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GLOSSARY

Smart entrepreneurship appears as part of a wider concept in smart cities; with a focal point on a new business management concept that takes technologies into consideration as factors that enable innovation and improvement in IT with the aim of growth of quality of life. Above all, one should not overlook considering intelligent technology in this new vision of smart entrepreneurship, which, in fact, is an integrative view on modern technology.¹

Smart entrepreneurship, particularly if it is operating in artificial intelligence-relevant business fields or with ambitions where artificial intelligence can help smart entrepreneurs to scale.²

Smart entrepreneurs use an opportunity that needs to be transformed from a potential risk to entrepreneurs (eg. *lack of necessary technological information, high implementation costs, etc.*) into a reality of business development, conveying the dissemination of information on technology involved by producers, the discovery of new sources of funding (public or private), especially through the continuous cultivation of smart entrepreneurship.³

The constructs of **business sustainability** are stakeholder engagements, people and skills, ecosystem management, market and sales and innovation. **Business sustainability** is supported by institutional theory focusing on factors as availability of financial sources for new businesses, government support policies or programs, business creation education and training, the efficiency of the technological transfer mechanisms, the access to professional support services for the new businesses, the physical infrastructures, social norms and cultural values, and so forth, and these are some of the institutional factors that have a bearing on the sustainability of a business. **Business sustainability** has been defined as the discovery, creation and exploitation of entrepreneurial opportunities that contribute to sustainability by generating social and environmental gains for others in society.⁴

The analysis of various **“green” concepts** has historically been linked to a broader discussion of the relationship between sustainable development and the environment.⁵

Green growth is seen as a practical tool for achieving the timeless objective, which is sustainable development⁶. The concept of **“green economy”** includes ideas of many other approaches in economics and philosophy related to the issues of sustainable development. The survival and development of humanity requires the transition to a **“green economy”**. This is a system of economic activities related to the production, distribution and consumption of goods and services that lead to the increase in human well-being in the

¹ Gusul, P.F., 2019

² Obschonka, M., Audretsch, D.B., 2020

³ Gusul, P.F., 2019

⁴ Orobio L. A., et. al., 2020

⁵ Lavrinenko, O. et.al., 2019

⁶ Kasztelan, A., 2017

long term, but at the same time without exposing future generations to significant environmental risks or environmental deficits. The implementation of the **green economy** concept was described as a long-term strategy for national economies to overcome the crisis⁷, with the objectives of economic recovery; poverty eradication; as well as reducing carbon emissions, and stopping the degradation of ecosystems.⁸

INTRODUCTION TO ENTREPRENEURSHIP, SMART ENTREPRENEURSHIP

Concept of Entrepreneurship

Cambridge dictionary states that **Entrepreneurship** is a skill in starting new businesses, especially when this involves seeing new opportunities.⁹

Entrepreneurship refers to the concept of developing and managing a business venture to gain profit by taking several risks in the corporate world. Simply put, entrepreneurship is the willingness to start a new business. Entrepreneurship has played a vital role in the economic development of the expanding global marketplace. Most people may think that the term entrepreneurship has one single meaning. However, like mentioned earlier, the term is quite elastic and has a wide range of different meanings. The two most popular kinds of entrepreneurship are entrepreneurship of start-ups and entrepreneurship of small businesses. An **entrepreneur** is willing to work for himself and by himself. There are several different meanings of the term entrepreneurship. What Are the 4 Types of Entrepreneurships?

1 Table

Types of Entrepreneurships

Types	Explanations
Small Business	Small businesses represent the overwhelming majority of entrepreneurial ventures. A small business could be any company, restaurant, or retail store that's launched by a founder, without any intention of growing the business into a chain, franchise, or conglomerate. For example, opening a single grocery store falls

