The Impact of Amazon Global Selling on Innovation Performance of SMEs

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Abstract

Small and medium-sized businesses (SMEs) make up the vast majority of the world's businesses, yet they are underrepresented in international trade while accounting for a larger share of employment and economic activity than large multinational companies. The advent of the platform-economy, on the other hand, may offer up a range of new possibilities for small businesses to play a more prominent part in global economic activities. With Amazon and other platforms, SMEs continue to grow and reach beyond boundaries. Through its relationship with Amazon, a small start-up situated locally may reach clients in more than 200 nations and regions well beyond the boundaries of their regional sales location. Amazon assist SMEs with digitizing their conventional businesses or in offering first-time on the internet. Over the past year, they have collaborated with local organizations in many developing and developed countries to provide digital education and training to businesses. They also focus on providing SMEs with the technology, skills, and assistance they need to market their goods globally. This research hypothesizes that selling on Amazon boosts the innovation performance of of small businesses. It can significantly influence innovation. It can accelerate technical advancement and enabled businesses to have access to diverse markets and resources. We empirically investigated how the selling on Amazon impacts the innovation KPIs of SMEs. We applied correlation, and multivariate regression analysis using the data of 234 SMEs worldwide. The results showed that businesses that are selling on Amazon are more innovative than the businesses not selling on Amazon. The empirical findings also suggested that government support, education level of owners and employees, infrastructure, and entrepreneurial leadership have positive impacts on innovation performance of SMEs. The formation new and the innovation of current small and medium-sized firms (SMEs) are key components of today's innovation process and should be prioritized in government innovation plans around the world.

Introduction

Social progress is mostly driven by innovation. Decision-makers consequently prioritize improving innovation performance. Nations can achieve robust long-term development and enhanced productivity if they transform themselves into active innovation platforms. Countries become much more competitive, more appealing for investment, and better equipped to handle the developing economic, social, and environmental issues of globalization through fostering and increasing innovation performance [1]. In public policy, the relationship between innovation and business success is becoming increasingly commonly recognized. Ideas and information, as well as money and labor, are used to build modern economies.

Many various factors contribute to the expansion and continued success of modern enterprises in the current business environment. Some companies are well-known for their goods, while others are well-known for their operations, and yet others are well-known for aspects that are not as clearly defined, such as solid brand loyalty or fascinating advertising campaigns. When it comes to doing business, there are a wide variety of new approaches to innovation that a firm may decide to explore. Frequently, they are intimately linked to specific goods, internal procedures or processes, or marketing strategies [2]–[4]. Some businesses even use all three of these strategies in an attempt to drive expansion while simultaneously adjusting to the always shifting market.

Because small firms often provide more benefits and opportunity for local populations and more earnings for the locals, small business plays a major role of any country's economy [5]. This is because large businesses can start putting stress on local communities because a significant portion of the profits went to non-local company owners [6]. A small firm would outsource all of these services locally to aid the locals, who may be more likely to invest additional money in the same community, in contrast to a huge corporation, which may have personnel from foreign nations to handle services such as accounting, supply, and maintenance.

The generation of new jobs is the primary contribution that small companies provide to the economy of their communities. Large businesses are only able to employ a small number of employees, which results in a significant number of people in society being jobless. Small businesses contribute to the expansion of the regional economy by creating job possibilities for those who may not be hired by larger organizations and firms [7], [8]. This in turn helps the regional economy expand [9], [10].

The flow of money within a community is of critical importance to the development of both the local economy and the community as a whole. Individuals are able to create a life for themselves thanks to the efforts of small enterprises that hire solely residents of the immediate area rather than people from other areas.

When it comes to the performance of numerous duties, large corporations are also reliant on the work of small firms. Many of the services that are performed by large firms and enterprises are contracted out to smaller businesses. This results in the creation of additional employment possibilities for residents in the area [11]. It does not matter if this is a large software company that contracts out the creation of new initiatives to a local technology company or a large clothing brand that farms out the production of new shirts; in the end, it still contributes to the development of employment opportunities in the surrounding community [4].

