves or delivered by the factory or wholesaler. The latter option is primarily used by larger dairy smallholders that order relatively large consignments of goods.

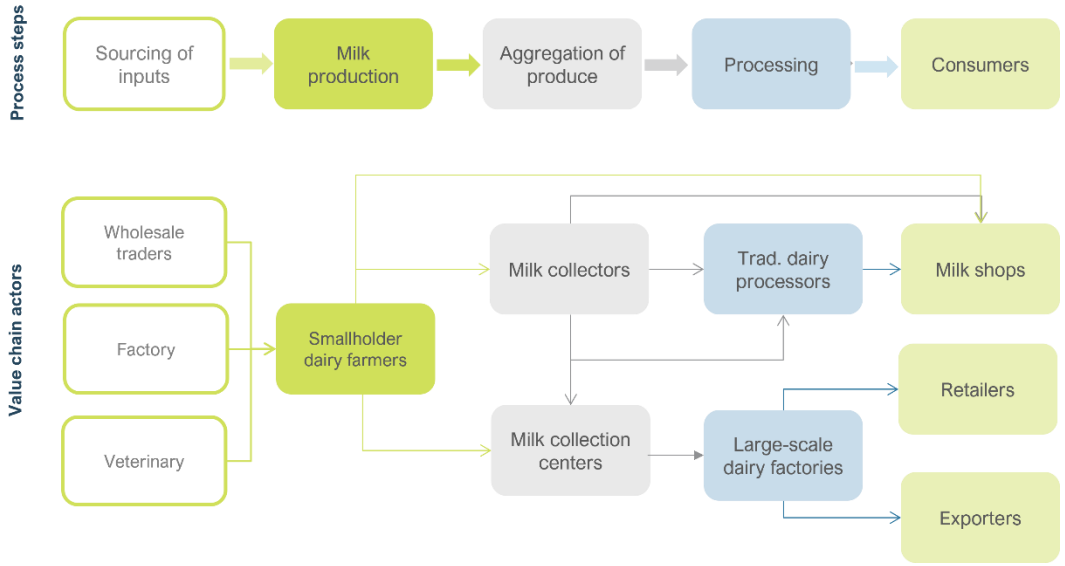


**Figure 10: Dairy value chain structure**

*Source: Authors' own, based on consumer research and ILO 2020a, ILO 2020b*

*Dairy processing companies and milk collection centres play an important coordinating role*. As shown in Figure 10, milk collection centres[21] act as an important coordination point in the dairy value chain between the informal market and the formal dairy supply chain. Dairy farmers either bring their milk to the milk collection centres, or the milk is collected through middlemen. Milk collection centres provide important VAS to dairy farmers, as they have cooling and treatment facilities and conduct quality controls. The large-scale dairy processing companies source their milk from these milk collection centres (ILO, 2020b). In addition to milk collection centres, large-scale dairy processing companies are therefore also important aggregation points in the dairy value chain.

*Awareness of financial services is high, but usage is low*. The majority of sampled dairy farmers are aware of banks and possess a bank account, yet only a small proportion make use of formal financial services. This low usage is due to the perception of these services being expensive and offering little value. Most dairy farmers sampled are aware of the concept of insurance and the benefits that it can offer; however, only a fraction of them own insurance.

## Key risks faced and coping mechanisms used

*Farmers face a multitude of risks, with cash flow challenges ranked most common.* From the research conducted, five key risks emerged for dairy farmers (see Figure

21 Egypt's Delta and Nile Valley (most important region due to cultivatable land) has over 1,000 collection centres, and most villages have private milk collection centres equipped with cooling facilities of different capacities (ILO, 2020b).

11**Error! Reference source not found.Error! Reference source not found.**). The first and most severe challenge relates to cash flow management. Farmers often receive delayed payments for selling their milk, and these payment delays can result in the farmers not being able to purchase the inputs needed. For instance, a medium-sized dairy smallholder farmer indicated that *"Sometimes I want to buy fodders and I don't have money to buy".*