⁷ Barbier, 2009

⁸ Lavrinenko, O. et.al., 2019

⁹ Dictionary.cambridge.org

	under the small business model; creating a nationwide chain of grocery stores doesn't. Small business entrepreneurs usually invest their own money to get their companies off the ground, and they only make money if the business succeeds.
Scalable Startup	Scalable startups are less common than small businesses, though they tend to attract a lot of media attention. These businesses begin on a very small scale, often as just the seeds of an idea. This seed germ is then nurtured and scaled, typically through the involvement of outside investors, until it becomes something much larger. Many Silicon Valley tech companies fall under this model; they begin in an attic, garage, or home office before eventually scaling into large corporate headquarters.
Large Company	Sometimes, entrepreneurs work within the context of a larger, established company. Imagine that you work at a large auto manufacturing company. Through careful market research, you realize there is a high demand for motorcycles, and that your company has many of the technologies and processes in place to branch into motorcycle production. You go to your boss and ask for the funding to launch a brand-new motorcycle division, and you are approved. This is an example of what the large company entrepreneurship model might look like in practice.
Social Entrepreneurship	The final model to consider is social entrepreneurship, which seeks innovative solutions to community-based problems. Social entrepreneurs are willing to take on the risk and effort to create positive changes in society through their initiatives. In other words, a social entrepreneur launches an organization that's fundamentally about enacting positive social change, not merely generating profits. The social change in question may pertain to environmental conservation, racial justice, or philanthropic activity in an underserved community.
Small Business Entrepreneurship	Small business entrepreneurs focus initially on a single product, market, or locality. While in their startup phase, the entrepreneurs probably don't have plans to expand the company.

	<p>The initial goal of small business entrepreneurs is to make a profit, although even in its early stages, the business may be motivated by the entrepreneur's desire to effect social change.</p> <p>Most small businesses are either self-funded or funded through small business loans. Outside investors and venture capitalists are very rarely involved.</p>
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Source: American Express, 2019 State of Women-owned businesses Report

An **entrepreneur** is commonly seen and perceived as an innovator. The skills required for successful entrepreneurship are innovation as well as the ability to be creative when generating new ideas for a business venture. An entrepreneur must have the quality of leadership and a strong sense of unified teamwork to gain maximum benefit.

2 table

Skills necessary for an entrepreneur

Skill	Explanation
Flexibility	The advantage of having maximum control on the work you do, can often help you gain maximum benefit. Being the authoritative figure at your workplace often leads to a lot of personal and professional benefits. Flexibility is one of the traits that people often look for in their professional careers and in entrepreneurship this advantage comes easily.
Diversity	One excellent aspect of entrepreneurship is that all entrepreneurs enjoy the advantage of coming up with diverse ideas that may also be unique in the global marketplace. Having a diverse range of ideas to choose from, according to your entrepreneurial vision, will enable you to benefit from the ideas you have come up with.
Planning of a career	<p><i>Entrepreneurship as a career option</i></p> <p>For any enthusiast in the corporate world, starting your own business may prove to be a remarkable idea. Having control over the work you do is something that many people long for in their career paths. Therefore, entrepreneurship is a great career option for those willing to make their name in the corporate world.</p>

Willing to search for quality leadership	The search for quality leadership is an on-going process that has been ongoing process for the past centuries. The need of a good leader is one of the factors that led to the evolution of entrepreneurship. Aside from this, there are several other factors that led to the beginning and increasing importance of entrepreneurship.
Trading	With the advancement in communication amongst the countries and improvement in transportation, began the process of trading. This was when people became more and more independent which led to success in trade. It is also believed that the merchants and the traders were the first entrepreneurs.
Risk taking and competing	With the increase in markets and the requirements of the people, innovation and trade were considered as an important aspect, and more and more people began to take risks by getting involved. This was when the first entrepreneurs started to think out of the box to cope up with the increasing competition and gain more profits
Self-actualization	<i>Need of independent career path</i> With the increasing population, came the need for choosing a career path and obtaining a job to become well settled. Due to the lack of good jobs and the increase in the numbers of unworthy jobs, more and more people wanted to opt for a career path that was independent.
Management and decision making	The sole purpose of choosing entrepreneurship as a career path is to control your company, be an independent leader of your team and choose exactly what goes on around in your workplace. Entrepreneurship provides entrepreneurs with the advantage of making the right decisions that will benefit them in the best possible way.

