Embracing Change Transformation, Creativity and Innovation

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Eureka Publications

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Preface

“Digital Transformation” rapidly entering in the every sectors, lot of people dnt know how to embrace it and how to streamline their business with the new technology. Industries has transform themselves into the new modern technologies. With this transformation industry will enhance and will grow and boost speeadly.

Every day Digital transformation is becoming more important in our society in present days after pandemic digitalization has entered in every sector. By the research of PWC it was found that digital transformation is the most important growth driver in future.

In present era those organization has not adopted new technology and not transformed their business from offline to online they will be in minority, the new technology has changed every sector. Digital transformations and shares why now is the best time to embrace digital transformation and when buying, building, or adopting a hybrid approach makes sense.

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01

The Future of Corporate Learning in Hungary in the Light of Past Practices and the COVID-19

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Abstract

This paper aims to highlight the current state and the future perspectives of corporate learning and development in Hungary comparing the country's needs, evolution and future prospective in the face of the European and global trends. Globalization and post-pandemic life put a great emphasis on the need of adaption, innovation and the ability to grow-in various fields like needs assessment, technology, mindset, and attitude. The paper provides an overlook on how corporate learning has been developing, exploring the past and present practices with possible predictions regarding the future. Certainly transition will not undergo overnight but with clearly defined challenges and profound examination we can reach considerable results. As it is always, practical implementation must begin with substantial analysis and in-depth needs assessment. The paper intends to draw attention to new trends in learning and development after measuring up Hungary's current status in corporate trainings, and analyzing different surveys to predict the expected tendencies of this field. To get an overall picture on the possible future directions in Hungary in the light of global and European experiences statistics and data have been processed and supplemented by the authors' own research.

Keywords: COVID-19, corporate learning, Hungarian situation, new trends in learning.

Introduction

Globalization, post-COVID world, and new state-initiated regulations certainly provide great innovation potential for adult education, corporate trainings and lifelong learning-but hold challenges and require deep consideration at the same time. Hungary located in the heart of Europe with more than a thousand year of history and powerful traditions needs to face thechallenges of being part of the European Union in an ever-globalising world. Education-now more than ever-plays a crucial role in the country's future perspectives which can either empower the nation by utilizing the great potential of a well-educated human capital or can be left behind. With a rising economy business organizations must recognise the need for an evolving corporate environment where training and development is a crucial part of success. COVID-19 has brought us to a sudden and painful recognition that serious changes are justaround the corner leaving us no time for preparation. Education on a corporate level has toevolve- that is beyond question. But the future educators, trainers, facilitators or mentors must clearly define the path in the face of globalization and the incredible pace of technological development with a special attention of cultural background and traditions. The circle of stakeholders involves the L&D department, the leadership, and the employees as well as any service providers in the field of adult education.

It is clearly visible that corporate learning has changed more during the last year than in several years before, has indicated new learning strategies and requires L&D professionals to remain relevant in this new landscape. Evolving from the role of the long-known training facilitator and administrator, L&D professionals must now embrace a multi-faceted role that incorporates competency in strategic partnership, forward-thinking mindset, content management and culture transformation- putting all these challenges into a digital

framework. These shifted roles predict serious need for certain skills of L&D professionals to make organizations thrive in this new world of work but also require an overall rethinking in order to ensure competitiveness in an ever-changing environment.

Literature Review

The importance of corporate learning

Adaptability to shifting circumstances and readiness to learn new work-related knowledge and skills have become almost more important than competence at the tasks for which we werehired. Workers must now be able to deal not just with issues for which they were trained, but also to tackle unique problems that have never been faced before (Knapper, 2001). We truly believe, that the importance of corporate trainings is as obvious as the great importance of learning in general. It is beyond the question that companies cannot afford to ignore the growing significance of well-trained workforce as it is becoming one of the key factors of a business organization's success. But the question still remains whether e-learning solutions serve better this purpose or traditional classrooms can fulfill all the necessary requirements of employee trainings. In the upcoming section we point out the most significant benefits of e-learning or blended solutions.

- **Increased flexibility:** Online trainings offer flexibility regarding place, time and pace of learning to an extent that cannot be imaginable in traditional classrooms.
- **Convenience:** When stable internet connection and technology are given online learning might be more convenient than being in a specific area designed for training activity (or not designed for it) not to mention the time that can be saved.
- **Cost-effectiveness:** It can reduce the costs related to travel, accommodation and relating services.
- **Better accessibility:** it can be available for a bigger circle of employees due to above mentioned benefits. Using the latest

achievements in technology (gamification, AI, etc.) is likely to be more engaging.

Source: Shift e learning

Figure 1.