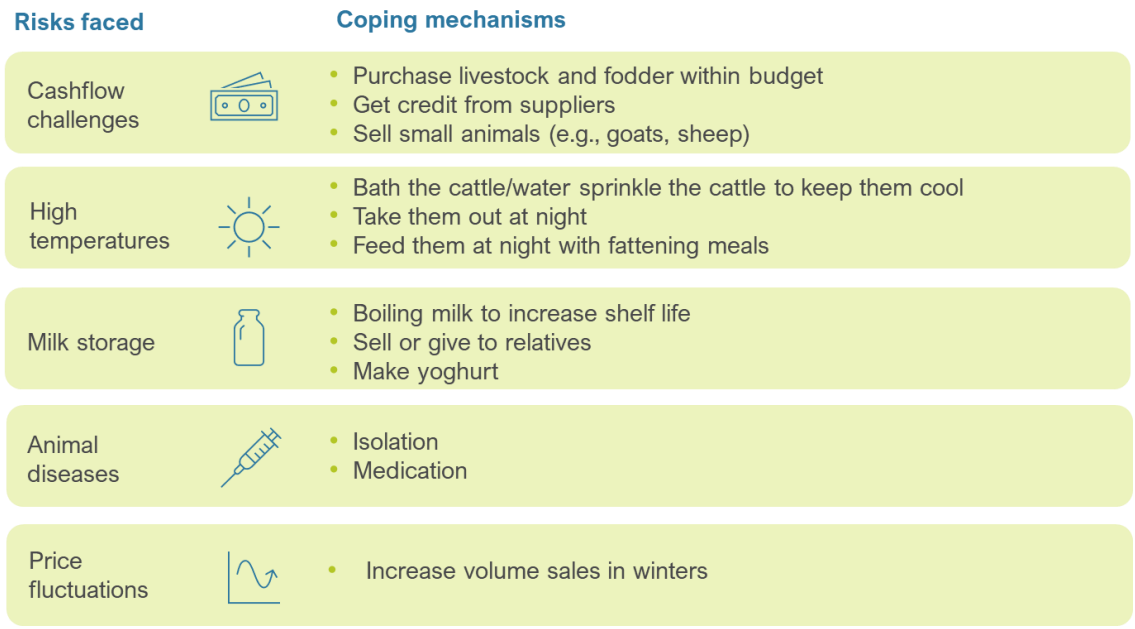


**Figure 11: Top five risks faced and associated coping mechanisms used by dairy farmers[22]**

*Source: Authors' own, based on consumer research*

*Climate-related risks identified as a notable challenge.* The adverse effects of high temperatures on cow health can lead to decreased milk productivity. When temperatures are above the upper critical temperature for livestock, cows begin to experience heat stress. Cows that suffer heat stress decrease their forage intake, milk production, and the efficiency of feed conversion is decreased (Rojas-Downing, et al., 2017). This challenge is illustrated by a small dairy farm owner who notes that heat *"influences the mood of [the] animal; this consequently influences the quantity of milk it produces. It also influences the milk quality."* Climate change risks rising temperatures even further, thus exacerbating heat-stress-related risks for dairy farmers.

*Lack of cold storage results in food spoilage and income losses*. Milk can spoil within a few hours in a high temperature environment like Egypt if not effectively cooled during storage. Yet, according to many dairy farmers interviewed, particularly among small dairy farmers, many do not have access to required cold storage facilities. For instance, a small dairy farm owner indicated that *"It is impossible (to store in*

22 Other risks and challenges experienced by dairy farmers include price fluctuations of inputs and milk, access to credit, livestock theft, and limited knowledge on value addition.

*refrigerators) ... we don't have possibility for this".* This lack of cold storage can result in milk spoilage[23] and unrealised profits by farmers who may be unable to sell their produce or obtain reasonable prices for the quality of their milk (GIZ, 2016).

*Animal diseases are noted as another key challenge*. Animal diseases such as "foot-and-mouth disease" can not only result in lower milk production rates but also in the death of the animal. As a result, dairy farmers can experience significant income losses in the case of disease outbreaks. A small dairy smallholder farmer reported, for example, that *"Two years ago, there was "foot-and-mouth disease and a lot of people faced that challenge… It caused high temperature to the cattle and the cattle may overcome it or die''.* This challenge is exacerbated by limited access to readily available veterinarians, as highlighted by a dairy farmer who stated that *"When there is an outbreak of the disease in the country, there is a limited number of veterinarians. When I call one and he tells me that it is going to take an hour to reach my farm it may extend to be a whole day."*

*Dairy farmers do not rely on technology or insurance to deal with their risks*.
As displayed in Figure 11, dairy farmers have developed their own coping mechanisms to deal with the multitude of risks and challenges they face. Most of these coping mechanisms are reactive and informal, with insurance being underutilised. For instance, in response to cash flow challenges, dairy smallholder farmers apply adverse or unsustainable coping mechanisms such as selling their animals. These coping mechanisms are often not effective in the long term and can have adverse consequences on the farmer's incomes.

## Opportunities for holistic resilience solutions

*A clear need for risk management solutions to reduce the impact of dairy farming on climate change.* Dairy production is known to exacerbate climate change in several ways, including through the emission of greenhouse gases, especially methane, and via deforestation for feed production and the expansion of pasturelands (Rojas-Downing, et al., 2017). This suggests that, while dairy MSMEs require solutions that effectively aid their resilience, it is important that solutions developed for this segment be considered through the lens of environmental sustainability. Doing so can help to lessen the harmful impact of diary production on the land and improve the sustainability of a farming practice that many Egyptians rely on for their livelihood (Rojas-Downing, et al., 2017).

*Veterinary solution is the most preferred risk management option for dairy farmers*.
In response to the self-identified challenges, the risk management solution that resonated best with farmers was the veterinary solution, as displayed in Figure 12. This solution allows dairy farmers to either request a telephonic consultation with a veterinarian or to request an on-site visit from a veterinarian to treat their cow(s). The usefulness of this solution was identified by a dairy farm owner in that *"He may not come and the cow is dying in front of you. If the veterinary unit is effective, they will help."* Dairy farmers are also interested in combining this solution with sensors that deliver real-time information on the health status of cows, thus enabling farmers with an

23 The Intergovernmental Panel on Climate Change estimates that the loss and waste of food contributes 8% to 9% of total anthropogenic carbon emissions which makes it a major contributor to climate change (IPCC, 2020).

early warning system on their cows' health and the ability to proactively treat heat stress. Improved cow health management can also result in dairy farmers requiring fewer cows to achieve certain levels of milk production, thus lowering emission intensity per herd (FAO, 2013).

*Bridging credit and solar-powered milk cooling systems clearly speak to dairy farmer needs.* Dairy smallholder farmers also expressed a high demand for bridging credit on the condition of interest rates being affordable. Solar-powered milk cooling systems were also highly desired, given their ability to store the milk without using externally supplied electricity. Through this solution, milk spoilage can be reduced, thus increasing the potential income of dairy farmers, and reducing the emission intensity of dairy farming. For instance, a dairy farmer stated that *"it is the best solution because it would be useful in the summer days in which the milk get[s] ruined faster […] our daily income depends mainly on the milk production, and we can't risk it being ruined*."

