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## Entrepreneur, Entrepreneurship and Enterprise in Agricultural Mechanization Hire Service Enterprises in Developing Economies

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### ABSTRACT

The main aim of the research was to attempt to assess, appraise and diagnose entrepreneurs and entrepreneurship typologies in agricultural mechanization hire service enterprises (AMHSEs) in developing economies. The research identified 24 characteristics of AMHSE entrepreneurs and entrepreneurship, and these provided that AMHSEs commonly have a ‘mix’ of typologies of entrepreneurs and entrepreneurship. The research also found that there is a general tendency that according to enterprise size, the AMHSE will provide, for example, defined typologies of entrepreneurs and entrepreneurship along a continuum. However, enterprise-size is not the only ‘indicator’ of typology of entrepreneur and entrepreneurship of AMHSEs as also context, such as, for example, national and local economy, social norms, culture, and location (rural, peri-urban, urban). Overall, though, there was a distinct lack of documented evidence, literature and sources of secondary data and information, on AMHSE entrepreneurs and entrepreneurship and their typologies. This thus limiting research findings being inferred to a wider universe and also calling for further research to be conducted on the subject matter.

**Keywords:** Entrepreneur, Entrepreneurship, Enterprise, Agricultural mechanization, Agricultural mechanization hire service enterprise, Mechanization.

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### Introduction

This research considers entrepreneurs, entrepreneurship and enterprise in the agricultural and food sector. It takes, what may be termed, an ‘enterprise approach’ in considering not only farm enterprises, for example livestock and crop enterprises as a business, but in an interesting enterprise which can be farm-based and non-farm based. Such an enterprise is an agricultural mechanization hire service enterprise (AMHSE). Such enterprises, for example, at the farm level, in developing economies, may provide for what Banerjee & Duflo (2007) refer to as a risk reduction enterprise for small-scale farmers, living most often at subsistence levels. Such enterprises enable to work also off-farm that effectively reduce farming risk so as not to be dependent fully on income from farm only. Clearly, and at such subsistence levels, the enterprise is most often based on the farmer’s ‘muscle power’ alone but can still be considered an AMHSE. This entails that effectively such an enterprise can be seen as being entrepreneurial and providing in its application a typology of entrepreneurship that is commonly termed agripreneurship<sup>1</sup>.

The current research is based on previous researches conducted in terms of entrepreneurs, entrepreneurship and enterprise in the agricultural and food sector, see for example Hilmi (2021a; 2021b; 2021c; 2018a; 2018b; 2013) and continues in this research pathway, but specifically focusing on the furthering of research in terms of an agricultural mechanization hire service as an enterprise (see Hilmi, 2021b). The enterprise approach being in line, for example, with that provided by Savoiu (2010),

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<sup>1</sup> This refers to, in simplistic terms, entrepreneurship that is specific to the agricultural and food sector.

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among the many (for example see also Butler 2006; Ahmad & Hoffmann 2008; Avanzini 2011; Nielsen *et al.* 2012; Barringer & Ireland 2012; Westhead & Wright 2013; Burton 2017; Neck *et al.*, 2018), in terms of enterprise being the actual ‘business venture, the entrepreneur being the person who initiates the enterprise and the process of creation, which includes originality, capabilities, skills, and difficulties being the entrepreneurship’ (Saviou, 2010). Indeed ‘the entrepreneur is the actor, entrepreneurship is the act and the outcome of the actor and act, to close the circle, is the enterprise’ (Saviou, 2010).

In terms of agricultural mechanization hire services as an enterprise, Hilmi (2021b), found that such enterprises were not only business enterprises run as a business venture, but were also enterprises with a ‘very strong degree of social and community enterprise, that provided for agripreneurship and agripreneurs<sup>2</sup> within, seemingly provided to be in reality rural service enterprises and the public sector playing a pivotal role’ (Hilmi, 2021b). Within this realm, the current research has the intent to further the enterprise approach to AMHSEs and provide for far more in-depth research but focused in particular on attempting to better understand entrepreneurs and entrepreneurship in AMHSEs.

#### *Research aim*

The main aim of the research was to further research in the enterprise approach to AMHSEs<sup>3</sup>, and in specific attempt to assess, appraise and diagnose entrepreneurs and entrepreneurship in AMHSEs in developing economies<sup>4</sup>. This considering, in particular, what typologies of entrepreneurs and entrepreneurship could be found in AMHSEs and how this, as an outcome, could enhance the overall and better understanding of agricultural mechanization hire services as an enterprise.

#### *The context*

Entrepreneurs and entrepreneurship, as provided by Hisrich *et al.*, (2017) have an important role ‘in the creation and growth of businesses, as well as in the growth and prosperity of regions and nations.’ In regard to the entrepreneurial context of developing economies, each economy will portray diverse localities, each with different characteristics within and as such ‘each economy has its own particular environment for entrepreneurship, which may facilitate or enable the new business starter, or which may hinder and constrain the development of that business’ (GEM, 2023). Indeed, entrepreneurs and entrepreneurship exist in ‘every country in the world, but the opportunities they face and the institutions which influence their activities differ greatly’ (Roper, 2013). In fact, contextual factors in developing economies, and not only, influence entrepreneurship and entrepreneur typologies as per the ‘strongly contextual nature of entrepreneurial activity’ (Roper, 2013) *per se*<sup>5</sup>. Such contextual factors, like economic, social and cultural factors, legislation, regulation, and globalization, for example ‘all point to very different profiles of enterprise activity in different countries’ (Roper, 2013).

In fact, a great deal of entrepreneurs and entrepreneurship are found in poverty contexts<sup>6</sup> (Venugopal *et al.*, 2015), referred to commonly as necessity or subsistence or survivalist entrepreneurs

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<sup>2</sup> This refers to, in simplistic terms, as an entrepreneur who operates in the in the agricultural and food sector.

<sup>3</sup> The furthering of the research on the enterprise approach to AMHSEs was also very thankful owed to the encouragement, motivation and positive feedback provided by many scholars, scholar-practitioners and field practitioners on the article Hilmi, M. 2021b. What type of enterprise is an agricultural mechanization hire service enterprise? A review from 19 countries, *Middle East Journal of Agriculture Research*, Vol. 10, Iss.1, pp. 282-304

<sup>4</sup> Developing economies refers to the World Bank (2023b) classification of such: the ‘term economy and country, are used interchangeably which does not imply political independence, but refers to any territory for which authorities report separate social or economic statistics and divides economies, currently, into four income groupings: low, lower-middle, upper-middle, and high, all measured by using gross national income (GNI)’.

<sup>5</sup> Contextual factors, as provided by Desai (2011) also have a considerable influence on attempting to measure and document entrepreneurs and entrepreneurship. For example, in terms of measurement and documenting, ‘the overlap between self-employment and necessity entrepreneurship in developing countries leads to a very different meaning of self-employment, than in developed countries’ (Desai, 2011).

<sup>6</sup> Estimates provide that there are circa a billion entrepreneurs that are active with their micro-scale enterprises. (Venugopal *et al.*, 2015). Sawhney *et al.*, (2022) estimate about 500 million enterprises that are micro and small-scale, while Hassan *et al.*, (2023) provide that 50 percent of the poor found globally cater for their livelihoods via micro-scale enterprises, while Sridharan *et al.*, (2021) provide that simply there are millions of subsistence entrepreneurs in the world.

and entrepreneurship, for example, that ‘depend’ not only on drivers, but also on ‘the cumulative effect of contextual factors’ (Kumar *et al.*, 2022). Lowe & Marriott (2006) provide that culture has a large impact on entrepreneurs and entrepreneurship, as, for example, what is termed the ‘degree of fit’ between individualism and the more socially based collectivist community perspective, the attitudes taken on entrepreneurship and the inherent risks involved in entrepreneurship. Indeed, culture can provide to have a good deal of influence on how people ascertain and assess opportunities, for example, the values of what may be considered appropriate behaviour and customs and norms which concern such behaviour (Lowe & Marriot, 2006). Kariv (2011) also provides that culture has a strong impact in shaping behaviour and in ‘modelling’ institutions and further that ‘some cultures ‘produce’ higher levels of entrepreneurial activity’ (Kariv, 2011). Further family and social networks also have an impact; as does public sector support and intervention and related policies; as also does the local, national and international business micro, meso and macro environments, the social, economic, marketing, financial and legal environments included; the infrastructure found locally and nationally; as well as the level and impact of globalization (Lowe & Marriot, 2006); climate change; and the local and national natural environment and its related resources (UNEP, 2022). Further in developing economies access is a major context influencer, for example, access to education, skills, finance, markets, ICT, etc., (Lowe & Marriot, 2006).

Moreover, the local level (micro) context in developing economies, where most entrepreneurs commonly operate, has considerable direct impacts as it is characterized, for example, commonly by informality, shortages, lack of appropriate distribution systems, fragmented markets, lack of infrastructure, illiteracy, low incomes and savings, low purchasing power, and temporary and permanent migration to urban and rural areas as well as emigration to foreign countries (Sinha & Obuai, 2008).