It is essential for small firms to be very inventive in order to differentiate themselves from the competition, particularly the large brands [4], [12]. If they do not come up with anything new and exciting that sets them apart from their rivals, they won't be able to attract the attention of

their target market, and it might be the end of their company. Because of this, the majority of small companies nowadays are extremely inventive and one-of-a-kind in order to carve out a niche for themselves in their respective industries.

Small firms maintain the flow of money inside the community's economy. The circulation of money is beneficial to the economy. When consumers purchase anything from a local company, the majority of the money that they spend will end up recirculating in the community in which the company is located. The reason for this is because the proprietors of small businesses often get their raw resources or have their jobs completed by members of the local community. For instance, if a neighborhood restaurant decides it needs a new logo, the establishment would most likely look for a graphic designer in the neighborhood to create the new brand. In a similar way, owners of small businesses want to eat or buy locally and spend their money inside the community, since this helps to keep money moving throughout the economy.

Additionally, local companies contribute to the support of local governments via the payment of various taxes. When a customer makes a purchase from a local company, he or she is contributing financial resources to the community. This reinvestment of financial resources is critical to the growth of an economy at the community level. If a local company is doing well in the community as a whole and is bringing in a lot of money, the company will be expected to pay more taxes than is customary, whether those taxes take the form of real estate taxes or income taxes.

This money collected through taxes will be utilized to assist local agencies such as schools, hospitals, police departments, and so on. A strong neighborhood company will not only add to the value of the surrounding real estate, but it will also encourage other local business owners to locate their enterprises in the immediate area. Additionally helpful to the community economy, small companies provide sales tax revenue, which may then be channeled towards a variety of community improvement endeavors.

Small firms, in general, are better equipped to react and readjust swiftly to shifting economic environments than their larger counterparts. This is as a result of the fact that small firms are often extremely customer-oriented and have a good understanding of the requirements of the local community [13]. Despite the current state of the economy, a significant number of local consumers continue to support their preferred locally owned companies. As a result of this devotion, small firms are often in a position to weather difficult economic times, which may further bolster the economies of local communities. Additionally, small firms bring in a lower total income than bigger organizations do, which suggests that they have potentially less to lose during times of economic turmoil.

Small enterprises may grow beyond their current size. Once a small firm begins to generate excellent sales, that company quickly becomes a prominent name in the marketplace, both nationally and internationally. The vast majority of the industry's most well-known brands began as little enterprises that went on to revolutionize. The fact that a small business can expand into a large business while remaining in the society in which it was founded is one of the many ways in which it is beneficial to the local economy. This is because the expansion of the small business creates a market that is more conducive to the growth of additional businesses.

Despite the fact that small and medium-sized enterprises (SMEs) constitute the great majority of firms globally, their involvement in international commerce remains inadequate relative to

their proportion of total employment and economic activity in comparison to big corporations [14], [15].

Innovation and small business

There is not just one method for innovation; there can be three separate techniques that companies, both large and small, utilize in order to bring something new to the market. Each model entails inventing a distinct facet of the organization, including but not limited to the following [16]–[18]:

1. Innovating the revenue model: This requires company owners to examine their revenue model in search of locations where they might reinvent the items and services they provide, the pricing of those products, and the clients that they target. When businesses decide to innovate their revenue models, they may choose to do a number of different things. For instance, they may decide to develop new products, discontinue the sale of certain products, alter their distribution network, sell to prospective consumers, or adjust the price levels of their various offerings.

2. Innovation of the business model: This includes the owners of businesses looking at their overall business strategy for places to apply innovative solutions. This includes looking at their business processes, business strategy, vision and mission, the techniques they use, and the enterprises that they collaborate with. When businesses decide to innovate their business models, they may choose to do a number of different things. For instance, they may decide to form a strategic partnership with another company, improve the computer programs that they currently use, accept venture capital funding, or switch from selling their wares in physical stores to selling them online.