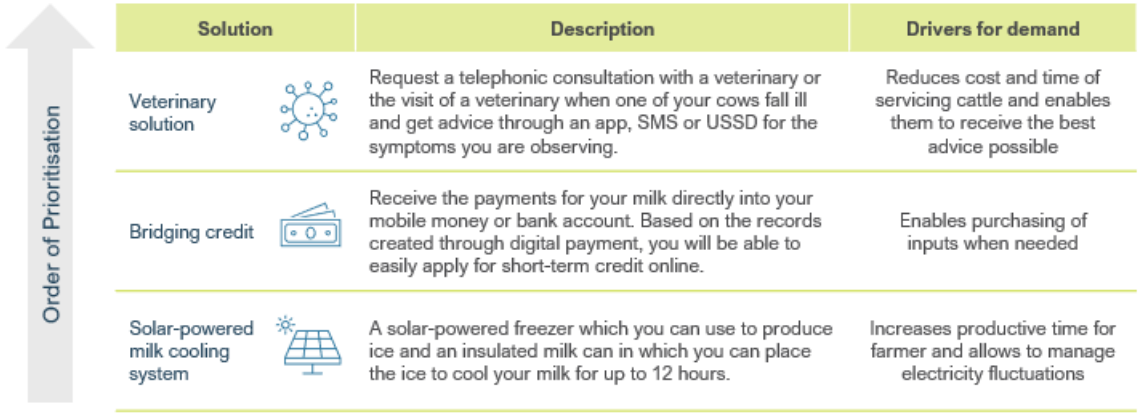


**Figure 12: Top three risk management solutions**

*Source: Authors' own, based on consumer research*

*Life insurance together with livestock-related insurance products rank the highest.* In comparison to other insurance products, life insurance is desired the most, since dairy farmers see life insurance as a crucial guarantee for their own future as well as their family's future. This is followed by livestock death insurance and a veterinary cost cover that allows farmers to be protected against sudden income losses and catastrophic expenditures, respectively.

*Dairy farmers view bundling of products as an opportunity for better and more affordable risk management.* Most dairy farmers see clear value in bundling a risk management solution with an insurance product. This kind of bundling allows for more cost-effective management of several main challenges by only purchasing one product. More specifically, the bundled solution could enable dairy farmers to be covered against the risk through insurance, thus supporting recovery, while also helping farmers to better mitigate or prevent the risk through risk management solutions. This was highlighted by a large dairy smallholder farmer who stated *"If medicine doesn't treat them and the cows dies, I lose my business, and the insurance helps me. It is like a pillow for me"*.

## 5.3. Tomato value chain

### MSME and value chain characteristics

*Tomato is a key horticulture value chain in Egypt.* In 2016, Egypt was ranked the fifth-largest producer of tomato globally, making the country a leading tomato producer in Africa, producing 7.9 million metric tonnes (MT) in the same year (Siam & Abdelhakim, 2018). In 2018, this translated to a total value addition of USD 83.7 million and a 0.6% contribution to GDP (World Bank, 2018; Siam & Abdelhakim, 2018). Domestically, tomatoes are the most consumed crop vegetable in Egypt, representing a 27% and 2.4% contribution to vegetable and total agricultural production, respectively (Siam & Abdelhakim, 2018). Given its importance to the domestic and international economy, tomatoes are also a key source of agricultural employment, particularly among smallholder farmers (1-3 feddans[24]). In 2018, smallholder farmers produced nearly 90% of the tomato production for the entire domestic market (Siam & Abdelhakim, 2018).

*Farmers source inputs from a variety of sources*. As illustrated in Figure 13, farmers typically source inputs, such as seeds and seedlings, from private suppliers, while subsidised fertilisers and pesticides are sourced from state-owned organisations. Farmers either place orders over the phone and have the inputs delivered, or they collect inputs themselves. The latter collection is often preferred by farmers, as it allows inputs to be received quicker. Payment for inputs remains dominated by cash, regardless of the input source, although the use of digital payments, such as Vodacash, is on the rise among interviewed farmers.

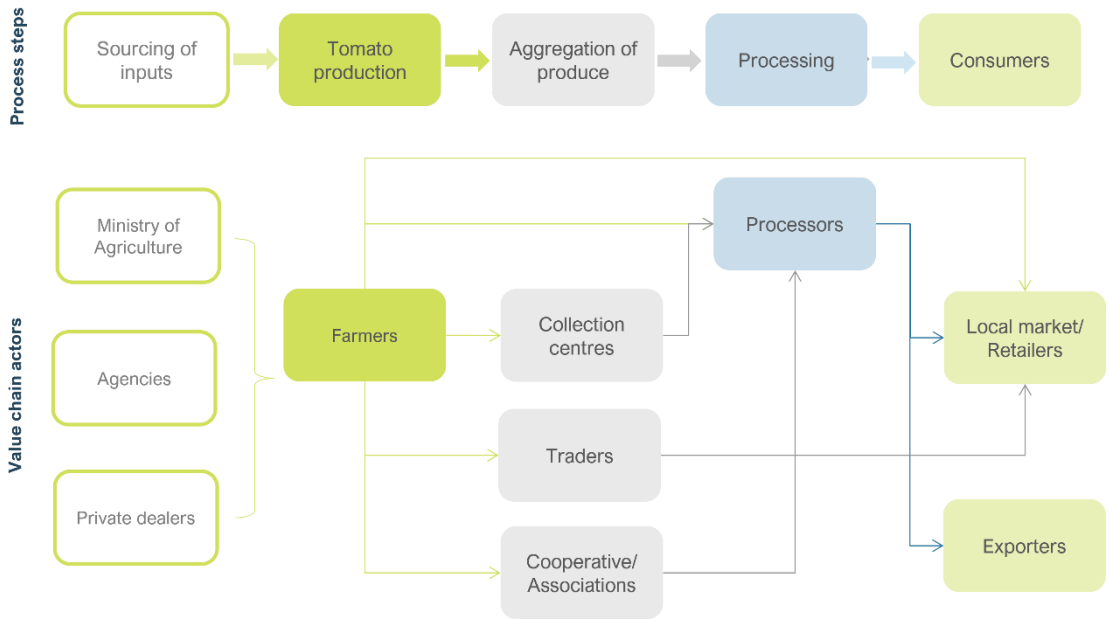


**Figure 13: Tomato value chain structure**

24 A feddan is a unit of area used in Egypt. 1 Feddan = 1.03 acres of land.

*Source: Authors' own, based on consumer research, Stakeholder interviews (2021), Siam & Abdelhakim (2018)*

*Traders and cooperatives/associations are key channels for tomato output.* Tomatoes are either provided as fresh produce for immediate consumption or for processing to produce processed products. While farmers have multiple channels for distributing tomatoes, traders and cooperatives/associations are important for the tomato value chain as they play a role in distributing tomatoes for both immediate consumption and for processing.

*Tomato farmers have more than one route to distribute tomatoes to the market.* As illustrated in Figure 13, farmers distribute tomatoes using two routes. The first and most common route is through traders and associations, while the second distribution route (also known as contract farming) is selling directly to processors. While the latter route offers farmers stable prices and incomes with known buyers, contract farming is still nascent in Egypt, and many farmers are forced to rely on market traders where prices are more subject to fluctuation (Stakeholder interviews, 2021).