In terms of the macro-context, developing economies are commonly heterogeneous within and between, but show some general similarities as provided by Todaro & Smith (2020) and Nafziger (2006). Such economies, for example, usually have varying levels of: political systems; income; savings; literacy; productivity; inequalities; poverty; populations; rural and urban and rural to urban and rural to rural migration; social fractionalisation; industrialization and exporting; natural resource endowments; institutional qualities; external dependence; and human capital attainments (Todaro & Smith, 2020; Nafziger, 2006). Further developing economies tend to have larger agricultural sectors and more of the labour force being employed in such a sector both directly and indirectly. Developing economies usually also portray a dual economy: a subsistence economy and a manufacturing economy (Nafziger, 2006), but also have an informal economy, including a ‘mixture’ economy of the where informal and formal economies overlap. In terms of taking a long term view of developing economies, and in particular least developed economies, over the last 50 years, economic performance has been uneven, sluggish and at best mixed, and has fallen behind in terms of ‘income per capita, weak progress in labour productivity and still remaining vulnerable to premature de-industrialization’ (UNCTAD, 2021).

More recently the global economy has been hit by a number of shocks that have impacted developing economies quite severely (UNCTAD, 2022). For example, the pandemic ‘hit hardest those who could least afford it’<sup>7</sup>(GEM, 2023), energy cost increases, as a result of conflict, have provided for a cost-of-living crisis (UNCTAD, 2022) and increasing climate extremes have also had its impacts on the most vulnerable (UNEP, 2022). The pandemic, along with increasing prices and climate extremes together provided for what may be termed a ‘turning point’ in the fight against poverty, increasing inequality (World Bank, 2022) and food insecurity. It is estimated that ‘between 702 and 828 million more people in the world (corresponding to 8.9 and 10.5 percent of the world population, respectively) face hunger’ (FAO *et al.*, 2022). Further and within this poverty increase, many poor people have been ‘pushed’ into extreme poverty, and this has been estimated to affect between 75 to 95 million people and with increasing food prices could make the situation even more severe as per ‘every additional one percent rise in food prices could propel nearly 10 million additional people into extreme poverty’<sup>8</sup> (UN,

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<sup>7</sup> Interestingly though GEM (2023) provides that the global pandemic ‘had a mixed effect on entrepreneurship across the world’.

<sup>8</sup> Oxfam (2023) provides that ‘even prior to the soaring costs of food in 2022, almost 3.1 billion people could not afford a healthy diet, and this figure has been increasing. People living in extreme poverty are more affected by the increase in food prices because they spend about two-thirds of their resources on food.’

2023). Moreover, wealth at the global level has been disrupted and distributed even more unequally than income, where the 'poorest half of the world population owns just two percent of total net wealth, whereas the richest half owns 98 percent' (Chancel *et al.*, 2021). Oxfam (2023) provides that 'for the first time in 25 years, extreme wealth and extreme poverty have sharply increased simultaneously.'

Urban growth has increased in the period 1950 to 2020, with 2020 marking the doubling of urban population size as that compared to 1950 (UN HABITAT, 2022). However, the urban population growth for the next 50 years is estimated to increase more slowly, reaching 58 percent, but with an estimated 'one-third of all urban residents being poor, representing one-quarter of the world's total poor, residing mainly in small cities and towns in developing countries' (UN HABITAT, 2022). Such urban poverty counts circa one billion people who reside in slums, subjected to marginalization and multiple deprivations marked by 'differential access to income and wealth, urban services and infrastructure, technology, public health, social protection, education, public spaces, decision-making structures and environmental burdens, among others' (UN HABITAT, 2022). Rural areas comprise 'circa 60 to 67 percent of the population in low-income and lower-middle-income countries, respectively' (UN DESA, 2021) and poverty is prevalently a rural matter as is inequality as per the lack of access, for example, to education, health and other essential services (UN DESA, 2021). Extreme poverty is also mainly a rural phenomenon as in fact 'four of every five people living below the international poverty line reside in rural areas, local conditions have a major impact on an individual's chances to live in good health, find decent employment, learn critical skills, and stay out of poverty, but these conditions differ geographically, even between different rural areas in a single country' (UN DESA, 2021). In fact, 'distance to urban markets, flows of goods and services to and from cities, the quality of local infrastructure and public services, the natural resource base, and population density differ strongly between different rural areas' (UN DESA, 2021). Moreover, both in rural and urban areas, populations are aging and the regions of 'Northern Africa and Western Asia and sub-Saharan Africa are expected to experience the fastest growth in the number of older people over the next three decades' (UN DESA, 2023).

In terms of climate change, even though GHG emissions over the past 10 years have been less compared to the previous decade, 'average GHG emissions in the last decade have been the highest on record' (UNEP, 2022). Climate change unpredictability and extremes have affected every region of the world providing for 'adverse impacts on food and water security, human health and on economies and society and related losses and damages to nature and people, affecting mostly vulnerable communities who have historically contributed the least to current climate change situation' (IPCC, 2023). In particular food systems have provided to be a prominent contributor to climate change and the natural environment degradation, including, for example, such matters as 'biodiversity loss, depletion of freshwater resources, and pollution of aquatic and terrestrial ecosystems via nitrogen and phosphorus run-off from fertilizer and manure application' (UNEP, 2022). Further, and as per poorly developed food systems, along with their impacts on climate and the natural environment, 'two billion people have nutritional deficiencies, while about 800 million are still suffering from hunger, this also being due to poverty' (UNEP, 2022).

Indeed, poverty and poverty contexts and their impacts on people, are not just a lack of personal income and money, but a persistent daily burden on a person's psychological and social resources (World Bank, 2015). In fact, poverty is not just low income, but various deprivations that affect basic capabilities (Sen, 2000). Hence, for example, it places considerable burdens on cognitions, focusing on the present at the expense of the future, which in turn hamper opportunity identification, and thus aspirations, all impounded by the 'heavy impacts' of the demands placed on the individual by lacking physical and social infrastructure (World Bank, 2015). Indeed the relationship between capability and income is affected by location, gender, age, social roles and other variables and thus the relationship makes it harder to convert income into capability, as since, for example, an older person who may be disabled may need more income to achieve the same capabilities of another person (Sen,2000). Consequently, poverty in terms of capability deprivation is more intense than what appears by considering only income levels (Sen,2000).

In such poverty contexts what is mostly understood is exchange, that is intuition based, as the concept of enterprise is at best an abstraction (Viswanathan, 2016). Thus, people living and working in

such poverty contexts provide for exchange as an ‘enterprise way of life’ (Toledo-López *et al.*, 2012). This implies that such ‘livelihood enterprises’ have a duality of where the person is both an entrepreneur and a consumer at the same time: basically consumers can be sellers and sellers can be consumers (Viswanathan, 2020), even though their ‘enterprises’ are resourceless, are risk averse, think daily for survival (Dalglish & Tonelli, 2017) and cannot do much to improve well-being as entrepreneurial motivation and attitudes are based on necessity and survival (Si *et al.*, 2019). However, such ‘enterprises’ are economic agents, however small-scale their economies may be, are value-demanding consumers and potential entrepreneurs (Angot & Ple, 2015). In fact, FAO (2015) in the case of small-scale farmers in developing economies, for example, provides that they ‘operate their farms as entrepreneurs operate their firms, or at least they try, via raising capital from multiple sources and invest in productive assets; for many of them even a spade or a bicycle are important assets, make and take decisions and take both risks and profits’. Indeed such decisions are made in ‘an economic environment in which markets do not function well, if at all, and which is also subject to many risks, such as adverse weather and price surges and all this has significant implications for their choices and their livelihoods as it can also affect their choices on investing on themselves and their children – on how to attain social and human capital objectives, such as education and health’ (FAO, 2015). However, and interestingly, Hashim & Gaddefors (2023) refer to ‘entrepreneurship’ in such poverty contexts that reflects the multidimensional character of poverty very much. This implies that the focus of entrepreneurship is not only economic but is creating differing values. It is a ‘wayfinding, in which individuals are trying to find ways to escape the disabling context of poverty, and draw from their social context using local resources that result in different values for the poor: in essence, the creation and extraction of value from a situation with a focus on creation’<sup>9</sup> (Hashim & Gaddefors, 2023).

## Background

Being an entrepreneur and providing for entrepreneurship is far from anything new. Indeed Kariv (2011) provides that ‘entrepreneurship is the world’s oldest profession’. Hudson (2010), for example, provides that in Palaeolithic times trade was underway, but more in the form of exchanging gifts so as to keep social harmony within and between tribes. Most interestingly, still Hudson (2010) provides that ‘the typical attitude in low-surplus communities living near subsistence levels is that self-seeking tends to achieve gains at the expense of others, and thus traditional social values therefore impose sanctions against the accumulation of personal wealth as the economic surplus is so small that making a profit or extracting interest would push families into dependency on patrons or bondage to creditors’. In fact, the basic ‘aim of survival requires that communities save their citizenry from falling below the breakeven level more than temporarily’ (Hudson, 2010). Indeed, in ancient societies ‘political correctness’ implied that surplus be shared, and this occurred, for example, in Mesopotamia, via public households (temples) (Hudson, 2010). However, only ‘after economic markets became an intrusive element of society did the entrepreneurship concept take on pivotal importance’ (Hébert & Link, 2009).