It is obvious that views differ on the most important benefits of e-learning solutions but most of the time it is simply because of differences in ranking or in approach. However, there are also disadvantages or limitations of online learning. The potential problems of e-learning that have been identified in previous research include a sense of learner isolation (Brown, 1996); learner frustration, anxiety, and confusion (Hara & Kling, 2000; Piccoli, Ahmad, & Ives, 2001); the need for greater discipline, writing skills, and self-motivation; and the need for online users to make a time commitment to learning (Golladay, Prybutok, & Huff, 2000; Serwatka, 2003). Based on these considerations, some research has stressed the importance of using a "blended learning" approach (Davis, 2000; Koohang & Durante, 2003). Blended learning is a hybrid instructional approach that combines elements of e-learning with the traditional classroom environment (Rubenstein, 2003; Ward & LaBranche, 2003).

The Current Global Status of Corporat E learning

Corporate learning is undergoing a paradigm shift as organizations adapt to new ways of working and doing business, in response to a worldwide pandemic, social crises and uncertainty caused by COVID-19. These events have triggered an accelerated digital

transformation of learning that goes beyond simply delivering content electronically. Approaches to online learning are evolving quickly as learning and training leaders align more closely with business owners and take on new responsibilities for employee engagement, well-being, and diversity, equity, and inclusion.

Although we are not yet fully aware of all the transitions, organizations will need to adapt to an ever-changing environment, several adaptations to how business works look likely to stick with considerable implications for the scope and operations of corporate learning. Now companies are increasingly relying on L&D departments to play an important role in employee attraction, development, and retention. It will be up to L&D departments to develop training to upskill or reskill large numbers of people in a short amount of time. And seeing the incredible pace of technology evolution it is safe to say that their job has not been done once development session is completed because constant rethinking and reskilling is needed.

According to Smart Business Trends' survey, in 2020 98% of corporations planned to carry out eLearning courses for their employees in western Europe and the USA. Although we do not have exact data on the Hungarian situation in this question, experts say that approximately 5 out of 100 companies use online solutions for staff development. These numbers lead us to the conclusion that there is a long way to go for Hungary to even get closer to the global average but as Andás Koharek summarizes the situation: to successfully transform the traditional ways into modern, digital, globally used eLearning system we need to build it gradually. He suggests introducing a basic system as a first step and then improve it to make the courses more customized and more focused on learners' experience. We need a shift in our practice, and to initiate intelligent learning systems which support blended learning, more interaction and high quality so we can keep up with western Europe.

The current and future workforce is more likely than ever to reach a high level in education, but in some cases there is an ambiguity in the perceived value that higher education might bring. Certain business organizations believe that higher education alone does not provide the skills students need to succeed in the modern workplace. This also indicates the need for easily accessible, quick and effective learning solution offered by the workplaces. Alongside with this, research shows that the next generation places a higher value on learning and skill-building than ever before. People now rate the "opportunity to learn" among their top reasons for taking a job. As the retirement age increases, Baby Boomers also see the need for continuous learning, upskilling, and adaptation to remain an asset in the workforce.

It predicts that businesses need to take a larger part in the educational scene by providing upskilling training programs, create opportunities for continuous learning, and enable employees to share and master new skills. Learning process must build on traditional means of knowledge acquisition such as articles and courses but it should be incorporated into the new digital learning environment.

Hungarian situation

Based on a public opinion research, conducted by the Hungarian Investment Promotion Agency (HIPA) and the Hungarian Service and Outsourcing Association (HOA) [1], about the attitudes towards corporate learning and the idea of lifelong learning we can draw some conclusions regarding the country-specific status of this area. The research included 500 Hungarian corporations and interviewed the leader or the HR professional at each company. Considering the representative sample, the following preliminary information is important to take into account as it can highlight the culture-related outcomes. 77% of the respondents were representing a private company with 100% Hungarian ownership and multinational

[1]Report on the Hungarian Business Service Industry, 2019 https://hipa.hu/images/dokumentumok/hipa-hoa-business-services-hungary-2019-survey.pdf

companies accounted for 13% of businesses while 6% were state owned.

Research shows that the most frequent types of staff development are the professional upskillings and the participation on conferences and workshops.