*Access to financial services is high, but usage is limited among tomato farmers.* More than 70% of sampled tomato farmers own bank accounts but mainly use their accounts for savings as opposed to transacting, which is largely performed using cash. Moreover, access to formalised credit by tomato farmers remains limited, with farmers mainly relying on informal sources such as their relatives or suppliers. Access or awareness of insurance is also low among farmers. Trust also emerged as a key barrier to insurance uptake. This challenge is highlighted by a smallholder farmer who indicated that *"I was paying regularly for three years. And in [a] critical time they didn't help me."* This sentiment reinforces the importance of efficient and quality services by providers to bolster trust among consumers insurance.

*Private companies offer useful points of effective aggregation.* Tomato traders, farmer associations and cooperatives are prominent aggregation points in the tomato value chain. In addition to distributing tomatoes, these aggregators support the development of the value chain through advisory services to farmers, marketing and facilitating tomato sales. Despite offering these services, associations and cooperatives face known challenges to effectively aggregate and coordinate the value chain due to a lack of government support, weak coordination within and among associations, and poor infrastructure (Stakeholder interviews, 2021). In light of these challenges, large processors such as Paste & Juice (P&J) and Heinz, are increasingly playing an active aggregating role in Egypt through supplying inputs to farmers (seedlings), linking farmers to agronomists, providing advisory services, and enabling post-harvest mechanisation (Stakeholder interviews, 2021).

## Key risks faced and coping mechanisms used

*Cashflow is the main challenge faced by tomato farmers.* As reflected inFigure 14, cash flow (similar to the retail and dairy value chain) is the leading challenge identified among sampled tomato farmers. This challenge is reportedly driven by a lack of access to markets, excess tomato supply and/or overpriced produce. A lack of cash flow can lead to working capital challenges, delayed payments to suppliers and

delayed input purchases. The impact of these delays is highlighted by a small farmer who indicated that *"I will borrow money from anyone till my harvest is collected."*

*Extreme weather and temperature changes harm tomato productivity.* Extreme weather-related events are reported as the second-most severe and common challenge faced by sampled tomato farmers. This challenge stems from the increasing unpredictability of weather patterns which limits the ability of farmers to effectively plan for events that could have a disastrous impact on crop productivity, including extreme and persistent droughts or higher-than-anticipated temperatures. The impact of these events on cultivated land areas is highlighted by a medium-sized farmer who notes that "*the high temperature and high humidity affect the crops…*" and can lead to a loss of "*EGP100,000 (USD 5,368) in one hour*[25]*.*"

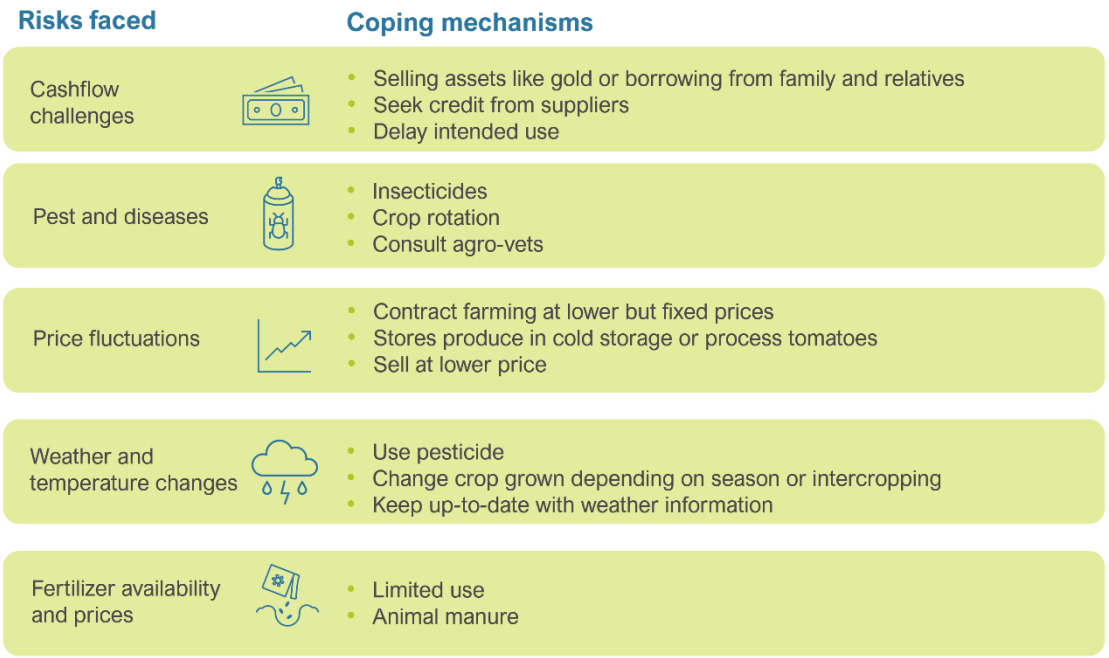


**Figure 14: Top five risks faced and associated coping mechanisms used by tomato producers**[26]

*Source: Authors' own, based on consumer research*

*Price fluctuations a barrier to farmers' profitability.* Most tomato farmers are exposed to variable prices for their produce due to the nascency of tomato contract farming in Egypt. In other words, farmers regularly face new market prices from traders based on current market supply and quality and are unable to benefit from a fixed price according to a predetermined quantity (Stakeholder interviews, 2021). In some cases, this market practice can lead to lower-than-anticipated revenues if an oversupply of tomatoes occurs and pushes down prices further.

25 1 USD Equivalent to 18,62 EGP exchange rate based on June 2022.

26 Other risks and challenges experienced by tomato farmers include: theft, poor seedling quality, access to credit, bureaucratic interference/corrupt officials, transportation costs and delays, contamination of irrigation water, limited knowledge/experience, availability/scheduling of irrigation cycles, health concerns, and output quality and quantity.