These are among the greatest challenges small business entrepreneurs face Ensuring a steady cash flow without relying on third-party investments:

- Finding time for family and friends;
- Staying abreast of technology and market changes that affect the business;

- Devising a marketing strategy to attract the company's target audience;
- Maintaining a solid reputation for their brand;
- Keeping an eye on the competition.

Concept of Smart Entrepreneurship

The modern economy generates knowledge and databases that bring economic value and can enhance business performance. Newly built knowledge is also a product that can be sold or bought. Smart technologies of modern times are developing towards smart goods, smart cities, and smart regions and give rise to breakthrough conditions in business development. Up-to-date entrepreneurship transfers business activity from the individual area into one of collective success. Now there are no local business tasks since local markets are no longer commonly available. Smart technologies build global markets, and the entrepreneur takes on global development challenges.

Business involves is a risk, a balanced combination of production factors, innovation, and management in the globalization of innovative processes, as truly as collective activities on the alignment of development in dealing with global challenges. The business initiative is aimed at conceiving new ideas, designing innovative products based on them, and incorporating new forms of business.¹⁰

The modern day entrepreneur is a smart entrepreneur.

With the advent of the social media age and advanced technologies, entrepreneurship became more complex. Even though there are several ideas and techniques that may be used during entrepreneurial ventures, this somehow does not make the life of an entrepreneur easy. With multiple marketing techniques, reaching out to the target audience has become simpler.

However, it also increased the workload of an entrepreneur. With the demanding marketplace, the need for innovative ideas also increased along with the desire to be unique in your business venture. Therefore, in entrepreneurship, the many advantages that may be gained by an entrepreneur are also accompanied by a few disadvantages.

Outlook of modern-day entrepreneurship is very important.

Some of the aspiring entrepreneurs may have the advantage of being supported by their families when laying down the foundation for their entrepreneurial venture. However, today an independent entrepreneur is highly appreciated as entrepreneurs are considered as risk takers who are willing to reach the heights in the corporate world with their own hard work.

¹⁰ Antonov, Petrenko, Kuptsova, 2021

The risk of starting everything from scratch is not the kind of risk everyone has the will and courage to take.

Every entrepreneur strives to be successful but the sad truth is that most entrepreneurs fail. The difference between success and failure often comes down to these nine actions of a successful smart entrepreneur (see 3 tab.)

3 table

Actions of a successful smart entrepreneur

Actions	Explanations
1. Takes calculated steps toward their goals each day	Smart entrepreneurs don't just take any step or risk to achieve their goals, they look for ways to mitigate risk at every opportunity. The difference between risk takers and calculated risk takers is the difference between failure and success.
2. Concentrates on what they do best	Successful founders know what they can do and just focus on that. The other duties are passed to their team (Otherwise, founders get bogged down with small details and limit productivity.) To get the most out of team members, tasks need to be assigned that align with their skill sets.
3. Sees every problem as an opportunity	Most people see problems as distractions that delay their work schedule, but great entrepreneurs find solutions to obstacles. Successful entrepreneurs always think outside the box and figure out how to recover from failure, move on and try again without giving up.
4. Steps out of their comfort zones on a regular basis	Successful entrepreneurs always seek new challenges. Without it, they easily get bored and sometimes feel stagnant. They also look to find solutions -- and quickly. Your comfort zone may feel safe but you need to push yourself out of it. Stretch your personal boundaries, connect with people that inspire you and take a different approach to how you work to achieve more.
5. Opens to learning more	The most successful entrepreneurs have an internal urge to continually invest in their personal development -- and without