### *Entrepreneur, entrepreneurship and enterprise*

Butler (2006) defines enterprise, entrepreneur and entrepreneurship: enterprise being a business organization that is run by individuals and in most cases the size is micro to small to medium; the entrepreneur is defined as being a personal attitude for identifying opportunities so as to gain wealth; while entrepreneurship shows the characteristics of the entrepreneur. Bridge *et al.*, (1998) define enterprise as being ‘about attitudes and skills in whatever sphere of life’ but also provide for a narrow and broad sense definition: the narrow sense portrays an enterprise as a ‘form of behaviour devoted to the successful development of business’ (Bridge *et al.*, 1998); while in the broad sense an enterprise refers to ‘attributes and resources required for enterprise in a business context’ (Bridge *et al.*, 1998). Interestingly still Bridge *et al.*, (1998) with regard to the narrow view of enterprise provide that it is ‘not possible to explore enterprise without also examining ‘entrepreneurism’ and ‘entrepreneurship’, because frequently the words are used interchangeably, and do indeed have a common root’. Thus

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<sup>9</sup> As provided by Hashim & Gaddefors (2023) value can be ‘social, economic or social, with economic outcomes, like in a social enterprise, hence value is a much richer concept as these different values are addressing different dimensions of poverty’. In summary ‘it may be conceptually possible to understand entrepreneurship as tackling several dimensions of poverty’ (Hashim & Gaddefors, 2023).

enterprise, entrepreneur and entrepreneurship are distinct, but have evident overlaps and are interconnected.

However, and overall, there is a lack of clarity on how an entrepreneur (and entrepreneurship) should be defined (Carson *et al.*, 1995). A single, universal, definition of what is an entrepreneur and in the same manner what is entrepreneurship is not easy at all to pin down (Filion, 2021; Hébert & Link, 2009). ‘Everything depends on the standpoint or perspective of the person creating the definition, and the aspects and elements on which that person decides to focus in his or her research’ (Filion, 2021). For example, Wennekers & van Stel (2017) provide that in the case of entrepreneurship it ‘is a multifaceted phenomenon and the heterogeneity of entrepreneurs in the economy is huge’, and Roper (2013) adds that entrepreneurship varies considerably. In fact, according to Neck *et al.* (2018), entrepreneurship is far from being ‘linear or predictable; it is ill-defined, unstructured, and complex’. Still Neck *et al.* (2018) provide that the ‘old school’ see a linear process within entrepreneurship that has some predictability, referred to as the predicative logic, but the ‘newer school’ portrays that entrepreneurship is a perspective, a mindset and a practice, what is termed the creation logic, that is often applied to entrepreneurship that occurs in contexts that are risky, uncertain and thus generally unpredictable.

Interestingly Nielsen *et al.* (2012) provide that entrepreneurship can be seen ‘as a phase or life cycle sequence (stages)’. Burton (2017) provides that entrepreneurship is classified on the enterprise aim and the approaches to achieve such an aim. Still Nielsen *et al.* (2012) provide that classification depends on opportunities and challenges faced as well as the various fields, from which it is being researched, for example, economics, management, and psychology. Carson *et al.*, (1995) provide for a ‘traits approach’ which considers the psychological or personality of the entrepreneur: personality traits can be identified which make the entrepreneur unique. However, Carson *et al.*, (1995) also provide for a social psychological approach that focuses on external factors (contexts, for example) that provide stimulus for entrepreneurship: culture, religion, family, life experiences, etc. There is also the behavioural approach, still provided by Carson *et al.*, (1995), that provide that common behaviours and attitudes are shared among entrepreneurs. Bridge *et al.*, (2003) provide for a cognitive approach, among the others, which considers the decision-making process on which people chose to provide for entrepreneurial acts. Still Bridge *et al.*, (1998) also provide for integrated approaches as ‘no single theory seems to cover all aspects and therefore attempts have been made to amalgamate parts of two or more theories to produce an integrated approach with more general application’. These ‘integrated approaches offer potentially the most useful models for examining the process of enterprise (entrepreneurs and entrepreneurship) (Bridge *et al.*, 1998).<sup>10</sup>

Naudé (2011), for example, provides that ‘economists tend to define entrepreneurship from an occupational, a behavioural or an outcomes point of view’. In terms of the occupational view, for example, entrepreneurship ‘is viewed as a single state that an individual can adopt’ (van der Zwan & Thurik, 2017). Wennekers & van Stel (2017) also consider the occupational approach, but also the behavioural and consider productive, unproductive and destructive<sup>11</sup> types of entrepreneurships. Interestingly Kuada (2015) provides for various ‘perspectives’: the traits and gender perspective; the identity perspective; the process perspective; the behavioural perspective; the contextual perspective; the familism perspective; the entrepreneurial intentions and triggers perspective; and the entrepreneurship and enterprise formation in developing countries perspective. Morris (2021) considers occupational, behavioural and outcome approaches in entrepreneurship as a possible way of attempting

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<sup>10</sup> However it should be considered that there are a ‘broad range of variables in any model of entrepreneurial choice and behaviour and as such not all variables will impact, but many of these factors will be considered, implicitly or explicitly, remembering that enterprising individuals are not homogeneous, and that different approaches looking at different groups at different stages of organisational development will result in a complex picture i.e. multidimensional models’ (Bridge *et al.*, 1998).

<sup>11</sup> Productive entrepreneurship adds value to society, for example via products and services, such as food for example; unproductive entrepreneurship provides for simple rent seeking and extraction with no real social value addition, as for example, like some of the speculations that occur on food commodity future markets; and destructive entrepreneurship where social value is taken away, for example via organized crime (Wennekers & van Stel, 2017).

to exit poverty, for example. Also, Banerjee & Duflo (2007) provide that a substantial fraction of the poor act as entrepreneurs via multiple occupations, which does not enable for specialization, for example, in agriculture, but also in other off-farm jobs, like construction, for example, as such a multiple occupational strategy is fundamentally a risk reducing strategy. The poor 'work part time outside agriculture to reduce their exposure to farming risk and keep a foot in agriculture to avoid being too dependent on their non-agricultural jobs' (Banerjee & Duflo, 2007). The aim of risk reduction is also provided with the fact that having 'few skills and little capital, being an entrepreneur is often easier than finding an employer with a job to offer, this explaining, to a degree, why so many of the poor are entrepreneurs' (Banerjee & Duflo, 2007).

However, regardless of the complications in defining entrepreneurship and entrepreneurs, there exist a plethora of definitions. For example, Butler (2006) defines an entrepreneur as 'an individual attitude of opportunity spotting, and the creation and exploitation of business opportunities to create wealth, often with the implicit use of innovation, imagination, and risk-taking,' while defines entrepreneurship as 'the process of growing and sustaining the business after the start-up stage'. Scarborough & Cornwall (2016) define an entrepreneur as being 'one who creates a new business in the face of risk and uncertainty for the purpose of achieving profit and growth by identifying significant opportunities and assembling the necessary resources to capitalize on them'. Avanzini (2011) defines 'entrepreneurship as the phenomenon associated with the entrepreneurial activity, that is, the enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets. Lentsch (2019) provides that 'entrepreneurship is the pursuit of opportunity beyond resources currently controlled', Neck *et al.*, (2018) provide that an entrepreneur is 'an individual or a group who creates something new - a new idea, a new item or product, a new institution, a new market, a new set of possibilities'. Burton (2017) defines entrepreneurship 'as the process of designing, launching and running a new business, which typically begins as a small business, such as a startup company, offering a product, process or service for sale or hire' and defines an entrepreneur as 'a person who organizes and manages any enterprise, especially a business, usually with considerable initiative and risk'. Barringer & Ireland (2012) define entrepreneurship 'as the process by which individuals pursue opportunities without regard to resources they currently control,' Beugré (2017) defines entrepreneurship 'as the relentless pursuit of opportunity without regard to resources currently controlled', and Mishra & Zachary (2014) define 'entrepreneurship as the entrepreneurial process driven by entrepreneurial intention and a desire for entrepreneurial reward, the process that involves from identifying an entrepreneurial opportunity to build an entrepreneurial competence to finally appropriating the entrepreneurial reward'. Clearly the plethora of definitions provide for similarities and overlaps among each other as has been provided, but there are also some differences, to a degree, among the various definitions.

There are also a plethora of typologies of entrepreneurs and entrepreneurship. There are, for example, in terms of entrepreneurs: potential entrepreneurs; nascent entrepreneurs; novice entrepreneurs; habitual entrepreneurs; serial entrepreneurs; necessary entrepreneurs; transformative entrepreneurs; portfolio entrepreneurs; social entrepreneurs; sustainable entrepreneurs; agritrepreneurs; subsistence entrepreneurs, etc. Much the same is valid for entrepreneurship where there can be, for example, social entrepreneurship; group entrepreneurship; community entrepreneurship, etc. However in developing economies the two main defining types of entrepreneurs and entrepreneurship are: 'necessity entrepreneurship, in which the activity is undertaken because there are no other employment options or because the other employment options are unsatisfactory' (Lowe & Marriott, 2006) and 'opportunity entrepreneurship, in which a perceived opportunity is exploited' (Lowe & Marriott, 2006). But also, here with this distinction there can be overlaps. For example, in terms of subsistence entrepreneurs Ratten *et al.*, (2019) provide that these are 'individuals at the base of the pyramid who are considered poor and barely make a living and to alleviate poverty operate small businesses' and thus are necessity entrepreneurs, but such necessity entrepreneurs as subsistence entrepreneurs can also be transformative subsistence entrepreneurs, that are fundamentally opportunity entrepreneurs that 'thrive and grow their businesses and experience enhanced personal well-being' (Sridharan *et al.*, 2014). However not all enterprises are 'entrepreneurial or represent entrepreneurship' (Drucker, 1985), in the strictest sense of the term entrepreneurial (Burton, 2017) and are 'not spontaneously enterprising: they need enterprising people, individually or collectively to be innovative, creative and capable of developing and successfully exploiting new and exciting opportunities, this applying to whether the

enterprise is commercial or operating in the public, voluntary or community sectors' (Lowe & Marriott, 2006).