3. Innovation in the industry model requires company owners to look at their industry structure for locations to innovate. This includes both the industry in which they presently operate as well as possible sectors to which they may shift their firm. When businesses go with the industry-model approach to innovation, they could, for instance, decide to offer their products to a whole other sector or even to build a new sector to line with their goal and goods.

There are two distinct types of innovation that may be applied to the corporate world: sustaining and disruptive.

Innovation that is sustained makes improvements to an organization's procedures and technology in order to enhance its product offering for an existing consumer base [19]. This kind of innovation is known as "sustaining innovation." It is generally pursued by already successful organizations that wish to maintain their position at the top of their respective markets.

The term "disruptive innovation" refers to a kind of invention that happens when smaller enterprises compete with bigger organizations. It is possible to divide it up into several sections according to the different marketplaces that the firms compete in [20]. Organizations joining and seizing a section at the bottom of a current industry are examples of low-end disruption. On the other hand, companies introducing an extra market segment to service a client base the present market does not reach are examples of new-market disruption.

Amazon and innovation

Amazon has allowed small and medium-sized companies to use its digital shelf space in order to reach tens of millions of consumers, establish their brands, and expand their operations. Amazon has made investments in people, programs, technologies, and services to assist the success of SME businesses. Customers and sellers continue to benefit from the outcome. Small and medium-sized companies (SMEs) continue to make up more than half of the items Amazon offers in its online shops, and is coming up with new ideas to support their expansion. Their sales also continue to exceed those of our first-party vendors. More than ever, Amazon and other similar e-commerce platforms value the innovation and entrepreneurial spirit of our small company partners, and Amazon will remain committed to assisting them in every way they can.

There is another critical aspect to the Amazon-SME collaborations. When a company expands, it always generates new jobs and recruits new employees. The significant expansion in new clients reached by offering in Amazon shops leads to a rise in employment and employment possibilities. Every year, Amazon requests an update from all of their selling partners on how their businesses are doing. This study provides with valuable insights into the aspects that are important to their SME partners. Many businesses are clearly hiring more employees to assist handle increased sales volumes. To date, SMEs in who offer in Amazon shops have generated over 1.5 million new jobs to assist their operations online.

SME relationships are an excellent example of a dedication that yields favorable results for all parties involved. They assist smaller local firms in becoming worldwide suppliers, generating new employment in the process. Numerous businesses have used Amazon as a stepping stone to expand into other markets, from their own sites and third-party marketplace to the main search engines and social networking sites. All of these developments have broadened the range of alternatives accessible to Amazon consumers, who now have access to a vast array of products from vendors large and small from across the world.

Amazon and other similar e-commerce platforms assist third-party sellers in building their business by offering inventory and price tools and suggestions to aid them in managing and increase sales. Amazon and other similar e-commerce platforms collaborate with over millions of independent partners in Europe, Asia, and Americas, including publishers, developers, merchants, writers, and content producers. Amazon and other similar e-commerce platforms have invested almost billions alone on staff, programs, tools, and services to assist small and medium-sized businesses trading.

In addition to this, Brand Analytics insights gives sellers access to extensive data including search frequency rankings. Through Seller Central, a specifically designed platform for sellers, SME may access these resources. Here, sellers may post new listings, process customer as well as inventory, get product-level price data and modify their pricing, learn more about how well their items are doing, and interact with consumers.

There are currently many SMEs trading on Amazon, with the quantity of brand-new SMEs increasing exponentially every year. The number of items sold by SMEs, as well as their export sales increased each year, with small and medium firms selling on Amazon generating export revenues. The process of invention in the twenty-first century is vastly different from that of the previous one. The increased or revived relevance of new and small businesses is perhaps the most significant distinction.