The next figures are extracts from the results of a survey conducted by Randstad Global-the global HR service provider company operating in 38 countries worldwide-highlighting trends the aspect of Hungary and the country's correlation to western Europe and the global average. Data show that in some cases Hungary is well below the western European data. Involving almost 300 respondents taken from several fields of the industry, the "Randstad HR Trends Survey 2021" collected data from 2020 November-December. 72% of those asked work for a company with an international background. This is an overall survey conducted in several countries all around the world, but the extract focuses on the relevant data from cases the global and the Western European percentages are more or less similar. It indicates that the globalization's effects are slightly less significant in Hungary than in other parts of western Europe. But more interestingly the report reveals the general opinion on remote work, and some other outcomes of the pandemic. It may come as a surprise that in Hungary 80% of respondents intend to return to the workplace as soon as possible. It reflects on the future potential of online learning and raises the question whether employees remain as willing to learn as during the pandemic. Although the hybrid work environment offers a moderate solution for post-COVID times data show that only 34% on Hungarians welcome this opportunity while in western Europe (and globally) around half of the respondents see hybrid work as a feasible prospective for the future.

Data might imply some culture specific features showing that only 36% of Hungarians miss daily face-to-face interactions with their co-workers while in some countries of the European Union this rate can be as high as 68%.

In a globalized world it is inevitable to empower people with skills to embrace diversity and inclusion however-surprisingly- only less than 10% of employees say that their company put a bigger emphasis on it during the pandemic (in Hungary the rate is 6%). Clearly this question relates to globalization to a greater extent than to the pandemic. The survey also shows that in those countries which are on a higher level of globalization (richer multinational company environment, more migrants in the workforce, etc.) enterprises put bigger efforts in fostering development in this field.

Trainings provided around technology are slightly more significant, 9% in Hungary. It is easy to see that with a staggering pace of change in technology people are struggling to keep up. Especially at workplaces where there is no time to catch up with new technological requirements. That is why training on digital skills has a greater importance than ever. It not just serves employee contentment but from the companies' side it can help retain talented workforce in the tightening labour market. Data show that turnover from millennial employees alone costs the American economy $30 billion per year. In Hungary fluctuation grew significantly during the last three years from 33% in 2017 to 40% in 2020. Trainings can decrease the rate of turnover but because of the accelerated pace of technology development it is indispensable to upskill employees on the that field as well.

The number of workers who say that their employers provide trainings on more overall skill and try to facilitate the adaption to new work environment is marginal, only 6-8% which corresponds to the European average.

Table 1.Randstad HR Trends Survey 2021 (excrept)

	Hungary	Western Europe	Global
Would like to return to the work place as soon as this would be possible.	80%	88-70%	78%
Employees enjoy a hybrid work environment, so they can work from home or on-site at their discretion.	34%	56-44%	53%
Of those working from home, miss interacting with colleagues.	36%	68-50%	52%
Employees say that, their employer provided more training around diversity and inclusion	6%	7-13%	10%
Employees say that, their employer provided more training around technology	9%	7-16%	16%
Employees say that, their employer provided more over-all reskilling opportunities	6%	2-9%	8%
Employees say that, their employer support program to improve their skills to adapt new work environment	8%	5-12%	9%

Source: Randstad HR Trends Survey 2021.

To provide additional information that supports a more comprehensive picture, some surveys reflect on the trends from the organizations' side showing that companies have realized the importance of employee development as they undergo a digital transformation while adopting new automation and AI technology. PwC Hungary (PricewaterhouseCoopers Kft.) has conducted the tenth Hungarian CEO Survey based on PwC's Annual Global CEO Survey collecting data through in-person interviews: PwC's experts interviewed the CEOs of 240 Hungarian companies between October

2020 and January 2021. While a third of the companies were forced to reduce their headcount in 2020, this reduction is planned to be only temporary. However, the new ways of operating have also led to new expectations of employees. According to CEOs, the primary factors that contribute to competitiveness are organisational culture, internal communication, and the engagement, adaptability and well-being of employees. They intend to achieve efficiency gains through automation and the use of technology.

Source: PwC's Annual Global CEO Survey 2020-21

Figure 2.Progress related to up skilling

The strategic importance of the workforce is well illustrated by the fact that the top two factors on the list of priorities for successful business operation are related to employees.[2]