Regardless of the plethora of entrepreneurial and entrepreneurship definitions, their various typologies and the varying levels of entrepreneurial and entrepreneurship intensity, the most prevalent enterprises found globally are micro-scale enterprises (Hassan *et al.*, 2023; Sawhney *et al.*, 2022; Sridharan *et al.*, 2021; Venugopal *et al.*, 2015) and the most prevalent enterprises found globally are owned and run by family i.e. family enterprises (Riar & Kellermanns, 2021; Ramadani *et al.*, 2020); Alderson, 2018; Zellweger, 2017; Kenyon-Rouvinez & Ward, 2005). Indeed, survival in developing economies, prevalently, provides to turn not only to enterprise, entrepreneur and entrepreneurship, but family enterprise, entrepreneur and entrepreneurship to generate subsistence (Webb *et al.*, 2015). Such family-based micro-enterprises, commonly also referred to as household enterprises, are 'characterized by significant levels of family involvement, members providing sources of labour, including inputs from elderly grandparents to younger children (i.e., teenagers or younger adolescents), knowledge, capital, and other resources (social networks, for example), all in a collective effort to escape poverty' (Webb *et al.*, 2015).

#### *Agricultural entrepreneur, entrepreneurship and enterprise*

In terms of entrepreneurship in the agriculture and food sector, agripreneurship, there are many definitions of what it actually is, for example, see Dollinger (2003); Yousoff *et al.*, (2015), Mukembo & Edwards (2016); and Rao & Kumar (2016) only to mention a few. In this regard Macher (1999) defines agripreneurship as a profitable marriage of agriculture and entrepreneurship, whereby agriculture is run as a business venture and Uneze (2013) defines agripreneurship as a concept specific to agriculture and drawn from wider entrepreneurship. According to Sullivan (2017) though agripreneurship is different from traditional entrepreneurship in that 'modernization of agriculture is narrowly focused on highly specialized areas, efficiency, and productivity in farm management.' However according to Lans *et al.*, (2017) there are similarities and differences between agripreneurship and entrepreneurship in that it shares many characteristics of 'generic' entrepreneurship, but also has its distinct features due to the specific context of the agricultural sector. Hilmi (2018a) provides some unique characteristics of agripreneurship as being: 'a profitable marriage of agriculture and entrepreneurship; directly marketed agriculture; new methods, processes and techniques in agriculture; converts agricultural activity into an entrepreneurial activity; uses a unique set of resources; rural; sustainable; community oriented; and improved livelihoods.'

In much the same way entrepreneurs in the agricultural and food sector are defined as agripreneurs. Also, for agripreneurs there are many definitions, for example see Bairwa *et al.*, (2014); Nagalakshmi & Sudhakar (2013); Ndedi (2017); and Aleke, Ojiako, & Wainwright (2011) to only mention a few. Tripathi and Agarwal (2015) define an agripreneur as someone who undertakes a variety of activities in agriculture and its allied sectors and is a risk-taker, opportunist and initiator who deals with the uncertain agricultural business environment of the farm. Considering an agripreneur beyond the confines of the farm, Carr & Roulin (2016) see an agripreneur as he or she that works within a food system, located in but not necessarily limited to, a rural location, while Suarez (1972) goes beyond the individual agripreneur and considers agripreneurs in a group: an individual or group with the right to use or exploit the land or other related elements required to carry out agricultural, forestry or mixed activities (Suarez, 1972). Hilmi (2018b) provides some unique characteristics of an agripreneur: has a special foresight with regards to resource and environmental constraints, to learn from others and his or her own past, according to modern and indigenous knowledge; willing to make it ( the farm business) more sustainable ( in the long term); adopt new technologies to farming; individualistic and group focused; works within a food system, located in but not necessarily limited to, a rural location; considers the full range of 'agribusiness' opportunities within the extended food system; creating new ways of doing things in the agriculture sector; and utilizing innovative and sustainable production methods.

#### *The agricultural mechanization hire service as an enterprise*

An AMHSE is usually considered as a business enterprise, either part or full time, which provides services based on human, animal, engine, automated, communication and digital technologies and related equipment. The services can be provided on farm, along the agri-food value chain as well as in non-agri-food-based sectors. Such enterprises are commonly farm-based and rural, i.e., provided by a



farmer and farmer's family, but can also be provided, for example by farmer organizations, community-based enterprises as well as by non-farm-based business enterprises, for example, such as agricultural equipment dealerships, publicly owned enterprises, NGOs, and online digital enterprises. Hilmi (2021b) found that the most prevalent size of enterprise was micro-scale<sup>12</sup>, which was usually farm-based. Hilmi (2021b) also found that there were medium to large-scale AMHSEs, which were also prevalently farm-based, including group-based AMHSEs, for example cooperative AMHSEs, and village and community-based AMHSEs. Digital AMHSEs were also found as micro, small and medium-scale enterprises per se, but could also simply be brokerage services that would commonly have the role of matching demand with supply for the services of AMHSEs in a locality. The same research further found AMHSEs that were itinerant, being of various enterprise sizes, from micro to large-scale and also found AMHSEs run by agricultural mechanization dealerships, ranging from small-scale to large-scale enterprises. Hilmi (2021b) further found that the main AMHSE services were for farm production: land preparation, planting and spraying (see for example, Sims *et al.*, 2012); in terms of post-harvest services, (threshing, shelling, drying, storage operations), processing services (milling, grinding, pressing and packing); for marketing services (transport, packing, street hawking) as well as specific transport services for people, products, potable water and waste collection (see for example Hilmi 2013, 2018b, 2021a, 2021b; Crossley *et al.*, 2012), including also services for electrification and road construction (see for example Issa, 2017); as well as the services provided by the increasing diffusion of automation and digitization, like drones for example (see for example Hilmi 2021a, Krishna 2018, Zhang & Pierce 2013). Most often the services of AMHSEs were rural based but were also found to be located in peri-urban areas as well as in some cases in urban areas (Hilmi, 2021b).

## Methodology

Hine & Carson (2007) provide that the 'research frontier' of entrepreneurship is vast and as such should be 'served' using 'research design and methodologies as diverse as the content to be covered'. Entrepreneurship research is though 'immature,' and this allows researchers not to be embroiled and 'channelled down well-worn ruts of research methodology, enabling selection from a plethora of research methods and techniques' (Hine & Carson, 2007). But, Curran & Blackburn (2001), caution that 'small does not mean simple' as, for example, in small-scale enterprises 'a small number of human beings engaged in a common endeavour can create very complex, subtle interactions, and unravelling the underlying meanings and patterns of these interactions can be far from straightforward'. Further, 'activities lack clear structures and recording procedures, and as such measurement is much more difficult and propositions more difficult to test' (Curran & Blackburn, 2001). Importantly what was also considered was that most often, an enterprise 'is the personification of the entrepreneur and thus rather than categorizing people as entrepreneurial or not, it may be more useful to think in terms of a continuum of enterprise and wherever they sit on that continuum, there is a role to be played' (Lowe & Marriott, 2006).

Within this realm, previously, Hilmi (2021b) in the research conducted on what type of enterprise was an AMHSE took an abductive approach that was qualitative in nature. This, though, did provide for making some assumptions, that entrepreneurs and entrepreneurship in the agri-food sector were effectively agripreneurs and provided for agripreneurship, i.e., placing, to a degree, more of an accent on the deductive side of the abductive approach. This however, as the results of the previous research provided, was not strictly the case, as in fact the typologies of enterprise found, were yes, mostly related to business in the agricultural sector, thus agripreneurs and agripreneurship, but also had good degrees of social and community-based enterprise connotations. Hence in this research, even though still taking an overall abductive approach, far more emphasis was placed on an inductive approach, in full consideration of the findings from the previous research (see Hilmi, 2021b).<sup>13</sup>

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<sup>12</sup> An enterprise is commonly 'sized' by employee numbers as there is no international standard to define enterprise size. In this regard a micro-scale enterprise has less than 10 employees; a small-scale enterprise has between 10 to 49 employees; a medium-scale enterprise has between 50 to 249 employees; and a large-scale enterprise employs more than 250 people (OECD, 2023). For a further and more in-depth discourse on defining enterprise size see Curran & Blackburn (2001).

<sup>13</sup> Consideration was also given to other previous researches conducted: see Hilmi 2021a; 2021c; and 2018b; which also concerned AMHSEs as well as agripreneurship and agripreneurs.

Further, what was also considered in the research, to a degree, was Baumol's (1993) perspective that provides that 'who is an entrepreneur or what is entrepreneurship scarcely matters in practice as many of the definitions of both are commonly complementary rather than competitive, each seeking to focus attention on some different feature of the same phenomenon'. Moreover, and still to a degree, the research took into consideration also Parker's (2009) perspective in that 'it is unlikely if not impossible that any single measure of entrepreneurship could or even should ever be regarded as portraying all the nuances of entrepreneurship as the existence of more than one practical entrepreneurship measure is a positive advantage rather than a drawback'. In this regard the research and the researcher, for example, 'has greater choice to employ an empirical measure that relates more closely to their theoretical construct, whatever that may be as different measures contain different information, which make them complements rather than substitutes and some researchers have recognised this, suggesting that researchers should use a mixture of entrepreneurship measures in empirical work' (Parker, 2009).