A company requires access to active consumers in order to succeed, as well as the digital technical expertise necessary to service those customers wherever they purchase. If a company wants to grow, it must have access to new clients and areas. One of the most appealing aspects of Amazon-SME collaborations is the role Amazon play in assisting smaller businesses in the area in increasing their export sales and profits.

Hypothesis

This research empirically tests the following hypotheses.

H1: Entrepreneurial and innovation-training positively impacts the innovation performance of SMEs.

H2: Innovative leadership of the owners has a positive significant effect on the innovation performance of SMEs.

H3: Access to infrastructure has a positive significant effect on the innovation performance of SMEs.

H4: Government support has a positive significant effect on innovation performance of SMEs.

H5: Innovative leadership of the owners has a positive significant effect on the innovation performance of SMEs.

H6: Profits in previous years has a positive significant effect on innovation performance of SMEs.

H7. Percent of high educational degrees among total employees of the firms has positive and significant impacts on the innovation performance of SMEs.

Model

We assume in multiple regression that our target variable is a linear mixture of many predictor variables. We may describe the model as follows if x_{nj} is the j^{th} predictor for observation n:

$$y_n = \beta_0 + \beta_1 x_{n1} + \cdots + \beta_D x_{nD} + \epsilon_n.$$

This may be expressed more concisely as

$$y_n = \boldsymbol{\beta}^\top \mathbf{x}_n + \epsilon_n.$$

When dealing with matrices rather than sums, it is simpler to minimize this loss function. With, define y and X [21]–[29].

$$\mathbf{y} = \begin{bmatrix} y_1 \\ \dots \\ y_N \end{bmatrix} \in \mathbb{R}^N, \ \mathbf{X} = \begin{bmatrix} \mathbf{x}_1^\top \\ \dots \\ \mathbf{x}_N^\top \end{bmatrix} \in \mathbb{R}^{N \times (D+1)},$$

The loss function may be written similarly as:

$$\mathcal{L}(\hat{\boldsymbol{\beta}}) = \frac{1}{2}(\mathbf{y} - \mathbf{X}\hat{\boldsymbol{\beta}})^\top (\mathbf{y} - \mathbf{X}\hat{\boldsymbol{\beta}}).$$

Following the innovation and SEMs literature, we applied the following multivariate regression model to test the hypotheses:

$$Innovation_i = \alpha + \beta_1 Amazon_i + \beta_2 Edu_i + \beta_3 Gvt_i + \beta_4 Infrastructure + \beta_5 Leadership_i + \beta_6 \Pr ofit_i + \beta_7 Training_i + \varepsilon_i$$

The descriptions of the variables are provided in table 1. The dependent variable *Innovation* denotes the Innovation KPIs, also known as innovation key performance metrics, are measures that track an organization's progress toward its objectives. Financial KPIs such as the total proportion of business capital spent in innovation initiatives and how each team performs against its funding levels for innovation activities are examples of these indicators. Other metrics also include participation in the innovation program, the number of viable ideas, and the general and sub-metric performance of the innovation program.

Table 1. Variables and descriptions

Dependent variable	Variable name	Description	
	Innovation	Innovation KPIs calculated by the author by summing 4 different innovation matrices.	
Independent variables	*Variable name*	Description	Expected sign
	Gvt	Government supports for innovative business activities	Positive (+)
	Training	Entrepreneurial and innovation training	Positive (+)
	leadership	Innovative leadership of the owners	Positive (+)
	infrastructure	Access to infrastructure that assists innovation	Positive (+)
	Profit	Profit rate of the SME in the previous year	Positive (+)
	Education	Average years of schooling of the employees.	Positive (+)
	Amazon	Number of years of cross border selling on amazon or other platforms	Positive (+)