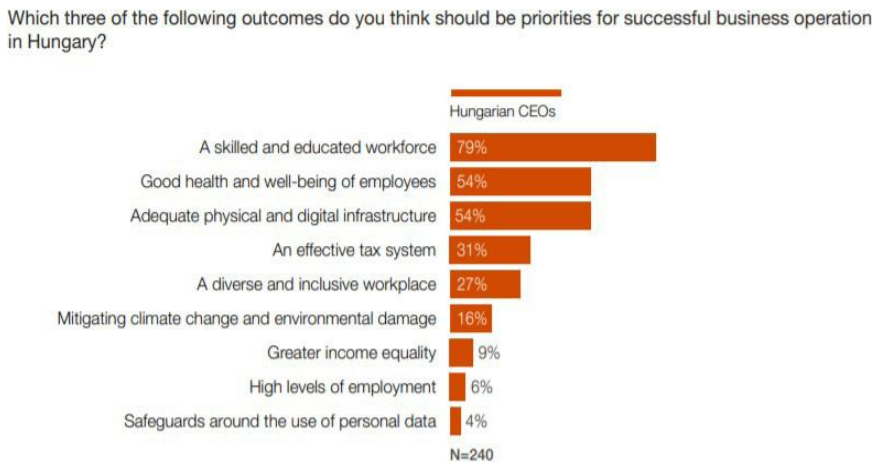
Data show that there are no significant differences between the perception of Hungarian CEO's and global CEO's but the strategic importance of the workforce is better illustrated in the previous PwC survey where the question of upskilling was deeply elaborated. The PwC's 9th Hungarian CEO Survey in 2020 found that 27 % of Hungarian CEO's think they made progress in defining the skills

[2]PwC's 10th Hungarian CEO Survey 2021 https://www.pwc.com/hu/en/ceo/2021.html Retreived: 10 September 2021

needed to drive their future growth strategy and 23% say that they were able to improve their workers' and leaders' knowledge of technology and its potential implications. 23% stated that they succeeded in establishing an upskilling programme that develops a mix of soft, technical and digital skills. These percentages are slightly higher than the global average.

This is how experts see the advantages of digital learning compared to traditional classroom-based education: András Koharek- expert of the National Human Management Association and manager of one of the country's first company in eLearning sector (AR Tudásmenedzsment KFT) says that in the long term eLearning solutions will be more cost-effective than traditional methods. Based on his experience the expansion of eLearning can reduce significantly those costs that traditional education forms usually generate such as the expense on travel and accommodation on the other hand it simplifies the administration, revision and makes the knowledge acquired through online education 50% more lasting.

It is a promising perspective that 79% of Hungarian CEO's say that skilled and educated workforce should be one out of the three most important priorities of a successful company (Figure 3).



Source: PwC's Annual Global CEO Survey 2020-2021

Figure 3.Priorities of a successful company

These data can help to understand better the current situation as well as the changes that companies have experienced but also highlight the future expectations from the leaderships' point of view. Because it is clearly visible that crises had a strong effect on the operation of corporations as a whole in the next section we intend to analyze these impacts more profoundly.

The impact of COVID-19

Surveys have been taken all around the world to measure up the shifts caused by COVID-19 on any field from our personal life to work-related issues. But online learning industry has skyrocketed during the pandemic, boasting record-breaking growth in course enrollment. LinkedIn Learning reported a 130% increase in learning by enterprise learners-which was the largest spike in the history of the platform. Skill soft (one of the World's number one corporate learning companies)[3] has seen a 317% increase in learning on its learning experience platform.

Udemy reported a 425% increase in course enrollment across its entire platform. The reason why learning for employees has become a central question during the pandemic can be explained from several aspects. First it is undeniable that for quarantined employees what influenced the significant increase in learning is the vast amount of time people have on their hands. With stay-at-home orders in place all over the world, people finally have the luxury of time and they are willing to spend the spared extra hours on developing their skills. Secondly, the unprecedented situation left employees uncertain about the future, leading many of them to the desire for improvement and giving back the sense of control in unsafe times. In addition to that in times of uncertainty people often look for activities that bring structure to their lives empowering them to be more effective in their

[3]Training Industry Magazine, 2021 Top Leadership Training Companies, March 11, 2021 https://trainingindustry.com/top-training-companies/leadership/2021-top-leadership-training-companies/ Retrieved: 15 September 2021

role[4]. However we are still in early stage to clearly see all the processes that the current situation has triggered.

Results of survey and in-depth interviews

In the course of the preparation phase, we collected as many data, statistics, and prior researches on the status of Hungarian corporate learning, as we could, but we found that apart from some major research providers limited amount of data is available on that field. Therefore, when constructing the questionnaire, we focused on those questions that we had not found explicit statistics about. Since the questionnaire is formulated to measure up the Hungarian employees' opinion, it was prepared in Hungarian.