However, Desai (2011) also cautions that 'measuring entrepreneurship is a difficult task because of the characteristics and dynamics involved, as one important contributor to this difficulty is that available indicators relating to entrepreneurship measure everything from personal attributes of the entrepreneurs like gender to outcome of the entrepreneurial process like start-up rates.' This also places an importance on the context and institutional environment of entrepreneurship (Desai, 2011). Desai (2011) provides also an interesting example, as also seen previously, in that 'the overlap between self-employment and necessity entrepreneurship in developing countries leads to a very different meaning of self-employment than in developed countries and rather, it is a good proxy for entrepreneurial activity and can be interpreted to some extent as a measure of entrepreneurial potential'. Butler (2009) provides much the same as Desai (2011) in terms of measurement. For example, in terms of measuring entrepreneur characteristics, this poses challenges, as 'they vary so widely from one individual to another both in terms of the range of skills and characteristics possessed, and those that predominate in any one individual' (Butler, 2009).

Consequently, taking into consideration the above, 'measuring' entrepreneurs and entrepreneurship in AMHSEs was done by, on the one side, identifying pertinent characteristics, related not only to 'generic' characteristics of entrepreneurs and entrepreneurship, but also to specific typologies of entrepreneurs and entrepreneurship characteristics, such as for example subsistence, social, community, sustainable, etc, but also if there were necessity, opportunities-based, etc, connotations. Consideration was also provided for existing frameworks such as that provided by Ahmad & Hoffmann (2008), for example. Thus, this taking a deductive approach and creating a framework 'a priori' for analytical needs of the research. For example, in terms of generic characteristics of the entrepreneur Williams (2006) provides these as being: 'the need for independence; the need for achievement; internal locus of control; ability to live with uncertainty and take measured risks; opportunistic; innovative; self-confident; proactive and decisive with higher energy; self-motivated; and vision and flair'. In much the same manner Lowe & Marriot (2006) provide the characteristics of entrepreneurs as being: 'self-managed or -employed; knowledge and learning; the family connection; personality drivers; perceptions of risk; the cultural dimension; innovation; and creative destruction or incremental change'. Clearly there are overlaps within these two sets of characteristics provided as well as differences, which were considered in the development of the deductive framework. Further characteristics were also considered for entrepreneurs and entrepreneurship typology, for example, social entrepreneur characteristics as provide by Beugré, (2017) were 'passion; vision for change; ethical fibre; creativity; caring and compassion; and morality'. Clearly there were also similarities and differences found not only within the same characteristics of social entrepreneurs, but also between the characteristics of social entrepreneurs and 'generic entrepreneur' characteristics, for example. Consideration thus was also given, still by typology of entrepreneur and entrepreneurship to similarities and differences between typologies, for example, of social entrepreneurship<sup>14</sup> and civic entrepreneurship.<sup>15</sup> Moreover, in the deductive framework consideration was given to if the entrepreneur and entrepreneurship were necessity, opportunity, serial, conventional, and creative, for

<sup>14</sup> Social entrepreneurship as defined by Neck *et al.*, (2018) is 'the process of sourcing innovative solutions to social and environmental problems'.

<sup>15</sup> Civic entrepreneurship is defined by Lentsch (2019) as being 'the adoption of an entrepreneurial approach to empowering civil society'.

example and how these can also overlap. For example, a necessity entrepreneur can also be an opportunist and creative.

On the other side there was a far more inductive approach taken that would identify characteristics as they emerged from the sources of literature and secondary data and information and related analysis of such, in an ongoing and iterative manner. This process provided for building an inductive framework for analytical reasons. Consequently, both the deductive and inductive frameworks were compared and contrasted, providing for an overall framework, which would support and help identify characteristics of entrepreneurs and entrepreneurship in AMHSEs, and thus providing for the abductive approach taken by the research and the research being qualitative in nature.<sup>16</sup>

The characteristics that emerged from the literature and sources of secondary data and information were considered to be reliable and valid, only if they were identified at least three times in the various literature and sources of secondary data and information reviewed. In other words, if the same characteristic was found at least three times (triangulation) from various sources of literature and secondary sources of data and information it was considered reliable and valid. The characteristics found were then compared and contrasted with the developed framework.<sup>17</sup>

The overall research consisted of five main research phases. The first phase was mainly exploratory, the second, third and fourth phases were also exploratory, but systematic, historical and descriptive, while the fifth research phase comprised carrying out one to one online exploratory and descriptive interviews.

The first phase of the research<sup>18</sup> was exploratory. It attempted to identify generic characteristics of entrepreneurs and entrepreneurship and the various typologies of entrepreneurs and entrepreneurship, including also their characteristics. In a sense, the first phase of the research also attempted to set 'research boundaries' to the vast subject matters of entrepreneurs and entrepreneurship, but also at the same time, attempt to identify not so well-known sides of the vast subject matter, but could have pertinence to the research aim<sup>19</sup>. The research was based on seven online search engines: Agris, BASE, CORE, Google Scholar, JSTOR, Refseek and Research Gate. It used key search terms. These were fundamentally: entrepreneur; entrepreneurship; enterprise. However also key search terms were used by typology of entrepreneur and entrepreneurship, for example, social entrepreneur; social entrepreneurship, etc, however key search terms also emerged as the exploratory research progressed, making it an iterative process. For example, what emerged also as key search terms were: sustainopreneurship; sustainopreneur; civic entrepreneurship; civic entrepreneur; transgenerational entrepreneurship; transgenerational entrepreneur; rural entrepreneurship; rural entrepreneur; teampreneurship; teampreneurs; co-operative entrepreneurship; co-operative entrepreneur, etc. This providing for a more inductive approach to the exploratory research.

A total number 49 relevant<sup>20</sup> publications were found. The publications were mainly books, textbooks, journal articles, and technical reports. The publications were analysed as they were 'coming in' which enabled for an iterative process, that also better supported and guided the exploratory research.

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<sup>16</sup> Kovalainen (2018) provides that 'qualitative methods have become one of the mainstream methods used in much of entrepreneurship research.'

<sup>17</sup> The characteristics that emerged from the literature and sources of secondary data and information, including the comparing and contrasting with the developed framework were also open peer reviewed by one field practitioner subject matter specialist in agricultural mechanization and mechanization and one academic subject matter specialist in entrepreneurship. This providing for yet another layer of reliability and validity.

<sup>18</sup> The first phase of the research lasted about four months (June 2021- September 2021).

<sup>19</sup> For example, a typology of entrepreneurship that was found was termed 'compensatory entrepreneurship.' This, as provided by Honig (2021) is 'the political endorsement of entrepreneurial promotion activities, including training, incubation, and media dissemination, for the primary objective of maintaining political and/or economic control of one population over another.'

<sup>20</sup> The quality criteria for selection of publications were: the direct as well as indirect relevance to the research subject matter; value (methodological rigour, quality of the reasoning or arguments, references, etc., ); research evidence in terms of either or both primary source-based (credibility; reliability; ecological validity) and secondary source –based; location; derived from an identified and reliable source (author(s), scientific journal publisher, reputation of publisher, etc., ); date of publication (not older than 100 years); references used; and peer review conducted (Fisher, 2010; Adams *et al.*, 2014; Saunders *et al.*, 2016).

The analysis was provided by thematic analysis and the resulting findings were assessed for quality, taking a qualitative stance in terms of trustworthiness (truth value, applicability, consistency, neutrality) and credibility (good research practice, peer review of findings) criteria (Bryman & Bell, 2011).

However, the initial exploratory research, indicated that another further exploratory research be conducted. Hence the first phase of the research was actually subdivided into to research sub-phases. With the guidance from the first sub-phase of the exploratory research, the second sub-phase<sup>21</sup> generated further 34 publications, used the same key search terms that had been identified in the first subphase and used the same seven online search engines. The publications were mainly books and textbooks and were selected via the same quality criteria as the first-sub phase, analysed in the same iterative manner and the results 'tested' for qualitative reliability and validity as per the same process in the first sub-phase. The findings from the two sub-phases were compared and contrasted.

The second phase of the research<sup>22</sup> was systematic, historical and descriptive and was, in part, guided by the findings from first phase of the research. This also enabled a refinement of the key search terms used as well as the addition of new key search terms, especially as related to typologies of entrepreneurs and entrepreneurship. The research was based on nine online search engines: Business Source Complete (EBSCO); Economist.com; Emerald Full Text; JSTOR Business Collections; Oxford University Press Journals; Proquest One Business; SAGE Journals Online; Taylor and Francis Online Journals; Semantic Scholar. A total number of relevant publications found were 57. The publications were mainly journal articles and articles. These were selected via the same quality criteria as the first phase of the research, analysed in the same iterative manner and the results 'tested' for qualitative reliability and validity as per the same process as in the first phase. The findings from the second phase were compared and contrasted with the findings from the first phase.