*Farmer coping mechanisms may not be appropriate for sustainability and resilience.* Traditional coping mechanisms are currently being used to help tomato farmers to respond to risks, such as seeking credit and intercropping to address cashflow and weather and temperature challenges respectively. These coping mechanisms, while effective in reacting to risks, are unable to proactively prevent risk events from occurring. Furthermore, existing strategies can often enhance the likelihood of future risks taking place. For instance, a small farmer stated that *"bad insecticides or wrong quantities of the sprayed insecticides can ruin the whole harvest".* Moreover, some of these mechanisms are informal and therefore not sustainable or sufficiently effective in enabling long-term resilience to risks faced. For example, tomato farmers still seek credit from suppliers or borrow from relatives or family members to address cash flow challenges. While helpful in the short term, such strategies however could place tomato farmers into vicious cycles of debt that may force farmers to shift their focus from investing profits into their business to settling accumulated debt.

## Opportunities for holistic resilience solutions

*Farmers favour environmental and climate-related solutions for sustainable farming.* A pest and disease solution that can help farmers detect and identify pests and crop diseases emerged as one of the top preferred solutions among farmers in the final round of solution testing. This solution would enable farmers to share images of infected crops to experts and receive expert advice on how to best treat and manage crops sustainably. Farmers also showed a desire to combine this solution with a climate monitoring solution capable of providing accurate weather predictions and recommendations on the best time to sow seeds based on weather forecasts.

Order of Prioritisation

| Solution | | Description | Drivers for demand |
|---|---|---|---|
| Sustainable pest and disease and farm management |  | Pest control app- (i) will enable famers to share images of plant pests/diseases with agronomists for recommendations on how to best treat and protect plants.<br>(ii) App will also provide a weather forecast service to improve weather change predictions. This climate monitoring option will provide recommendations on when to plant/harvest and on best seeds to plant considering climate changes. | Enables smart sowing and adversity prediction. Also enables smart pesticide spending while shortening the feedback loop |
| Bridging credit |  | Receive payments from the purchase of tomatoes into a mobile money or bank account. These payments will help create a digital record which can be used to easily apply for short-term credit. | Enables input financing |
| Market price information |  | Real-time information on prices and market updates for agricultural products. Solution will also give access to seed producers and seed prices. | Helps with planning the buying of inputs and planting |

**Figure 15: Top three risk management solutions**

*Source: Authors' own, based on consumer research*

*Bridging credit and market price information are considered most important for risk management.* As depicted in Figure 15, farmers are interested in a bridging credit solution through which they would be able to apply for formalised credit using their digital payments records. Market price information ranked as the third highest preferred product among sampled tomato farmers, as it enables farmers to gather and use information to budget for inputs and to assist with pricing of tomatoes based on market demand and supply.

*Tomato farmers' preference towards crop and life coverage.* Amongst potential insurance product categories, crop insurance coverage resonated the most with tomato farmers. This demand likely stems from experienced weather changes and crop diseases resulting in crop losses and reduced production levels and revenue. Interest in life insurance reveals that farmers show a concern for the wellbeing of their loved ones as indicated by a medium-sized tomato farmer: *"I want to guarantee the future of my family if something bad happened to me."* Protecting their own health, as well as employees' health, was also identified as a valuable form of insurance they would be interested in purchasing.

*Tomato farmers perceive bundling of products as useful and valuable*. A significant share of tomato farmers showed an interest in bundled solutions. For instance, a medium-sized farmer stated, *"I'll buy the two together"*. This openness to bundled products is driven by a perception by farmers that purchasing two solutions for the price of one would be cost-effective and "useful", according to a medium-sized smallholder tomato farmer.

## 5.4. Summary of findings

*Steady cashflow a key cross-sectoral risk, with climate events notably challenging for agricultural sectors*: Figure 16Figure 16 highlights cashflow management as a key cross-sectoral challenge experienced by sampled MSMEs. Yet, while this challenge is top of mind for aspirational smallholder farmers, climate-related events – such as extreme heat, unpredictable pest and disease outbreaks and weather changes exacerbated by climate change were also highlighted by dairy and tomato farmers as increasingly concerning.

*Simple risk management solutions – both independent solutions and those bundled with insurance – resonate well among sampled MSMEs*. While most preferred solutions varied across value chains, a theme of simplicity resonated across all enterprises. In other words, the most intuitive and currently established or well-known solutions were identified as most likely to be purchased by sampled MSMEs. Moreover, the consumer research found that when offered the option of purchasing preferred insurance policies with preferred risk management solutions, the majority of MSMEs saw the enhanced value of this option relative to purchasing a risk mitigation and risk management solution individually. These findings highlight the consumer use case for insurers to consider more value-driven holistic offerings for MSME segments.

*Digital platforms and established value chain aggregators are already present and offer potential for insurers to leverage.* Limitations on face-to-face interactions imposed as a result of the COVID-19 pandemic, coupled with an increase in the uptake of mobile products, have opened new channels and digital platforms for insurers to explore. This trend is likely to be sustained even post the pandemic. Moreover, established value chain players such as processing firms, financial service providers or government agencies are important aggregators in the dairy and the tomato value chain.

| Value Chain | Top risks | Final top risk management solutions | Final top insurance products | Demand for product bundling | Top aggregators |
|---|---|---|---|---|---|
| **Retail*** | 1. Cashflow challenges<br>2. Shoplifting<br>3. Expired or damaged goods | 1. Anti-shoplifting technology<br>2. Business Management solution<br>3. Customer order management system | 1. Theft cover<br>2. Personal accident cover<br>3. Life insurance | Majority of sampled retailers sees value in bundling | • Digital payment platforms<br>• Online B2B marketplaces<br>**Findings for small retailers reported* |
| **Dairy** | 1. Cashflow challenges<br>2. High temperatures<br>3. Milk storage | 1. Veterinary solution<br>2. Bridging credit<br>3. Solar powered milk cooling system | 1. Life insurance<br>2. Livestock death insurance cover<br>3. Veterinary cost cover | Majority of dairy farmers see value in bundling | • Financial service providers<br>• Milk collection centres<br>• Processing firms |
| **Tomato** | 1. Cashflow challenges<br>2. Pest and disease<br>3. Price fluctuations | 1. Sustainable pest/disease farm management solution<br>2. Bridging credit<br>3. Market price information aggregation solution | 1. Crop insurance<br>2. Life Insurance<br>2. Personal health and accident insurance cover | Majority of tomato farmers see value in bundling | • Financial service providers<br>• Online marketplaces<br>• Processing firms |