In addition to the survey, we conducted interviews at five different companies in Hungary in order to understand the present and the possible future prospective of corporate learning. While planning the interviews we wanted to cover the circle of stakeholders as comprehensively as possible so we decided to get into contact with companies from different sectors and we also differentiated them by size. As a result, we made an attempt to accomplish this with these target groups:

- 1 employee from a multinational insurance company with 541 employees
- 1 employee from a multinational car manufacturer company with a small subsidiary in Hungary (25 employees)
- 1 employee from a Hungarian-owned company with 1300 employees operating in public transportation
- 1 employee from a state-owned company doing business in the same field

[4] Michelle Eggleston Schwartz, Learner Mindset, Training Industry Magazine July/August, 2020 https://trainingindustry.com/articles/strategy-alignment-and-planning/top-10-articles-of-2020/ Retrieved: 15 September 2021

- The owner of a Hungarian small enterprise working in the construction industry (26 employees)

We conducted the interview with them individually and the average timeframe of the interviews was about 25 minutes. We asked open ended questions to balance the limitation of closed-ended questions of the questionnaire. Without being comprehensive, we intend to demonstrate some of the most outstanding results of our primary research. We implemented the comparison of results illustrated in Table 2.

Table 2.Comparison of the findings of the research methods

	Questionnaire	**Interviews**
Rather in-person trainings or on-line trainings are provided by the workplaces?	43% in person 34% online trainings	60% online (prior- to COVID-19 40% from it was in-per-son) 20% only in-person 20% no training
Which one do you find more effective?	51% in-person 37% blended 12% online	60% in-person 20% blended 20% no training
What makes a good training?	33% a good trainer 20% relevance	60% a good trainer 20% relevance 20% no trainings
Has COVID-19 affected training practices at the workplace?	76% strongly agree 24% disagree	40% says that after COVID-19 in-person trainings were trans formed into online ones 20% says that after COVID-19 trainings have been suspended 20% no training
What kind of trainings are offered (job-related, soft skills, language)?	Job-related 53% Softs kills 13,8% Language 8,6%	80% job related 20% no trainings

Source: Authors' own construction, 2021.

To summarize the findings of the survey we can see that online trainings now prevail in corporate practice but a significant part of it can be attributed to the pandemic. In spite of the growing tendency of online education the majority of employees still insist that traditional classroom learning is more effective and they expressed their preference for it. Only a bit more than 10% is for purely online methods. The majority of trainings are still job-related ones, soft- skill development and language competences do not play a considerable role in offered trainings. A well-qualified trainer and relevant content can enhance employees' satisfaction the most, however it was even more emphasized during the interviews. It is also an important fact to note that between 20-26% of companies do not provide training opportunities at all (based on both survey methods combined).

Conclusions

In order to be competitive in the gobalized market we must not disregard the ''new normal'' that has been brought by the pandemic and by the extremely fast-evolving technology. I firmly believe that Hungary's enterprises must develop in two fields in terms of staff education. On the one hand we have to recognise the importance of corporate trainings as a whole and find the most adaptable ways to build them into the companies' routine. On the other hand, we need to follow and take advantage of the global trends and achievements and see the potential of online solutions. We are in a good status of internet access and all those electrical devices that can be used for educational purposes we just need to utilize them better. I see the possible ways of development in corporate education in some core elements:

First of all, we think that a shift is necessary in the current professional level of trainers. We are convinced that ''train the trainer'' attitude is the first step since we could see how important the trainer is in the learning process. Obviously educators and trainers should adopt to this new situation themselves which takes some time and certainly requires development from their side. This is where the

idea of lifelong-learning can help learning and development professionals to keep up with the pace.

Secondly, a shift in company leaders attitude towards the necessity and advantages of staff development is also a crucial factor. Newsletters, workshops, conferences providing relevant information and data on the benefits of staff development can enhance motivation and commitment from the leadership side.

And last but not least, corporate trainings can be implemented by the help of the state. Pursuant to the Vocational Training Contribution Act, certain out-of-school trainings are financed by the state from the National Employment Fund and EU funds. Some adult education institutions and some business organizations (which create jobs for at least 50 people) can benefit from it.

Under certain conditions and to a certain extent payment obligation to contribute to vocational training can be reduced this way. Also we can mention state initiatives that aims to support corporate education like support for on-the-work training for employees of micro, small and medium-sized enterprises within the framework of Széchenyi plan and some others. The state can have another influencing tool in its hand, since promotion and marketing are powerful incentives and as we learned a significant part of companies do not know about tender opportunities at all.

The paradigm shift is never easy and considering the multiple number of stakeholders it is quite complex as well. All in all, we would like to emphasize that these recommendations are just demonstrating a possible scenario and are not exceptionally the only one good solution.

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02

Export Procedure and Documentation

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Abstract

People have been transacting business across national borders since the dawn of mankind. However, until recently, the company's operations were limited to international trade. In the post-World War II period, national firms suddenly developed into global or multinational enterprises. In the years after the 1990s, international trade grew significantly. There was no such thing as worldwide business two decades ago. The term 'international business' came from the term 'international marketing,' which came from the term 'export marketing.' What's New in International Marketing, From International Trade to International Marketing? The producers first only shipped their products to neighboring countries, but as time passed, they expanded their exports to encompass far-flung places. The companies eventually expanded their operations beyond trade. India, for example, exported raw cotton, raw jute, and iron ore in the early 1900s. Due to the country's massive industrialization in the 1960s, we were able to export jute, cotton garments, and steel.