Results

Figure 1 shows the correlation heatmap of all variables and the scatter plot between amazon selling and innovation of SMEs. The figure shows that innovation and other independent variables are highly correlated. The correlation is positive. This implies that SMEs' innovation performance increases with the increase of selling years at Amazon and other platforms, Profit rate of the SME in the previous year, Average years of schooling of the employees, Access to infrastructure that assists innovation, Government supports for innovative business activities, and Innovative leadership of the owners. The t-statistics, p-values in table 2 indicate that all of the correlation association is positive and significant. However, the correlation between innovation and training is insignificant. This implies that Entrepreneurial and innovation training for SMEs is not effective. this study recommends to take policy actions to make the innovation training more effective.

Figure 1. correlation heatmap of all variables and the scatter plot between amazon selling and innovation of SMEs

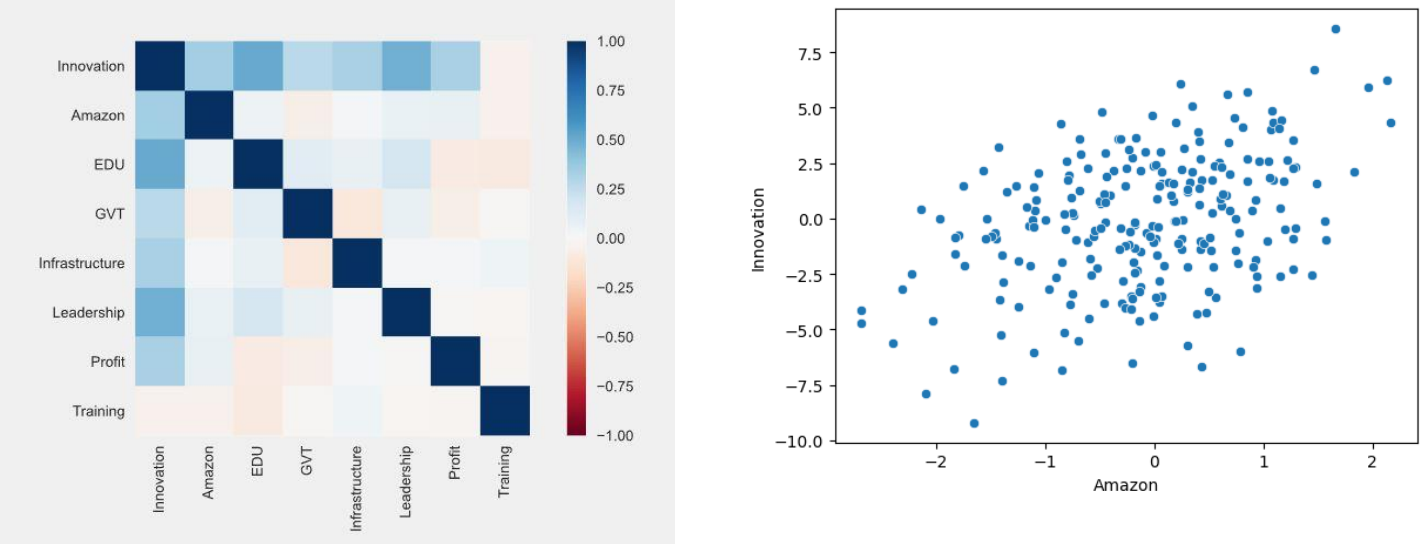


Table 2. Correlation results among the variables.