The third phase of the research<sup>23</sup> was also exploratory. It was based on key search terms that 'amalgamated' enterprise, entrepreneur and entrepreneurship with AMHSE and other terminology that were related to such, for example, agricultural mechanization, mechanization, etc. Hence, and for example, some key search terms were: AMHSE entrepreneurship; entrepreneurship in agricultural mechanization: AMHSE entrepreneurs; mechanization provider entrepreneurs; mechanization service provider enterprise; mechanization hire service entrepreneur; etc. Further key search terms were also provided based on the various typologies of entrepreneurs and entrepreneurship, for example social entrepreneurship AMHSE, agriprenurship in agricultural mechanization, etc. The research was based on five online search engines: CORE; Goolge; Google Scholar; ReefSeek; ResearchGate. A total number of publications found were 27. These were selected using the same quality criteria as per the previous two research phases of the research, analysed in the same iterative manner and the results 'tested' for qualitative reliability and validity as per the same process in the previous two research phases. However, relevant publications found were only three.

The fourth phase of the research<sup>24</sup> was systematic, historical and descriptive and was, in part, guided by the findings from the third phase of the research. This also enabled a refinement of the key search terms, as those used in phase three, as well as the addition of new key search terms. The research was based and focused on three online search engines which had been used in the third phase of the research, these being Goolge; Google Scholar; ResearchGate. A total number of publications found were 38. These were selected using the same quality criteria as per the previous three research phases of the research, analysed in the same iterative manner and the results 'tested' for qualitative reliability and validity as per the same process in the previous three research phases. However, of the publications found only four were found to be relevant. The findings from the fourth phase were compared and contrasted with the findings from the third phase.

The fifth phase of the research was based on online one to one interview. The interviews were focused on the main aim of the research, with key informants of the subject matter. This provided for three key informant interviews being identified: two field practitioner subject matter specialists in

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<sup>21</sup>The second sub-phase of the research lasted circa two months, roughly between November 2021 to December 2021.

<sup>22</sup> The second phase of the research lasted about three months and was provided between roughly February and April 2022.

<sup>23</sup> The third phase of the research was circa three months in duration, from circa June to August 2022.

<sup>24</sup> The fourth phase of the research lasted about three months from roughly October to December 2022

agricultural mechanization and mechanization and one scholar practitioner in agricultural mechanization and mechanization. Semi-structured and unstructured Interviews were conducted<sup>25</sup> on a one-to-one basis, online, recorded and transcribed. The transcripts of the interviews were shared with each interviewee to ascertain for authenticity and accuracy in their narrative and documentation. The transcripts were then analysed qualitatively using content analysis and related coding (Lune & Berg, 2017).

The draft findings of the research were open peer reviewed by the three interviewees. Feedback from the peer review process was compared and contrasted. The three interviewees also provided for an open peer review of the first draft of the article<sup>26</sup> and also here feedback was compared and contrasted. In other words, both the draft findings peer review feedback and the feedback provided from the peer review of the draft article were triangulated, this adding for a further layer of reliability and validity of the research results.

## Findings

### *Results from literature and sources of secondary data and information*

The literature and sources of secondary data and information that concerned AMHSE entrepreneurs and entrepreneurship specifically were rather scant, as provided previously. This is interesting, as for example, in terms of what type of enterprise is an agricultural mechanization hire service, the literature and sources of secondary data and information, were relatively more as, for example, provided by Hilmi (2021b). The results from this previous research provided that the most prevalent enterprise found was ‘micro-scale AMHSEs, which are not just business enterprises, but a far more social and community-based type of enterprise, which are in partnership, directly and indirectly, with the public sector and public economy, have rather large ‘spill-over’ effects on local communities in terms of their services, which are non-farm related and as such AMHSEs are seemingly more like a ‘rural services enterprise’ than a farm-based AMHSE’ (Hilmi, 2021b). Further in the same research and previous research, still Hilmi (2018b) found that as an enterprise, an agricultural mechanization hire service was most prevalently ‘small-scale, occasional, part-time and informal’. Informal and part time meaning that AMHSE services are most commonly provided by farmers for other farmers, as for example, ‘a farmer who owns draught animals and has spare capacity after his or her farm operations have been completed, may provide planting services to a neighbouring farmer’ (Hilmi, 2018b).

Indeed, micro-scale AMHSEs are the most prevalent found, but Hilmi (2021b) found also enterprise typologies of AMHSEs that were medium to large-scale and farm-based; group AMHSEs being small to medium-scale in size most commonly, but could also be large-scale; itinerant AMHSEs that could be individual or group-based and ranged prevalently in size from micro, small and medium-scale, but could also be large-scale; agricultural equipment dealerships which ranged in size from small to medium to large-scale; local area brokerage enterprises that were commonly micro-scale; digital brokerage enterprises which ranged in size from small to medium to large-scale; publicly -owned AMHSEs which ranged from small, to medium to large-sized enterprises; public-private partnership AMHSEs which ranged from small, to medium to large-scale; and NGO-based AMHSEs which ranged from small to medium-scale in size.

These plethora of types of AHMSEs had various typologies of entrepreneurship and entrepreneurs as still found by Hilmi (2021b). The typologies of entrepreneurship and entrepreneurs found were per enterprise typology as follows:

- *Micro-scale AMHSE farm-based* (and could also be itinerant): non-growth oriented in terms of agripreneurship and as an agripreneur, and had strong social and community orientations in terms of agripreneurship and as an agripreneur;
- *Medium-to large-scale AMHSE farm-based*: transformational agripreneurship approach and transformational in agripreneur approach;

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<sup>25</sup> The three online interviews were conducted in December 2022.

<sup>26</sup> These reviews were conducted during March 2023.

- *Group AMHSE farm and non-farm based*: growth-oriented, transformational in their group agripreneurship and group agripreneur stance, but not always, and strong social and community orientations in terms of agripreneurship and as an agripreneur;
- *Itinerant AMHSE*: growth-oriented and transformational type of agripreneurship and as agripreneurs;
- *Agricultural equipment dealership*: growth oriented with a strong connotation for transformational agripreneurship and as agripreneurs, and some degree of social and community-based agripreneurship and as agripreneur;
- *Local area brokerage enterprise*: transformational in agripreneurship and agripreneur stance and strong social and community-based agripreneurship and as agripreneur orientation;
- *Digital brokerage enterprise*: high transformational entrepreneurship and entrepreneur stance and strong social and community-based entrepreneurship and entrepreneur connotations;
- *Publicly -owned AMHSE*: social and community-based agripreneurship and as agripreneur, and orientation that is not transformational;
- *Public-private partnership AMHSE*: moderately growth oriented and transformational in their agripreneurship and agripreneur stance;
- *NGO-based AMHSEs*: social agripreneurship and agripreneur orientation.

From the above it is clear that prevalent typologies of entrepreneurs and entrepreneurship in AMHSEs are agripreneurs and agripreneurship, growth oriented, transformational in nature and with moderate to high levels of social and community agripreneurship and agripreneur orientations. What was also found was a 'generic' entrepreneurs and entrepreneurship stance in terms of the digital brokerage enterprise alone, and with regard to the most prevalent enterprise found, micro-scale AMHSE that was farm-based and could also be itinerant, was non-growth oriented in terms of agripreneurship and as an agripreneur, but had strong social and community orientations in terms of agripreneurship and as an agripreneur. Overall, this providing for in terms of typologies of entrepreneurs and entrepreneurship the following:

- Agripreneurship and agripreneurs.
- To a lesser and greater degree social and community-oriented agripreneurship and agripreneurs;
- To a lesser and greater degree growth oriented and transformational oriented agripreneurship and agripreneurs;
- Non growth oriented and necessity oriented agripreneurship and agripreneurs.

Singh *et al.*, (2018) provide for a general entrepreneur characteristic of self-efficacy. Such a characteristic was found in other typologies of entrepreneurs, for example self-efficacy can be found in social entrepreneurs, group entrepreneurs, community entrepreneurs, village entrepreneurs, sustainable entrepreneurs, transformational entrepreneurs, necessity entrepreneurs, serial entrepreneurs and so forth. Issa (2017) provides that a 'tractor-hiring entrepreneur' is 'an individual or group and as an entrepreneur is someone who is able to balance the economically desirable with the technologically/operationally feasible, someone who takes a calculated risk to seize an opportunity or meet unsatisfied needs in hope of establishing a sustainable business, and is a means of wealth generation for improved livelihood of the entrepreneur as well as other value chain actors in rural areas'. Thus Issa (2007) provides for entrepreneur characteristics that are: transformational; risk calculating; opportunity seeking; and growth-oriented.

Shetto *et al.*, (2000) in the case of animal powered AMHSEs provide that an entrepreneur is a person who attempts to earn a profit by taking the risk of operating a business enterprise. These are people who have the ability to identify and evaluate business opportunities in the environment, gather resources to take advantage of the business opportunities and ensure success. An entrepreneur is a moderate risk taker who takes calculated chances with the hope of success. They are creative and innovative so as to develop new processes, products, services and markets. CIMMYT (2016) within the context of a training manual devoted to business management for AHMSE provides for an entrepreneur as 'a leader, confident, passionate, planner, innovative, trustworthy, reliable, flexible, negotiator, creative thinker and doer, calculated risks taker, and opportunity seeker.' Still CIMMYT (2016) define

entrepreneurship within AMHSEs as the ‘willingness to take risks and develop, organize and manage a business in a competitive market that is constantly changing’. Sims *et al.*, (2018) provide that an AMHSE entrepreneur is a ‘leader, confident, has drive, is competitive, determined, creative, calculated risk taker, growth-oriented, efficient, innovative, trustworthy, problem-solver, and flexible.