	hesitation. They have an innate desire to keep getting better at what they do. If they don't have the answer, they want to learn everything there is to know about an area that is unfamiliar to them.
6. Keeps track of short-term and long-term goals	The importance of measurable milestones cannot be overemphasized. And knowing the difference between short-term milestones and long-term goals is imperative. They measure progress weekly or monthly to make sure the team is on track to achieving the long-term goal of their businesses.
7. Focuses on delivering great value every day	Entrepreneurs solve problems. Those who concentrate on offering the best value for money always win. Successful entrepreneurs maintain laser focus on the end goal. They seek to serve customers better than the competition and strive to do just that. Through innovation, great entrepreneurs deliver new, better and improved products to stay ahead of the competition.
8. Celebrates small wins	While the focus is on thinking big and achieving your long-term goal, smart entrepreneurs know the importance of small wins in their businesses. They realize the importance of celebrating these wins – not just for the business but the team, too. It's important to keep your team motivated. Reward their efforts and celebrate your achievement with them.
9. Is obsessed with getting work done smarter and faster not harder	<p>You should strive to work smarter, not harder. Smart entrepreneurs create realistic schedules they can achieve within a given period. They maximize their productivity by leveraging tools that can make them achieve more without necessarily working harder.</p> <p>Set yourself up for higher productivity by creating a realistic to-do list and limiting how many items you add to your list of things to do every day. Evaluate yourself by how you get things done rather than the time it takes to get them done.</p>

Source: Oppong, 2014

FEMALE ENTREPRENEURS

According to the World Economic Forum's (WEF) latest Global Gender Gap Report, a systemic lack of access to capital, credit, land, or financial products prevent women from starting a company. This only adds to another perpetual factor impeding female entrepreneurship – lack of care infrastructures. The WEF concludes that women spend at least twice as much time on care and voluntary work in every country where data is available. Global markets are missing out on a substantial economic and social growth potential. It is striking to know that, in the UK alone, up to \$350 billion of economic value could have been created if female entrepreneurs started and developed new businesses at the same rate as men. There are systemic obstacles to starting a business for female entrepreneurs. However, the bleak picture does not improve for women even after taking the plunge and starting a business, as Dr Selin Kudret, an Assistant Professor at Kingston Business School, said.

Evidence from various economies and samples consistently shows that gender remains a significant predictor – inequitably skewed against women – for access to financial and social capital, and hence positions of power, regardless of the competence and self-efficacy levels of the women entrepreneurs. Studies also clearly demonstrate that the prescribed gender roles and related gender stereotype-based threat to women perpetuate the disadvantages experienced by female entrepreneurs. These factors amount to gender tax, and we observe its inevitable reflections on the scale and success of businesses established and led by female entrepreneurs because enterprises founded by men are more likely to reach greater scales than those of their female counterparts. Female Entrepreneurs Worldwide (FEW) is an international business platform that aims to broaden female fellows' access to resources and support and scale their business locally and globally, through offering business networks, masterclasses, and consulting services.

FEW currently has operations in Hong Kong, Shanghai, Shenzhen, and Singapore.

Female entrepreneur Kim Perell give some recommendations for future female entrepreneurs:

1. Have a Clear Vision;
2. Identify a Big Market Opportunity & Apply Your Passion;
3. Take Calculated Risks;
4. Be Confident in Yourself and Your Idea;

5. Focus on results.¹¹

The 20 Most Successful Female Entrepreneurs in the World

Men have been at the top of the leading board for years, dominating the world of business. But with the rise of influential women like Coco Chanel and Estée Lauder came the launch of a whole new era for business women across the globe.

Today, women are sitting side by side and establishing their businesses as household names in a variety of industries, including publishing, technology, fashion, broadcasting and beauty.

And to inspire you to do the same, we've listed the top 20 female entrepreneurs in the world today.¹²

4 table

Female entrepreneurs in the world today

Person name	Company name	Details
1. Sophia Amoruso	Nasty Gal and Girlboss Media	Age: 36 Net worth: \$5 million (£4 million) Sophia Amoruso had her fair share of knockbacks when building her empire but has since managed to pull through and create an inspiring brand for Millennials. In 2015, she stepped down as Nasty Gal's CEO and watched the company file for bankruptcy, but this was just a setback and went on to develop her new venture, Girlboss, a site that's dedicated to advising and empowering women on wellness, beauty, careers and more. Although she went from having a net worth of \$280 million in 2016 to \$5 million today, her entrepreneurial spirit landed her a spot on this list!
2. Huda Kattan	Huda Beauty	Age: 36