In addition to exporting, India was able to create markets for its goods in the 1980s. Creating demand for Indian products like as textiles, electronics, leather goods, tea, coffee, and so on, as well as arranging for suitable distribution routes, appealing packaging, product development, and pricing, are

all part of export marketing strategies. Not just India, but nearly every developed and rising economy goes through this process. Multinational firms that made products in their home countries and sold them in a range of worldwide markets began constructing factories and other production facilities in foreign/host countries before the 1980s. They finally started producing in one foreign country and selling in others. Unilever, for example, established Hindustan Lever Limited (HLL) in India, which manufactures and markets items in Bangladesh, Sri Lanka, and Nepal, among other locations. As a result, worldwide trade has transformed into international marketing, and international marketing has transformed into international business. International business history begins with the emergence of human civilization. The initial phase of international commerce and globalization was driven by the integration and expansion of economies and society.

Keywords: Export, documentation, export procedure.

Timeline

19th century: Integration of economies and societies is viewed in a broader context. 1870: Globalization enters its initial phase. World War II begins in 1919, marking the end of the first phase of globalization. The United Kingdom, Germany, and the United States all experience industrial revolutions. Import and export by colonial empires have increased dramatically.

GDP 22.1 in 1913: Following 1913, trade barriers were raised to protect domestic production. In the 1930s, the trade ratio fell to 9.1 percent of GDP Following the 1930s; world nations realized the need of international cooperation in global commerce and balance of payments issues. The International Monetary Fund and the International Bank for Reconstruction and Development (IBRD) were established in 1945. (World Bank)International Monetary Fund (IMF)

and International Bank for Reconstruction and Development (IBRD) are both acronyms for the International Monetary Fund and the International Bank for Reconstruction and Development, respectively.1947: 23 nations held talks to avoid protectionist practices and to help their sectors recover from the Great Depression, with the goal of forming the World Trade Organization. Efforts to transform the GATT into the WTO in the 1980s.GATT (General Agreement on Tariffs and Trade) were superseded by the World Trade Organization (WTO) on January 1, 1995.1990- 2000: From the phrase International Marketing, the acronym IB (International Business) was born. The evolution of the phrase "international business" may be divided into two phases:

1. International Trade and
2. International Marketing.

Using International Marketing to Grow your Business Internationally

Rapid Internationalization and Globalization Following 1990.Today's goal is to better understand the PESTIN elements that affect international trade. Even if international trading is not a new concept, many individuals are unfamiliar with its fundamentals and how to enter the market.

This paper explains the basic information of-Export Procedure and Documentation in international trade

Objective

You will be able to: Discuss the notion of an overseas customer after reading this, you will be able to: Describe the type and examination of an export order throughout processing. Recognize how papers are negotiated Describe how banks play a role in export-import transactions.

Introduction

The most significant aspect of export control is export paperwork. The use of shippers is essential. Employing a vast quantity of texts and following particular methods and procedures each of these writings has a distinct purpose and so has its own meaning. A kudos comprehending the objective of all texts, how to correct them, and the amount of copies All export experts must know what is required, when it is required, and where it is required. In most cases, one can Contrary to popular belief; professional assistance is available to do the task, so why should anyone bother?

Sounds simple enough; you won't be able to amend or file these documents on your own, but you'll be able to deny them before approving someone to fill you in on these details. After all, it'll be your neck in the trap if something goes wrong, whether you're a laborer or an exporter! One of the key roles of the export manager is to keep oneself or herself completely aware of all paperwork requirements in order to complete the export operation effectively. When compared to domestic company, exporting is more complicated. These require more paperwork and nearly no verbal communication, whereas a home business allows for some verbal discussion. Many home business orders, for example, are placed and received orally. In international business, this is not the case. He is participating in a single procedure where export business papers are as important as numerous companies/ authorities. Buyers and exporters, buying agents, the RBI, authorized retailers in India (where the exporter has his own bank account), the consumer bank (foreign bank), the DGFT, customs and port authorities, VAT and tax authorities, EPCs, insurance companies, testing agencies, cleaning and distribution agencies, shipping companies/ airlines and inland transport carriers, and so on are all involved.

This is only a Bibliography!