Covariance Analysis: Ordinary
Sample: 1 234
Included observations: 234

		Correlation	t-Statistic	Probability
INNOVATION	INNOVATION	1.000000	-----	-----
AMAZON	INNOVATION	0.401974	6.686707	0.0000
AMAZON	AMAZON	1.000000	-----	-----
EDU	INNOVATION	0.509099	9.009298	0.0000
EDU	AMAZON	0.051085	0.779124	0.4367
EDU	EDU	1.000000	-----	-----
GVT	INNOVATION	0.315890	5.071159	0.0000
GVT	AMAZON	-0.064274	-0.981017	0.3276
GVT	EDU	0.132528	2.036564	0.0428
GVT	GVT	1.000000	-----	-----

INFRASTRUCTURE	INNOVATION	0.306255	4.900198	0.0000
INFRASTRUCTURE	AMAZON	0.010158	0.154728	0.8772
INFRASTRUCTURE	EDU	0.066693	1.018100	0.3097
INFRASTRUCTURE	GVT	-0.108252	-1.658598	0.0985
INFRASTRUCTURE	INFRASTRUCTURE	1.000000	-----	-----
LEADERSHIP	INNOVATION	0.467376	8.052476	0.0000
LEADERSHIP	AMAZON	0.082603	1.262493	0.2080
LEADERSHIP	EDU	0.171310	2.648475	0.0086
LEADERSHIP	GVT	0.084744	1.295436	0.1965
LEADERSHIP	INFRASTRUCTURE	-0.009896	-0.150745	0.8803
LEADERSHIP	LEADERSHIP	1.000000	-----	-----
PROFIT	INNOVATION	0.355235	5.788315	0.0000
PROFIT	AMAZON	0.088658	1.355740	0.1765
PROFIT	EDU	-0.050036	-0.763088	0.4462
PROFIT	GVT	-0.069315	-1.058316	0.2910
PROFIT	INFRASTRUCTURE	0.005121	0.078007	0.9379
PROFIT	LEADERSHIP	-0.004691	-0.071458	0.9431
PROFIT	PROFIT	1.000000	-----	-----
TRAINING	INNOVATION	-0.077381	-1.182180	0.2383
TRAINING	AMAZON	-0.068929	-1.052397	0.2937
TRAINING	EDU	-0.104913	-1.606855	0.1094
TRAINING	GVT	0.005702	0.086853	0.9309
TRAINING	INFRASTRUCTURE	0.022241	0.338849	0.7350
TRAINING	LEADERSHIP	0.002995	0.045620	0.9637
TRAINING	PROFIT	-0.057121	-0.871465	0.3844
TRAINING	TRAINING	1.000000	-----	-----

Table 3 reports the Results from Multivariate Regression Analysis. The table shows that selling on Amazon and other e-commerce platforms increase the innovation performance of of SMEs. The table also shows the t- Statistic, and Prob values. It can be seen that all of the variables, except training, are significant and have positive sign. Figure 2 shows the plots of standardized residuals of our regression model. It indicates that the research model fulfills the normality assumption of residuals.

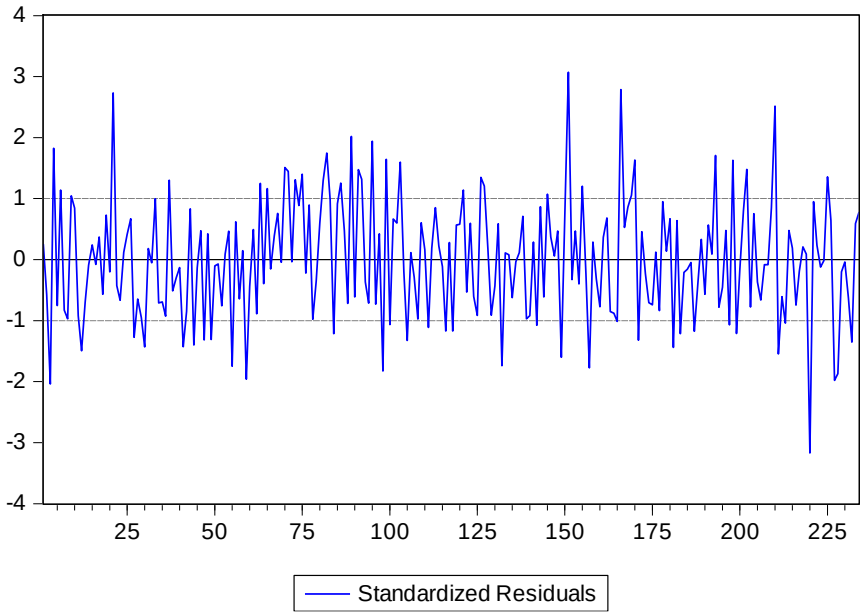
Table 3. Results from Multivariate Regression Analysis