Thus, and as per the above, provide that AMHSE entrepreneurs and entrepreneurship have the following 24 characteristics:

- opportunist (transformational);
- necessity-oriented;
- self-efficacy;
- Individualistic:
- group-oriented;
- growth-oriented;
- non-growth-oriented;
- competitive;
- determined;
- problem solver;
- calculated risk taker;
- creative;
- innovative;
- leader;
- confident;
- passionate;
- planner;
- trustworthy;
- reliable;
- flexible;
- familiar;
- social-oriented;
- community-oriented;
- part-timer.

Such characteristics can be found in a wide degree of typologies of entrepreneurs and entrepreneurship. Thus the 24 characteristics identified provide that entrepreneurs and entrepreneurship typologies of AMHSEs are seemingly:

- Necessity;
- Transformational (Opportunist);
- Conventional;
- Serial;
- Habitual;
- Project;
- Nascent;
- Informal;
- Generic;
- Multipreneur and multipreneurship;
- Social;
- Community;
- Group;
- Village;
- Agripreneur and agripreneurship;
- Family;

- Public;
- Digital.

Clearly among these typologies there were characteristic overlaps. For example, growth-focused was a common characteristic found that traversed many differing typologies of entrepreneurs and entrepreneurship.

*Results from the one-to-one online interviews*<sup>27</sup>

The typology of entrepreneurs and entrepreneurship of AMHSE is a fairly under researched area of agricultural mechanization and mechanization more in general. This has resulted in the consequent lack of documentary evidence. This though is somewhat perplexing, as for example, the public sector has provided direct and indirect support to the acquisition, availability and access to farm machinery and equipment, via village hiring centres, field training programmes and national policies that foster small and medium-scale enterprise (SME) development, for some decades now. It has also provided, for example, training programmes on machinery usage, repair, and maintenance, but not very often, provided for training on business matters, for example, such as entrepreneurship. Further, still in terms of research, SME agro-food processing, for example, which is basically the mechanization of SMEs has received considerably more attention, especially in terms of rural development, even though and interestingly AMHSEs have a great deal of potential even in this realm of mechanizing agri-food processing. This lack of research in terms of entrepreneurs and entrepreneurship of AMHSE may have been provided, in one case, among the many reasons, as per the common nature of AMHSEs being prevalently, small-scale, part time and informal in their business practice.

In this regard, and thus seemingly not much is known about specific typologies of entrepreneurs and entrepreneurship of AMHSE as per the lack of documented evidence. However, what can be provided with some degree of certainty is that even at subsistence levels of farming, farmers can demonstrate what may be termed generic entrepreneurship and entrepreneur characteristics. Such AMHSEs are void most commonly of capital equipment, such as farm machines and equipment, for example, but mainly use their own 'muscle power' off-farm. This can be seen as fostered by a necessity and survival form of being an entrepreneur in that off-farm work is needed to generate enough livelihood to survive. Thus the 'motivation' is propelled by need, more than an inherent realization of being entrepreneurs. However, such basic one person-based form of enterprise can still be considered as an AMHSE and related 'generic' entrepreneurship and entrepreneurial characteristics but can also be seen as what can be termed necessity or survival or subsistence entrepreneurship and related entrepreneurial stance. This provides that there are 'overlaps' between generic characteristics of entrepreneurship and being an entrepreneur, and the characteristics of necessity entrepreneurship and being an entrepreneur. Within this same realm though, such one-person based enterprises that commonly use muscle power, are most often also provided with family member muscle power. Hence, this may also be seen as having characteristics of family entrepreneurship and family entrepreneurs which overlap with the characteristics of generic and necessity-based entrepreneurship and being an entrepreneur. Further such a typology 'mix' of entrepreneurship and being an entrepreneur may also seemingly overlap with community, village and more broadly social entrepreneurship and being an entrepreneur. For example, it is customary practice that at certain times of the year, in many farming communities, people from the local community come together to support each other during the harvest period. Thus, it can be provided and inferred that such AMHSEs are a mix of generic, necessity, family, community, village and social entrepreneurship and entrepreneur typologies. Clearly such typologies of entrepreneurship and being an entrepreneur are mainly survival based at such a subsistence level, and hence, for example, not growth oriented, but it can be assumed that exceptions need to be considered and some AMHSEs may be growth oriented.

Still at such micro and small-scale level of AMHSEs that do not rely solely on muscle power, but may also have, for example animals and/or machinery, the same typology mix of entrepreneurship and being an entrepreneur may be inferred. However, having capital equipment, be it animals and/or machines, potentiality may foster a more transformational typology of entrepreneurship and being an entrepreneur, where for example, opportunities are sought not only at the farm level, but also off-farm,

<sup>27</sup> What is provided here is the consolidated and summarized findings from the three online interviews.



for example in forestry, fisheries and so forth. Thus, it can be inferred that such AMHSEs are to a degree growth oriented, even though such entrepreneurial activity may occur, only once their own farm work has been completed and there is 'spare operational time' to devote to other farms and other off-farm work. Consequently, it may be inferred that such AMHSEs are also a mix of generic, necessity, family, community, village and social entrepreneurship and entrepreneur typologies, but with an addition of transformational opportunity seeking entrepreneurship and entrepreneurs. However, this is more a question of degree than an absolute, as most of such AMHSE are still part-time and informal enterprises in their conduct of business.

However, at larger-scale enterprise levels for AMHSEs, for example in large-scale farms and in agricultural equipment dealerships, the entrepreneurship provided can assumed to be mainly transformational in its nature, opportunity seeking and growth oriented. The most common drive to setting up AMHSEs, for example, on a large-scale farm, apart from mechanizing own farm operations, is that of seeking return on investment on the capital equipment as soon as possible and of course attempting to earn a profit on yet another 'farm enterprise.' In the case of dealerships, for example, this is also profit motivated, among the many other reasons of having an AMHSE. Thus, it can be inferred that this typology of entrepreneurship and entrepreneur is mainly transformational.

Still in the realm of transformational entrepreneurship and entrepreneurs what has seemingly accelerated such a stance in recent decades is the evolution, ease of access, lower costs and increased connectivity of information and communication technologies (ICTs). This, especially in rural areas and even in remote rural areas. This has not only enabled ease of communication, between suppliers of AMHSEs and demanders, farmers, for example, but has given rise to new forms of AMHSEs, that are basically brokerage services and brokerage services that are digital only and do not own any equipment, for example, but only match demand for AMHSE's services with supply for such services. Such digital enterprises, being fundamentally, 'go betweens,' can be inferred to be highly transformational in their entrepreneurship and entrepreneur stance. However, such developments in ICTs and related digitalization have also provided opportunities for all sizes of AMHSEs be they farm or non-farm based. Thus, moving the entrepreneurship and entrepreneur stance far more towards being transformational.

The public sector is also involved both directly and indirectly in AMHSEs. The stance that may be inferred in terms of entrepreneurship and being an entrepreneur is that of social and community entrepreneurship and entrepreneur in those AMHSEs that are fully publicly owned. However, the stance can change, when the AMHSE is, for example, a public private partnership and thus there is also a transformational entrepreneurship and entrepreneur stance that is 'mixed' with a social and community stance. However, also here, it can be inferred, that the on-going ICT evolutions have also affected the public sector in its stance towards AMHSEs and provided it to take on a more transformational entrepreneurship and entrepreneur stance.

## **Discussion**

From the above findings it seems that AMHSEs have a 'mix' of typologies of entrepreneurs and entrepreneurship stances. There is also a general tendency that according to enterprise size the AMHSE will provide for necessity or transformational typologies of entrepreneurs and entrepreneurship along a continuum. On the one side of the continuum there are necessity entrepreneurs and entrepreneurship that tend to be found mostly in micro-scale AMHSEs, while on the other side of the continuum there are transformational entrepreneurs and entrepreneurship that tend to be found mostly in large-scale AMHSEs. In between these two sides of the continuum there can be found a plethora of typologies of entrepreneurs and entrepreneurship, that commonly overlap, and as provided previously are seemingly a 'mix.' The findings provided for the following typologies of entrepreneurs and entrepreneurship in AMHSEs being identified:

- Necessity;
- Transformational (Opportunist);
- Conventional;
- Serial;
- Habitual;
- Project;

- Nascent;
- Informal;
- Generic;
- Multipreneur and multipreneurship;
- Social;
- Community;
- Group;
- Village;
- Agripreneur and agripreneurship;
- Family;
- Public;
- Digital.