Appropriate paperwork will guarantee that these institutions' standards are met, resulting in a successful transaction. Incomplete or

incorrect documentation will result in significant financial and reputational damage. Such losses may be totally prevented by first properly understanding everyone's literary demands and then carefully preparing to discover the correct texts in the right quantities, in the right places, and at the right time. Let's take a look at the following issues to see how much harm may be caused by improper or inaccurate content. Higher interest rates, fines, and penalties, as well as situations of deviation, may cause financial harm to the exporter. He could have to pay more for phone, fax, and mail services.

As a result of losing credit insurance to insurance providers, he or she may face significant financial losses. He might be obliged to pay hefty demurrage expenses to his nation. If there are delays owing to constraints, he compensates his buyer in the form of discounts. Documents that impact the capacity of consumers to look for goods in foreign ports. If shipping is excessively delayed owing to linguistic difficulties, an exporter may be obliged to send products at his own expense.

Finally, the exporter may lose favor with the customer, which might result in the loss of more business.

Methodology

The data used in this paper is a secondary one. A very simple language is used in it. It all about the process and important things which are required in international trade. Basic information which should be known to everyone

Looking for a Buyer from Outside

The most challenging issue that each ambitious shopkeeper has is finding items for their customers. Trading in international markets has never been easier-a lack of market knowledge, a diversity of languages, geographic distance, cultural differences, and a lack of

market expertise are all significant barriers for any manufacturer or exporter.

If you do your research and preparation properly, marketing in the foreign market is now easier, simpler, and less expensive than it was a decade ago. Solid government policy, a favorable international climate, low tariffs and no barriers, and, most significantly, simple and inexpensive access to a civilization as strong and all-encompassing as the internet, are all layers of silver. Never before in human history have there been such a big number of people from so many different nations, places, and cultures interacting freely as we see now on the internet.

So, how can today's marketers take advantage of this incredible business opportunity and succeed? The keys to success are patience, thoughtful planning, and effective implementation. In truth, as seen in, a significant number of Indian exporters have benefited from these advantages. Export growth has surpassed all prior records in the last 10 years.

Where to Look for Buyers

Simply put, there are only two methods to locate consumers for your products: either you find a buyer or the buyer finds you. Both variables should be considered in your marketing approach, as well as how successfully you employ both sources.

Buyers can be found in a variety of places, including:

Catalogues, trade books, and other sources of information are sought. Taking advantage of trade association-sponsored buyer-seller events Commercial Rental Agents/Representatives doing market research Information resources, etc., are registered. Customers can be attracted in a variety of methods, including the following: ad (e.g. direct email) Exhibits, Websites, For example, search engines.

India's Export Documentation Requirements

In India, export paperwork has changed dramatically, especially after 1990. Efforts are being made to simplify and modernize the system even further. Prior to 1990, all paperwork was done by hand and was not well-organized. As a result of the numerous delays and errors, the process became clunky, boring, repetitious, and extremely unpleasant. In 1991, India adopted the ADS. The ADS stands for Aligned Documentation System, which is a globally recognized documentation system.

ADS employ a Master Document, which provides information that is shared by all documents in the aligned series. Tessa Jones, Head of Publications at SITPRO, the UK's trade facilitation agency (http://www.unece.org/trade/cnnct/artl944). The easiest way to understand India's export documentation system is to divide export paperwork into two groups:

- Documents for business
- Documents governing the industry.

These are organized under the following general headings for easy comprehension.

- Documents for business

These documents have their origins in international commerce's "Custom of Trade" and are used by exporters and importers to fulfill their legal and other incidental duties under sales contracts. Commercial papers can be further subdivided into the following categories:

There are two types of business papers: (a) principal commercial documents and (b) auxiliary commercial documents.

(a) The most important commercial documents: These documents have two purposes: to execute the actual transfer of goods and title to the products from the exporter to the buyer; and to realize

the revenues from export sales. Commercial invoice (and the invoice prescribed by the importer) Packing list Certificate of inspection Certificate of insurance/ insurance policy Bill of Lading/ Airway bill/ Combined transport document Certificate of origin Bill of exchange Shipment advice are the most important commercial documents.

(b) Performa invoice Shipping instructions Insurance declaration Intimation for inspection Shipping order Mate's receipt Application for certificate of origin Letter to the bank requesting document negotiation and collection

- Documents governing the industry.