¹¹ Laker, B., Forbes.com

¹² Careeradict.com

		<p>Net worth: \$610 million (£460 million)</p> <p>Huda Kattan started her beauty empire after she quit her finance gig in Dubai. Struggling to find great quality false eyelashes as a freelance makeup artist, the beauty mogul decided to start making her own synthetic and faux mink minx eyelashes. After becoming the new 'it' product for Kim Kardashian, Huda Beauty lashes sold out within the first day, making makeup queen Kattan a person to look out for. Since then, her beauty empire has expanded to skincare with the launch of her new range Wishful, promoting natural, glowing skin.</p>
3. Tory Burch	Tory Burch	<p>Age: 54</p> <p>Net worth: \$850 million (£640 million)</p> <p>After gaining work experience in some of the biggest fashion houses in the world, including Polo Ralph Lauren, Vera Wang and Loewe, Tory Burch decided to spread out her wings and build her own label. In 2004, she launched her very own fashion brand, which has become a huge success with unique and on-trend designs.</p> <p>With her rise to fame, Burch wanted to get involved in philanthropy and founded the Breast Cancer Research Foundation, which supports women with cancer and provides awareness to young women about the disease.</p>
4. Arianna Huffington	Thrive Global	<p>Age: 70</p> <p>Net worth: \$100 million (£75 million)</p> <p>Arianna Huffington is the co-founder and former editor-in-chief of the successful news website HuffPost (previously the Huffington Post). After creating a digital news outlet, Huffington set her sights on launching a series of books, including the most recent, The Sleep Revolution. She also</p>

		manages the wellness site Thrive Global and offers a six-week course to improve people's overall wellbeing.
5. JK Rowling	Profession: Novelist, film producer and screenwriter	<p>Age: 55</p> <p>Net worth: \$60 million (£45 million)</p> <p>British novelist JK Rowling faced her fair share of obstacles and rejection when she was trying to publish her first book, Harry Potter and the Philosopher's Stone. Once she managed to break through the publishing barriers, though, Rowling's books became an instant hit seemingly overnight, turning the book series into films, merchandise and even adventure parks.</p>

Source: careeradict.com

Women as Social Entrepreneurs

Which individual-level factors motivate women to become a social entrepreneur? To answer this question, the direct impact of problem-solving skills, networking ability, and entrepreneurial knowledge with social entrepreneurial intention was examined. Furthermore, the indirect effects of these three factors through self-efficacy were tested. The research findings confirmed a positive and significant relation among problem-solving skills, networking ability, and entrepreneurial knowledge with social entrepreneurial intention. Moreover, the research data confirmed that self-efficacy mediates the relationship among problem-solving skills, networking ability, and entrepreneurial knowledge with social entrepreneurial intention.¹³

5 table

Women intentions to become social entrepreneurs

Factors having impact on social entrepreneurship	Statement	Arguments/Explanation

¹³ Polas, M.R., Jahanshahi, A.A., 2020

Problem-solving skills and intention to become a social entrepreneur	Women with strong problem-solving or design skills may have more intention to engage in and address social issues	Problem-solving skills refer to the ability to handle difficult or unexpected situations effectively in their life, workplace or society. Several factors can boost problem-solving skills. In this regard, Synder and Snyder (2008) believed that having access to information, actively engaging in collaborative activities, and thinking critically are important factors for developing problem-solving skills. In the same line of reasoning, Elias and Clabby (1992) believed that the active contribution to society enhances social awareness and, hence, they improve social problem-solving skills.
Networking ability and the intention to become a social entrepreneur	Women with a sound networking ability may be more prone to engage in social behaviors	The intention to solve the social problems requires good insights and cutting-edge information on the most recent challenges in the social environment (Mahdavi, Razavi, Hesamamiri, Zahedi, & Elahi, 2013; Schmitt, Rosing, Zhang, & Leatherbee, 2018; Zhang & Cueto, 2017). We argue here that women with networking are better able to understand social challenges and problems because they have access to more information sources. Having more people in their networks means that the members are connected to more information sources who help them to enhance their awareness about the society (Mu, Thomas, Peng, & Di Benedetto, 2017). It is well accepted that more people in the network and a strong interaction among the members facilitate the knowledge flow across the network (Kelley, Peters, & O'Connor, 2009).
Entrepreneurial knowledge and intention to become	The intention to become social entrepreneurs	A well-cited meaning of entrepreneurial knowledge is "the concepts, skills, and mentality which entrepreneurs use or should