**Figure 16: Summary of consumer research and stakeholder interviews findings**

*Source: Authors' own, based on consumer research*

# 6. Implications for stakeholders

*The resilience of MSMEs is crucial for the development of economies and sustainable livelihoods.* As in many other developing countries, Egyptian MSMEs play a fundamental role in the economy – accounting for a substantial share of GDP, driving innovation, generating wealth and employing a large part of the population. However, MSMEs face various risks that often hinder their development and that can lead to a high rate of attrition. If these risks are not effectively managed, this can significantly undermine the potential of MSMEs to drive sustainable economic development. However, MSMEs are often relatively ill-equipped to sustainably manage and mitigate their risks, and Egyptian insurers struggle to serve this market segment.

*The approach outlined in this report can help insurers overcome both demand-side and supply-side challenges*. A key hypothesis tested through this study is that in order to appeal to MSMEs and to successfully tap into this large market segment, the development of more holistic resilience solutions, rather than pure insurance, will be required (Sahler & Gray, 2020). Holistic resilience solutions are often more tangible for MSMEs than traditional insurance products and increase the value of insurance by combining VAS with insurance products. For instance, emerging digital technologies, such as inventory management systems or tech-enabled crop disease identification systems, offer increasingly practical and affordable tools that supplement traditional instruments like insurance to proactively build resilience. The development, design and distribution of holistic resilience solutions calls for insurers to become risk management partners, rather than just insurance providers (Sahler & Gray, 2020). Not only will a rethinking of insurance be required but also a stronger consideration of the role that the ecosystem can play in facilitating adoption, and in making the business case for commercially viable holistic resilience solutions. The following paragraphs outline recommendations for an effective collaboration of ecosystem players:

- *Insurance providers should embrace their role as risk management partners*. Insurance providers need to rethink their current approach to insurance if they want to capture the MSME market and enable the potential of MSMEs as contributors to growth, employment, and profitability. Through cooperating with other ecosystem players, such as technology providers, better tailored and more valuable insurance services and products can be offered. These partnerships also enable insurers to access new data sources on riskiness and other MSME behaviours. Data sharing in this way can, in turn, allow for continuous, faster and holistic risk assessments.
- *Technology providers should seize opportunities to partner with insurance providers*. Fintech, insurtech, digital platforms and other categories of technology companies have an opportunity to position themselves at the centre of the effort to develop and distribute more innovative and inclusive resilience solutions alongside insurance providers. Offering bundled insurance products can signal to the current customer base of technology providers that they are cared for, and that technology providers want to promote the success of their customers. This signal will not only improve engagement with their own customer base, but will

also attract new customer segments who are interested in holistic service delivery and in managing their own resilience.

- *Policy leadership and support.* The path to facilitating and encouraging the development of innovative solutions, like the bundling of insurance solutions with VAS, starts at the policy level. Policymakers can set the tone for supporting innovation through policies and stated public objectives and by providing a clear mandate to regulators. Most importantly, in light of the fragmentation and informality of the assessed value chains, policymakers have an important role to play in supporting value chain coordination. This can be achieved by strengthening the role of existing aggregators, for example. Furthermore, supporting the development of a conducive enabling environment and the capacity of value chain stakeholders is a critical role for policymakers, including: supporting the development of required skills, investing in key national infrastructure and ensuring that support (both financial and non-financial) is available to innovative value chain players.
- *Regulators need to create an enabling environment for innovation.* Regulators also have a key role to play in the development of innovative resilience solutions by creating an enabling environment for innovation to flourish. For regulators, this means finding a balance between supporting and encouraging innovation while maintaining market stability and consumer protection objectives. This typically requires regulators to have a flexible and accommodative approach to promote responsible innovation and to respond to innovative developments (Beyers, Gray, & Hougaard, 2018). This is particularly pertinent in the financial services sector, where regulatory constraints are often substantial for new entrants and where digital innovations are changing the landscape of the sector. For instance, having a consistent, transparent, and easy-to-follow product and licensing approval process in place and effectively communicating the process (and related requirements) is essential for overcoming regulatory uncertainty and enabling innovation (De Waal, et al., 2019). Moreover, insurance providers need clarity regarding the qualifying criteria for institutions they can partner with to offer and distribute holistic resilience solutions, as well as clarity over which digital innovations they can leverage for customer onboarding and insurance product distribution. Within the Egyptian context, the insurance regulator can also work to ensure that new and/or future insurance laws (i) accommodate emerging trends such as digitalisation, and (ii) proactively provide regulatory certainty around the key elements of these trends (e.g., remote onboarding).
- *Development partners have a key role to play in supporting and coordinating innovation ecosystems.* The development and distribution of holistic resilience solutions for MSMEs often requires significant investment from the stakeholders involved. This implies a role for development partners and/or policymakers to intervene by de-risking investment and by promoting a rethinking of insurance through consumer/market research and co-funding support. Development partners need to be willing to take the risk that industry players struggle to take themselves, and to invest in industries that require ground up development where existing VAS solutions are not available to hook into. Their involvement should also focus on maintaining a common innovation agenda directed at increasing the resilience of MSMEs.
- To build an environment where innovative resilience solutions could be implemented, it is necessary to coordinate the actions of public and private sector actors involved in activities such as regulatory updating, infrastructure expansion,

mobile network improvements, rural outreach growth and financing. Moreover, development partners can act as intermediaries between sectors and as catalysers of effective communication among financial services providers, local and national governmental entities, and providers of VAS (such as digital platforms).