Each of these typologies of entrepreneurs and entrepreneurship can be generally defined as follows:

- *Necessity*: ‘Activity is undertaken because there are no other employment options or because the other employment options are unsatisfactory’ (Lowe & Marriott, 2006). Entrepreneurial actions, ‘undertaken in the informal sector of the economy, by individuals living in poverty in bottom of the pyramid (BOP) or subsistence marketplaces to create value for their consumers (Viswanathan *et al.*, 2014). Commonly heterogeneous in nature and made up of ‘mainly four distinct bundles of entrepreneurial and nonentrepreneurial activities—farmer entrepreneurs, subsistors, wage supplementers, and market innovators’ (Weber *et al.*, 2022);
- *Transformational (Opportunist)*: Finds a perceived ‘opportunity and pursues growth to support personal status needs: exploits opportunities’ (Lowe & Marriott, 2006). A ‘process by which individuals pursue opportunities without regard to the resources they currently control; thus, opportunity is considered the bridge that connects the unfulfilled market’s needs and the solution that might satisfy those needs’ (Kariv, 2011);
- *Conventional*: ‘Self-employed, but sticks with conventional products and ideas to meet lifestyle needs’ (Lowe & Marriott, 2006);
- *Serial*: ‘Constantly challenging assumptions, developing new products/services, seeks rapid growth’ (Lowe & Marriott, 2006);
- *Habitual*: ‘Individuals who hold or have held a minority or majority ownership stake in two or more firms, at least one of which was established or purchased, and this can be subdivided into: *serial entrepreneurs* individuals who have sold/closed at least one firm that they had a minority or majority ownership stake in and currently have a minority or majority ownership stake in a single independent firm; *portfolio entrepreneurs* individuals who currently have minority or majority ownership stakes in two or more independent firms’ (Wright *et al.*, 2012);
- *Project*: ‘Individuals who are engaged in the repeated assembly or creation of temporary organizations’ (Burton, 2017);
- *Nascent*: ‘Individuals who have set up a business they will own or co-own that is less than three months old and has not yet generated wages or salaries for the owners’ (Neck *et al.*, 2018);
- *Informal*: ‘The distinction between formal and informal entrepreneurship is determined by registration status’ (Desai, 2011). ‘Those engaged in the production and sale of goods and services that are unregistered by, or hidden from, the state for tax, social security and/or labour law purposes but which are legal in all other respects’ (Williams, 2006). Three main types are usually identified: ‘micro-entrepreneurs, the established self-employed off-the-books workers and underground social entrepreneurs’ (Williams, 2006);
- *Generic entrepreneur and entrepreneurship*: ‘An individual attitude of opportunity spotting, and the creation and exploitation of business opportunities to create wealth, often with the implicit use of innovation, imagination, and risk-taking’ (Butler, 2006). The ‘process of growing and sustaining the business beyond the resources currently controlled’ (Butler, 2006);

- *Multipreneur and multiprenuership*: An individual ‘who starts multiple firms simultaneously, is fully involved in his or her businesses, especially financially, but who may have different roles in those businesses’ (Kariv, 2011);
- *Social*: ‘The process of sourcing innovative solutions to social and environmental problems’ (Neck *et al.*, 2018). ‘A social innovator who adds value to people’s lives by pursuing a social mission, using the processes, tools, and techniques of business entrepreneurship’ (Beugré, 2017);
- *Community*: ‘Embedded in a specific geographical reality and bridges community and business practices’ (Vestrum *et al.*, 2012). Individual or individuals who ‘pursue opportunities to generate an entrepreneurial environment, redeploy local resources, create and organise social change, create employment and income for community members or create new development opportunities within the community’ (Vestrum *et al.*, 2012);
- *Group*: A ‘set of actors, either individual or organizational, who actively support the creation of a new organization. Defined on a continuum in terms of their commitment to such groups’ (Ruef, 2010);
- *Village*: Village level community entrepreneurs and entrepreneurship that can be composed of individuals working in groups and/or groups of village enterprises working together. A process to ‘pursue opportunities to generate an entrepreneurial environment, redeploy local resources, create and organise social change, create employment and income for community members or create new development opportunities within the community’ (Vestrum *et al.*, 2012);
- *Agripreneur and agripreneurship*: An individual or a group who ‘actively engage in agriculture, use current technology to increase agricultural productivity, and adopt new systems of operations’ (Sullivan, 2017). Agripreneurship is ‘the capacity of farmers to change, to abandon old models and to enter a new agricultural phase and is viewed as both an attitude and a set of strategies that are suitable to modernise the farm’ (Condor, 2020);
- *Family*: ‘The processes through which a family uses and develops entrepreneurial mindsets and family influenced capabilities to create new streams of entrepreneurial, financial and social value across generations’ (Habbershon *et al.*, 2010);
- *Public*: ‘Individuals within government institutions that can identify opportunities, leading to the development of new business ideas that could help achieve socio-political objectives by harnessing resources to help achieve the identified objectives’ (Ramamurti 1986). ‘The generation of a novel or innovative idea and the design and implementation of the innovative idea into public sector practice’ (Roberts, 1992);
- *Digital*: A process of ‘creating a new—or novel—Internet enabled/delivered business, product or service’ (van Welsum, 2016). An individual or a group of individuals ‘who seek to generate value, through the creation or expansion of economic activity, by identifying and exploiting new ICT or ICT-enabled products, processes and corresponding markets’ (Bogdanowicz, 2015).

As per above, there are evident overlaps among the various definitions. For example, necessity entrepreneurship overlaps with social and community entrepreneurship orientations. Further there are also common threads among the typologies of entrepreneurs and entrepreneurship. For example, there is a common thread that brings together an agripreneur, being possibly also a transformational entrepreneur, an informal entrepreneur, and also being a family, social, community, village and digital entrepreneur. The ‘borders’ between the various typologies of entrepreneurs and entrepreneurship are there but can be somewhat blurred as per evident ‘crossovers.’ Moreover, it seems that, and as also provided before, that enterprise size seems to provide some general guidance to what typology of entrepreneur and entrepreneurship will be provided by an AMHSE. But what will also guide this, seemingly, is the context in which AMHSEs operate in, including, for example, the national and local economy, social norms, culture, and location (rural, peri-urban, urban).

However, and overall, what can be ascertained from the findings is that AMHSEs commonly have a mix of typologies of entrepreneur and entrepreneurship stances. Such findings though can also be interpreted as each AMHSEs having a unique set of entrepreneur and entrepreneurship typologies and characteristics, this being much in line with what Lowe & Marriott (2006) provide in terms of an enterprise as being ‘the personification of the entrepreneur’.

## Conclusions

From the findings it can be concluded that AMHSEs have a 'mix' of typologies of entrepreneur and entrepreneurship stances. In this research the typologies found were necessity; transformational (opportunistic); conventional; serial; habitual; project; nascent; informal; generic; multipreneur and multipreneurship; social; community; group; village; agripreneur and agripreneurship; family; public; and digital. Such typologies provide for overlaps among them and common threads that run through them, seemingly providing for a continuum on the one side being necessity entrepreneurs and entrepreneurship and being transformational entrepreneurs and entrepreneurship on the other side. In between these two sides there is a mix, based on degree, more than absolute, of typologies of entrepreneur and entrepreneurship stances of AMHSEs. Further it seems that AMHSE size can determine the typologies of entrepreneur and entrepreneurship, as well as contextual matters, such as, for example, national and local economy, social norms, culture, and location (rural, peri-urban, urban). As per these conclusions, they contribute further knowledge to the previous research conducted (see Hilmi, 2021b) on what type of enterprise is a AMHSE and furthers the enterprise approach in terms of AMHSEs. Indeed in the previous research, micro-scale AMHSEs were the most prevalent enterprise found. They were found to be business enterprises, either full or part-time, family-run and informal, and having also a good degree of social and community-based types of enterprise connotations, with both a growth and non-growth focus in them, and also providing for both a transformational and necessity-based types of entrepreneur and entrepreneurship stances. Such micro-scale AMHSEs were also identified as having mainly agripreneurship and agripreneur stances, and within this current research, now providing for a much broader stance in terms of typologies of entrepreneurs and entrepreneurship. This could also go some way to enhance more the finding of Hilmi (2021b) that micro-scale AMHSEs are seemingly more like a 'rural service' enterprise, which goes well beyond the farm gate, for example, via providing, transport services, processing services, etc. In fact, such a mix of typologies of entrepreneurs and entrepreneurship stances, seemingly support this stance of micro-scale AMHSEs being in reality rural service enterprises.

In terms of larger- scale AMHSEs, still Hilmi (2021b), provides, for example that medium and large-scale farm-based AMHSEs, group, itinerant, local and digital brokerage and dealership AMHSEs, had varying degrees, also of social and community based connotations in terms of enterprise, but being mainly focused on business growth and being transformational in their entrepreneur and entrepreneurship stances, including also being identified as having an agripreneurship and agripreneur stance. This also though, as per the current research has provided for a much broader stance in terms of typologies of entrepreneurs and entrepreneurship. Further the public sector also plays a role in AMHSEs, either directly or indirectly (Hilmi, 2021b) and this has also within this research been provided even further, as per the findings.

However, and overall, and as also provided previously, the literature and sources of secondary data and information on the typologies of entrepreneur and entrepreneurship of AMHSEs is scant and also the interviewees pointed to such a matter as a lack of documentation on the main aim of the research. This thus implies that the findings and related conclusions of the research may not be generalizable to a wider universe as per the evident limitations. However, the findings and related conclusions can be used as 'indicators' and 'guidance' for more and further research within this subject matter area of AMHSEs devoted to typologies of entrepreneurs and entrepreneurship. Further, research should seemingly also be conducted in terms of an AMHSE being a rural service enterprise that is not only related to services provided for farm production related tasks, for example, but services commonly provided to local communities, for example, as this matter also emerged in Hilmi (2021b). Moreover, further research should seemingly also be conducted on AMHSEs being family enterprises as this also emerged in Hilmi (2021b).

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