a social entrepreneur	would be higher among women with higher-level of entrepreneurial knowledge	<p>use” to identify and seize different entrepreneurial opportunities in their business environment (Roxas, 2014; Tshikovhi & Shambare, 2005; Watchravesringkan et al., 2013). Entrepreneurial knowledge can be functionally oriented and acquired from advertising, marketing, human resources, and financial activities in the business environment. Entrepreneurial knowledge can also be strategic-oriented knowledge acquired from daily strategic decision making, competitive analysis of the market or evaluation of the business environment (Banjo, Cayoca-Panizales, & de Jesus, 2008; Widding, 2007).</p> <p>Having entrepreneurial knowledge is one of the main factors of entrepreneurial intentions (Banjo et al., 2008). Widding (2005) believed that this knowledge can be obtained or created during real entrepreneurship activities. The entrepreneurial knowledge helps people to identify different types of entrepreneurial opportunities in society (Bae, Qian, Miao, & Fiet, 2014). Most importantly, having entrepreneurial knowledge is critical for effectively seizing the identified opportunities (Choi & Shepherd, 2004; Zhang & Van Burg, 2019). Therefore, entrepreneurial knowledge is a significant part of human capital for entrepreneurial success (Banjo et al., 2008).</p>
The mediation role of self-efficacy	All these three individual characteristics (problem-solving skills, networking ability, and entrepreneurial	Self-efficacy is a key factor to explain individual intentions and decisions (Bandura, 1977). Self-efficacy or self-confidence refers to the individuals' self-perceptions of their skills and capacities (Drnovšek et al., 2010; Wilson, Kickul, & Marlino, 2007). In other words, self-efficacy describes the ability of a given person

	<p>knowledge) are important factors for enhancing self-efficacy and individuals with a higher level of self-efficacy intend to become social entrepreneurs more</p>	<p>to master his cognitive, memory processing, and behavioral skills to effectively deal with the surrounding environment (Segal, Borgia, & Schoenfeld, 2002). Bandura (1993) defined self-efficacy as the individual judgment of one's abilities to arrange and execute blueprints to achieve the objectives. Many individual characteristics are important for building a person's self-efficacy which can predict multiple types of intention, behavior, and action (Bandura, 1977; Lent & Hackett, 1987).</p> <p>The idea of self-efficacy has been broadly discussed in the career theory literature to clarify the apparent profession alternatives, career preferences, and career-oriented behavior (Lent & Hackett, 1987; Simpkins, Davis-Kean, & Eccles, 2006). For instance, in a longitudinal survey-based data that consisted of 245 business undergraduate and post-graduate students in a Philippine university, Roxas (2014) found a positive relationship between individuals' entrepreneurial knowledge and their self-efficacy towards entrepreneurship. In this regard, Bandura, Barbaranelli, Caprara, and Pastorelli (2001) considered self-efficacy as an assortment of socio-cognitive impacts on the desired profession. While the connection between self-efficacy and career decisions has been covered in the career theory literature, most of the studies explicitly excluded the profession alternatives related to entrepreneurship. Surely, it might be sensible that similar impacts of self-efficacy would exist in socially oriented entrepreneurial careers.</p> <p>Especially, when we know that individuals with higher self-efficacy have more</p>
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		entrepreneurial intentions (Zhao & Seibert, 2006; Zhao, Seibert, & Hills, 2005). The involvement of a person with a higher level of self-efficiency in social activities is high because these kinds of individuals feel more confident about their own abilities (Taylor & Betz, 1983; Valdivia, 2015) and, therefore, they are in a better position to use their knowledge and experience to perform specific social or environmental tasks.
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Source: Polas, M.R., Jahanshahi, A.A., 2020

ROLE OF A SMART ENTREPRENEUR

A smart entrepreneur makes individual and unique actions in his/her business field. It is very important for a smart entrepreneur to encourage an interest in carrying out entrepreneurial activity based on potential, interests, and talents.