*The adoption of a value-driven and business-centric approach can unlock opportunities for insurers and MSME resilience.* Egyptian MSMEs are largely underserved by insurance, mainly due to the lack of value that existing insurance products offer them. Insurance providers must deepen their understanding of MSMEs and their needs to design business-centric, fit-for-purpose resilience solutions. This requires an approach that:

5. segments MSMEs not as a homogenous group but based on their economic activities and bespoke needs, and
6. reconsiders what it means to enable MSME resilience through different types of holistic risk-management and mitigation services that can be bundled together to amplify the value proposition of traditional insurance for MSME customers. This study shows that through this approach, insurers are able to better segment, understand and tailor solutions that deliver value for MSMEs.

To deliver identified holistic solutions, however, resilience solution providers need to leverage existing aggregation points and hook into their existing initiatives and customer base. This will allow for the use of already trusted channels and can significantly reduce the distribution costs, which is vital for business case viability. The incentives and opportunities for creating such partnerships are not only determined by the willingness of private sector stakeholders to cooperate but also to a large extent by the enabling environment. Hence, policymakers, regulators and development partners have a key role to play in supporting the formation of partnerships and in making the business case for holistic resilience solutions viable.

# Appendix A – Value chain selection

The following section presents a summary of how value chains were selected and prioritised. Step 1 illustrates the prioritisation of economic sectors, while step 2a presents the prioritisation of the non-agricultural value chains, and lastly step 2b illustrates the prioritisation of the agricultural value chains.

## Step 1: Prioritisation of economic sectors

| Sectors | GDP | GDP growth | Employment | MSME | Policy priority |
|---|---|---|---|---|---|
| **Agriculture, Forests & Fishing** | **11.30%** | **3.3%** | **21.1%** | **3.59%** | **Yes** |
| Mining | 9.67% | -3.0% | 0.1% | 0.03% | Yes |
| **Manufacturing** | **16.05%** | **1.4%** | **13.0%** | **13.98%** | **Yes** |
| Electricity | 1.57% | -0.7% | 0.9% | 0.01% | Yes |
| Water & Sanitation | 0.57% | 3.3% | 0.9% | 0.20% | No |
| **Construction** | **6.28%** | **4.4%** | **13.7%** | **0.30%** | **No** |
| **Transportation & Storage** | **4.60%** | **3.9%** | **8.1%** | **0.66%** | **Yes** |
| Communication | 2.77% | 15.2% | 0.8%* | 0.13%* | Yes |
| Information | 0.29% | 3.3% | 0.8%* | 0.13%* | Yes |
| Suez canal | 2.45% | 5.0% | n/a | n/a | No |
| **Wholesale & Retail Trade** | **13.63%** | **3.9%** | **13.8%** | **58.20%** | **Yes** |
| Financial Intermediaries & Auxiliaries | 3.81% | 3.3% | 0.7%** | 0.07%** | Yes |
| Social Solidarity & Insurance | 0.75% | 3.0% | 0.7%** | 0.07%** | Yes |
| Tourism | 2.27% | -17.3% | 3.1%*** | 4.88%*** | Yes |
| Real Estate | 10.31% | 3.8% | 0.2% | 0.49% | Yes |
| Public government | 8.59% | 6.1% | 5.9% | n/a | No |
| Education, Health & Social Services | 4.99% | 4.3% | 10.9% | 4.7% | Yes |

*Information & Communication
**Financial & Insurance Services
***Accommodation & food services

**Table 1: Sector prioritisation[27]**

*Sources: Authors' own, based on (CAPMAS, 2020a; ITC, 2021; CAPMAS, 2021a; CAPMAS, 2021b; GAFI, 2020; Government of Egypt, 2015)*

[27] The "Yes" vs "No" criteria based on whether the sector analysed was prioritised in public policy objectives

Step 2a: Prioritisation of non-agricultural value chains

| Rank | Value chain | Number of SMEs | MSMEs are homogenous in their activities | Suitable aggregation points exist | Not covered by insurance market | % of total employment (female employment %) | Number of MSMEs receiving loans | Digital platform exists | Policy priority |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Retail trade | 62,441 | | | | 30% (20%) | 59,784 | Yes | Yes |
| 2 | Furniture | 5,450 | | | | 3% (1%) | 3,499 | Yes | Yes |
| 3 | Bakeries | *54,074** | | | | | | No | Yes |
| 4 | Textile and Apparel | 9,604 | | | | 5% (27%) | 1,956 | No | Yes |

*Number of total bakeries – we do not have the number of SMEs


**Table 2: Non-agricultural value chain prioritisation**

*Source: (CAPMAS, 2020a)*

Step 2b: Prioritisation of agricultural value chains

| Rank | Value chain | % of total agr. prod. value | Number of farmers | MSMEs are homogenous | Suitable aggr. points exist | Limited gvt. interference | Not covered by insurance market | Contr. to total empl. | Agri. prod. value growth rate | Export value [USD] | Policy priority |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Dairy | 7.8% | 614,000 [80-100 medium-sized] | | | | | 1.1% | 10% | 306, 04 | Yes |
| 2 | Tomatoes | 2.4% | 150,000 [<10% not smallholders] | | | | | | | 23, 24 | Yes |
| 3 | Cattle meat | 14.4% | 1.840,141 cattle keeping households [78% micro] | | | | | 2.3% | 4% | 3, 75 | Yes |
| 4 | Fisheries | 9.6% | 6,000 | | | | | 580,000 workers | 10% | 51, 57 | Yes |


**Table 3: Agricultural value chain prioritisation**

*Source: (IFAD, 2019; CAPMAS, 2020a; ILO, 2020b)*

# Appendix B – Sampling details

The following section presents an overview of the sampling details for the retail, dairy and tomato value chains for IDIs and for the FGDs.