Dependent Variable: INNOVATION
Method: Least Squares
Sample: 1 234
Included observations: 234

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AMAZON	1.068127	0.089688	11.90930	0.0000
EDU	1.151702	0.086182	13.36368	0.0000
GVT	0.967409	0.087702	11.03069	0.0000
INFRASTRUCTURE	1.029044	0.093001	11.06488	0.0000
LEADERSHIP	1.002639	0.081575	12.29102	0.0000
PROFIT	1.050417	0.080945	12.97696	0.0000
TRAINING	-0.006539	0.077741	-0.084109	0.9330
C	-0.057177	0.085460	-0.669048	0.5041

R-squared	0.822876	Mean dependent var	-0.130032
Adjusted R-squared	0.817390	S.D. dependent var	3.022207
S.E. of regression	1.291478	Akaike info criterion	3.383041
Sum squared resid	376.9486	Schwarz criterion	3.501172
Log likelihood	-387.8158	Hannan-Quinn criter.	3.430671
F-statistic	149.9916	Durbin-Watson stat	2.245953
Prob(F-statistic)	0.000000		

Figure 2. Residual diagnostic



Companies, institutions, rules, and the general business environment in which a firm works all have an impact on its potential to produce innovation. This means that an organization's capacity for innovation is not exclusively reliant on its internal qualities. From this point on, a country's ability for innovation is a complicated system with a wide range of participants. At the macro scale, the effectiveness of the interplay between research and innovation, need for innovation, capability for absorption, and dissemination of knowledge and invention via market and non-market collaboration all affect the innovation activities in a nation. In other words, a nation's level of innovation is a function of how well the many elements required to foster innovation interact with one another.

Conclusion

Company executives need to be capable of thinking creatively and incorporate innovation into existing business strategies in order to spur business development, stay viable in changing circumstances, and stand out from the competition. However, this does not imply that innovation readiness is the sole need for success; leaders also need to have a firm grasp of the steps involved in implementing new ideas.

Because of their capacity to identify and seize the business possibilities brought on by technical, competitive, and market developments, new and small businesses have emerged as crucial innovation actors. Additionally, traditional hurdles to small business engagement in innovation, such as economies of scale in R&D, are fading away. The vast move from production to services is introducing with it new sorts of non-technological discovery that make economies of scale in R&D considerably less relevant, and innovation today is often carried out via partnerships between universities, research organizations, customer, supplier, and rival enterprises and customers, with costs and responsibilities shared.

Amazon is dedicated to the success of small businesses. Many economies are based on small enterprises because they generate employment and stimulate innovation. Through supplies, solutions, initiatives, resources, and features that assist them expand and engage with more consumers, develop and expand their brands, generate employment in their locations, and achieve their business goals, Amazon and other similar e-commerce platforms invest in the success of small businesses.

Small firms do not get the same government backing that big corporations do, despite the fact that they provide a disproportionate amount of positive effects to the economy. The tax benefits offered to huge organizations are not the same for small firms. Additionally, municipal and state subsidies for things like manufacturing facilities or R&D are less generous for small enterprises. Small firms do not have access to government bailout funds for large corporations during economic downturns [30], [31]. Despite the challenges they face, small companies continue to prosper. They assist local economies by providing employment, buying goods made locally, contributing sales and property taxes, and using local suppliers and support services [32]. Large companies often combine their financial data with business news consumption. Small enterprises, however, are the backbone of what keeps America moving. The early pioneers of the economies around the world are small companies.

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