1. Grow the intention of entrepreneurship for yourself.
2. Improve the managerial capacity in entrepreneurial activity.
3. Improve the ability to undertake entrepreneurial activities based on technological advances, especially in the business with Internet and smart technology use.¹⁴

The following are a number of ways which show the Achievement (Output) which is generally expected from a smart entrepreneur:

1. Increase of interest and personal motivation in the activity of entrepreneurship with the realization of the active participation in national and international activities and competition with the innovation and creativity that has novelty value.
2. Foster entrepreneurship intentions which can be seen from the power of the mindset of success in business based on potential, interest, and giftedness. Smart entrepreneurs can have the mindset of successful entrepreneurship and share the entrepreneurial spirit with their colleagues and their environment.
3. Grow entrepreneurial activity in a business environment through the entrepreneurial skills of team members skills of team members with qualified business management (managerial).
4. Grow entrepreneurial activity environment with the emergence of internet and technology entrepreneurship among team members.

¹⁴ Yulastri, A., 2020

5. Develop as a Smart Entrepreneur to become a reference and patron in conducting guidance and coaching.
6. Guide good relationship between entrepreneurial novices among team members successful intrapreneurs as the impact of the mentoring process carried out in a certain team/company.¹⁵

SMART BUSINESS ACTIVITIES AND SUSTAINABLE VALUE

Smart Business Performance

Smart business performance by transforming firm outcome into a type of firm performance based on a smart business perspective. Namely, enterprise smart business performance can be defined as the business outcome that a firm can get by utilizing the smart business ability for its business activities in a smart business circumstance. Enterprise smart business outcome indicates an entire smart business output that a firm can gain from using its smart business ability for its business works in smart business fields.

Following an analysis of prior research, enterprise outcome in terms of a smart business (SB) can be measured as follows:

1. SB execution performance (quality of services, efficiency of business process, and client satisfaction),
2. SB increase performance (sale increase, sale revenue increase, market increase),
3. SB benefit performance (increase of gain in annual profit, net income increase, and cash turnover ratio),
4. SB competitiveness performance (sale increase rate and customer share).

Smart Business Process Management

The Oxford dictionary provides three connotations for smart as:

1. being clean and tidy,
2. showing quick-witted intelligence and
3. being quick.¹⁶

All these meanings together have become a prominent attribute of information technology and analysis techniques in various application domains referred to as smart home, smart health, smart city, smart energy or smart mobility. What is in common to these smart technologies is that they integrate sensors, actuators, connectivity and analytics. What they

¹⁵ Yulastri, A., 2020

¹⁶ Lexico.com

facilitate is preemptive action and coordination which is grounded in evidence, history data, state information and intelligent algorithms. Since business process management is exactly concerned with coordinated action, there have been attempts to generalize the commonalities of these smart application scenarios in terms of their dynamic adaptation and continuous learning towards smart business process management.¹⁷

Recent technologies like crowdsourcing bear the potential to be used here. The implementation phase is classically supported by workflow management technology. Recent extensions provide smart support for automatic service composition and process configuration. Smart knowledge extraction from process-related data is often referred to as process mining. Contributions on process mining help to automatically discover models from data, check the conformance between model and execution, and derive information on decision probabilities and execution durations. Such information partially informs the controlling phase, in which the process is evaluated relative to its performance and conformance (objectives).¹⁸

There are various opportunities for managing process instances in a smarter way using available sensor data. Indeed, many smart initiatives such as smart home, smart health, smart city, smart energy or smart mobility have an inherent behavioral perspective, which has affinity with coordination challenges of business process management. Clearly, smart technologies bear the potential for novel ways of planning, executing, monitoring and adapting process instances based on the integration of sensors, actuators, connectivity and analytics.¹⁹