## Retail MSMEs

Interviewed retail MSMETable 5respondents include both grocery stores and supermarkets. A total of nine respondents were interviewed for the first round of IDIs as seen in **Error! Reference source not found.** below, while a total of 36 retailers were interviewed for the FDGs, as seen in Table 5 below.

| | Type of retail MSME | Number of respondents | Gender | Number of employees |
|---|---|---|---|---|
| First round of IDIs | Small grocery store | 2 | 100% male | 2 – 4 |
| | Large grocery store | 2 | | |
| | Small supermarket | 3 | | 5 – 40 |
| | Large supermarket | 2 | | |

**Table 4: Sampling details of retail MSMEs that participated in the first round of in-depth interviews**

| | Type of retail MSME | Number of respondents | Gender | Number of employees |
|---|---|---|---|---|
| FGDs | All types of retail MSMEs | 6 | Female | 5 – 100 |
| | Small supermarket or grocery Store | 6 | Male | < 25 |
| | Small supermarket or grocery Store | 6 | Male | < 25 |
| | Grocery stores | 6 | Male | 5 – 10 |
| | Small or large supermarket | 6 | Male | < 20 |
| | Small or large supermarket | 6 | Male | < 20 |

**Table 5: Sampling details of retail MSMEs that participated in the focus group discussion**

| | Type of retail MSME | Number of respondents | Gender | Number of employees |
|---|---|---|---|---|
| Second round of IDIs | Small grocery store | 2 | 50% female | 2 – 3 |
| | Large grocery store | 1 | 100% female | 4 |
| | Large grocery store | 1 | 100% female | 4 |
| | Small supermarket | 1 | 100% male | 4 |
| | Large supermarket | 2 | 50% female | 3 – 8 |
| | Large supermarket | 2 | 50% female | 3 – 8 |

**Table 6: Sampling details of retail MSMEs that participated in the second round of in-depth interviews**

Table 6 above presents the second round of IDIs for the retail value chain. For this round, 11 respondents were interviewed.

## Dairy farmers

Small, medium-sized and large smallholder farmers were interviewed for the diary value chain, of which all respondents were male farmers. A total of five respondents were interviewed in the first round of IDIs, as seen in Table 7 below. For FGDs, 24 respondents were interviewed, as presented in Table 8.

| | Type of farm | Number of respondents | Gender | Number of cows |
|---|---|---|---|---|
| First round of IDIs | Small smallholder farm | 3 | 100% male | 10 |
| | Medium smallholder farm | 1 | | 13 – 15 |
| | Large smallholder farm | 1 | | 45 |

**Table 7: Sampling details of dairy farmers that participated in the first round of in-depth interviews**

| | Type of farm | Number of respondents | Gender | Average number of cows | Average milk output in litres per day |
|---|---|---|---|---|---|
| FGDs | All types | 6 | 100% male | 16 | 61 |
| | All types | 6 | | 13 | 58 |
| | All types | 6 | | 13 | 92 |
| | All types | 6 | | 14 | 100 |

**Table 8: Sampling details of dairy farmers that participated in the focus group discussions**

Table 9 below gives an overview of the second round of IDIs, whereby six dairy farmers were interviewed. As seen in Table 10 below, four farmers were interviewed in the first round of IDIs inclusive of small, medium-sized and large farmers – of which all were males.

| | Type of farm | Number of respondents | Gender | Number of cows | Average milk output in litres per day |
|---|---|---|---|---|---|
| Second round of IDIs | Small smallholder farm | 2 | 100% male | 11 – 12 | 50 |
| | Medium smallholder farm | 2 | | 15 – 17 | 70 |
| | Large smallholder farm | 2 | | 18 – 20 | 85 |

**Table 9: Sampling details of dairy farmers that participated in the second round of in-depth interviews**

## Tomato farmers

Small, medium-sized and large smallholder farmers were interviewed for the tomato value chain, of which all respondents were male farmers. A total of four respondents were interviewed in the first round of IDIs, as seen in Table 10 below. For FGDs, 24 respondents were interviewed, as presented in Table 11.

| | Type of farm | Number of respondents | Gender | Number of acreages |
|---|---|---|---|---|
| First round of IDIs | Small smallholder farm | 1 | 100% male | 6 – 7 |
| | Medium smallholder farm | 2 | | 10 |
| | Large smallholder farm | 1 | | 35 |

**Table 10: Sampling details of tomato farmers that participated in the first round of in-depth interviews**

Table 11 below shows that a total of 24 tomato farmers were interviewed for the

| | Type of farm | Number of respondents | Gender | Number of acreages |
|---|---|---|---|---|
| Second round of IDIs | All types | 6 | 100% male | 8 |
| | All types | 6 | | 6 |
| | All types | 6 | | 7 |
| | All types | 6 | | 5 |

FGDs, which included all farm sizes from small to large.

| | Type of farm | Number of respondents | Gender | Number of acreages |
|---|---|---|---|---|
| Second round of IDIs | All types | 6 | 100% male | 8 |
| | All types | 6 | | 6 |
| | All types | 6 | | 7 |
| | All types | 6 | | 5 |

**Table 11: Sampling details of tomato farmers that participated in the focus group discussions**

For the second round of IDIs, a total of six famers were interviewed for all three farm types: small, medium-sized and large sized.

| | Type of farm | Number of respondents | Gender | Number of acreages |
|---|---|---|---|---|
| Second round of IDIs | Small smallholder farm | 3 | 100% male | 5 – 7 |
| | Medium smallholder farm | 2 | | 8 – 9 |
| | Large smallholder farm | 1 | | 24 |

**Table 12: Sampling details of tomato farmers that participated in the second round of in-depth interviews**

# Appendix C – stakeholder interviews

| Stakeholder name | Stakeholder type | Value chain |
|---|---|---|
| Fawry | Digital platform | Retail |
| Trella | Digital platform | Retail |
| Alex Bank | Financial services provider | Retail |
| European Bank for Reconstruction and Development | Development organisation | Retail |
| Egyptian Micro, Small and Medium Enterprises Development Agency (MSMEDA) | Government agency | Retail |
| Unilever | Wholesale distributor | Retail |
| Aga Khan Agency for Microfinance | Financial services provider | Retail |
| HSBC Egypt | Financial services provider | Retail |
| MaxAB | Digital platform | Retail |
| Horticultural Export Improvement Association | Association | Tomato |
| Dr Mohamed Zakareya | Agricultural expert | Dairy + Tomato |
| IFAD | Development organisation | Dairy |
| ILO | Development organisation | Dairy |
| P & J | Processing firm | Tomato |
| Chamber of Food Industries – Fruit and vegetable division | Government agency | Tomato |
| Chamber of Food Industries – Dairy division | Government agency | Dairy |

Table 13: List of stakeholders interviewed

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