Sustainable Industrial Value Creation

Social sustainability undertakings cover large-scale consequences of production mechanisms and manufactured goods. Cyber-physical production systems bring about operations shaping social sustainability performance technologically. Social sustainability, cyber-physical production systems, and performance assessment articulate cutting-edge manufacturing processes. With the aim of configuring smart and sustainable spaces, cyber-physical systems articulate computing, networking, and process monitoring technologies that are transparently and autonomously integrated across sustainable industry.²⁰

Physical objects can be designed with connections to the virtual world, while integrating smart mechanisms to harness real-time cooperation. Interactions taking place throughout the physical world may alter the processing operations across the virtual world, resulting in

¹⁷ Mendling, J., Baesens, B., Bernstein, A., Fellman, M., 2017

¹⁸ As above

¹⁹ As above

²⁰ Muller, J. M., Kiel, D., Arnold, C., 2017

a causal connection deployable for the incessant enhancement of artificial intelligence-based decision-making algorithms. Cognizant, autonomous, and self-configuring omnipresent systems can be instrumental in deep learning-assisted smart process planning.²¹

The technological and operations management features of cyber-physical systems constitute the components of data-driven sustainable smart manufacturing. Smart technologies may ensure that data-driven manufacturing systems are sustainable. Sustainable smart manufacturing represents a value-added recovery operation that can restore the value of the deteriorated product to its initial specific value. Remanufacturing represents a lifecycle renewal operation aiming to achieve green sustainable manufacturing. Implementation of Internet of Things sensing networks, real-time big data analytics, cyber-physical production systems, and artificial intelligence-based decision-making algorithms improve logistics processes, resulting in the sustainability of the retail industry. Deployment of Internet of Things-based manufacturing systems can assimilate supply chain operations, thus enhancing the sustainability of retail companies. By use of data sharing, visibility, and auto-capture, Internet of Things-based real-time production logistics enhances the supply chain performance dynamics as regards expenses, quality, delivery, and adjustability, consequently shaping the environmental, economic, and social sustainability of retail companies. Product sustainability is related to cyber-physical smart manufacturing systems. Product design capabilities constitute a pivotal source and an essential determinant for data-driven sustainable smart manufacturing competition. Product sustainable design considers environmental, economic, and social sustainability throughout the lifecycle of manufactured goods, thus generating products having significant low-carbon features.²²

ENVIRONMENTAL, SOCIAL, CULTURAL AND ECONOMIC VALUE OF BUSINESS AND ENTREPRENEURSHIP

It is considered as an appropriate solution to address contemporary issues, e.g., shortened technology and innovation cycles, increasing customization, and enhanced demand volatility. On top, manufacturers are expected to create a sustainable value, i.e., to equally pursue economic, social, and ecological/environmental objectives referring to the so-called Triple Bottom Line (TBL), presented by Elkington, Norman et al. The TBL concept of

²¹ Kiel, D., Muller, J. M., Arnold, C., 2017

²² As above

sustainability entails three dimensions, i.e., profit, planet, and people, which represent economic, ecological/environmental, and social aspects.²³

Sustainable industrial value creation in the context of the Internet of Things requires not only the consideration of an economic, ecological, social, technical, data, and public benefits and challenges, but even more their integrative combination and holistic harmonization. Management's focus on just a single dimension or a subset of these dimensions does not develop the Internet of Things to its full sustainability potential.²⁴

6 table

Sustainability aspects for value creation of business and entrepreneurship

TBL dimension	Brief overview of relevant aspects
Economic	Increased cost transparency Enhanced efficiency, flexibility, customization and quality Shorter lead times New business models Large investments required Uncertain profitability Unclear customer demand
Ecological	Transparency of greenhouse gas emissions Increased resource and energy efficiency Reduction of waste Reduction of logistics processes, e.g., due to reshoring Reduction of wrong delivery and damaged goods
Social	Fair wages, human learning, and employee motivation Unclear effect on job creation or reduction Expected reduction of simple tasks, whereas creative tasks might emerge Organizational transformation required Network, environment, and politics

Source: Kiel, D., Muller, J. M., Arnold, C., 2017

The findings according to the TBL concept of sustainable value creation show that related benefits and challenges apply to all three sustainability dimensions, i.e., the Internet of Things is related to economic, ecological, and social implications.²⁵

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