These are required by various government departments/bodies in order to comply with formalities imposed by relevant export legislation. Exchange Control Declaration Form-GR Form Freight Payment Certificate Insurance Premium Payment Certificate ARE I/ARE II Forms ARE I/ARE II Forms. Shipping Bill/Export Bill Port Trust Copy of Shipping Bill/Export Application/Dock Chillan Port Charges Payment Receipt Vehicle Ticket

The following is a full description of all the business documents:

Commercial Invoice: This is the most fundamental and significant document in an export transaction and the exporter must draught it with great care. As expected, a commercial invoice must include thorough and precise information. A small blunder on the side of the exporter might cost him a lot of money. The exporter must submit information such as his own (exporter) information, invoice number with date, details of the consignee and buyer (if the buyer is not the consignee), buyer's order number with date, country of origin of the goods, country of final destination, terms of payment and delivery, pre-carriage details (road/ rail), place of receipt by pre-carrier, vessel/ flight number, port of loading, port of discharge, and more.

A business invoice, as can be seen, comprises all of the specifics of an export order, including the order number, amount, rate, packing,

mode of dispatch, and shipping information. Once the order has been finalized, it is customary to raise and deliver a preformed invoice to the customer for his approval. The exporter can utilize the authorized preformed invoice as part of the export contract once it is received.

The commercial invoice accomplishes the following goals:

It acts as the exporter's bill since it shows the entire chargeable amount, as well as the consignor's and consignee's (buyer's data if the buyer and consignee are not the same) information and the order number. It contains all of the information about the products being exported and corresponds to the export order and letter of credit. The exporter is obligated to ship the correct amount in the proper packing according to the export order. The invoice shows the amount as well as the packing, which must closely adhere to the export contract's standards. It also specifies the delivery and payment terms, which must be in accordance with the letter of credit/export contract.

Let's have a look at how to fill out each section of a business invoice one by one:

1. **Exporter:** In the upper left corner of the business invoice, there is a box labeled "Exporter." The exporter must include his name and entire address, including city, state, and country, as well as his phone and fax numbers. The goal is to determine the shipper's identity.
2. **Consignee:** The name and complete address of the person to whom the goods are being consigned are required in this box.
3. **Buyer:** In most cases, the buyer and consignee is the same person. In circumstances when the buyer is not the consignee, the buyer's information, such as his name and complete address, must be included in this box.
4. **Numbers and references with dates:** The necessary references, such as the exporter's quote number with date, the invoice number with date, and the buyer's order number with date, must be precisely completed in these areas.

5. **Nation of Origin of Items:** The exporter must enter in the name of the country in which the goods were really manufactured in this box.
6. **Country of Final Destination:** The name of the country to which the items will be shipped must be provided in this box.
7. **Delivery and Payment Terms:** This box must include information on delivery terms such as FOB, C&F, CIF, and payment terms such as L/C (letter of credit), D/A (documents against acceptance), D/P (documents against payment), and so on.
8. **Pre-carrier Receipt Location:** This box must show the name of the location where the items were accepted by the pre-carrier.
9. **Vessel/Flight Number:** The name and number of the shipping vessel or aircraft carrier employed for the shipment must be entered in this box.
10. **Port of Loading:** This box must contain the name of the port where goods are loaded onto a ship or aero plane.
11. **Port of Discharge:** In this part, write in the name of the port where the goods are eventually unloaded (airport or seaport).
12. **Final Destination:** This box must include the name of the location where the shipment will be delivered. This refers to the buyer's country's final destination, not the buyer's country's port of discharge. If the ultimate discharge airport is JFK in New York, but the products are scheduled to be delivered in Atlantic City, the name of Atlantic City will be entered in this box.
13. **Mark Numbers and Container Numbers:** This box displays the different markings and numbers that must be applied to the loaded goods. Container numbers are also necessary if containers are being used.
14. **Package Types and Numbers:** Indicate the types of packages being shipped, such as cartons, bales, bags, drums, crates, and so on, as well as the total quantity of such goods being delivered.
15. **Goods Description:** This part should provide a full description of the items being transported. The description must match the export order/letter of credit's requirements. If more than one sort

of item is being shipped, each must be described in relation to the quantity and type of shipments being sent.

16. **Quantity, Rate, and Amount:** In both numbers and words, these columns must reflect the quantity and corresponding rates of each item being exported, as well as the overall amount payable. Quantities and pricing must be identical to those in the export contract.
17. **Signature and Date:** At the end of the invoice, the signatures and date of the parties must be included. The exporter or an authorized representative of the exporter the invoice will stay unpaid till this is done. As a result of this, it is ineffectual.

The importing customer may occasionally request special business invoices in accordance with customs/import regulations. Their nations' requirements:

I. **Consular Invoice:** A consular invoice is a non-tariff barrier used by some governments. The exporter must get the commercial invoice confirmed by the importer's country's Embassy/ Consulate in his (exporter's) country. On payment of the required processing fee, the Commercial Division of the Embassy/ Consulate issues a seal/stamp as proof of certification. Many Middle Eastern nations, for example, demand similar verification for Indian goods.
II. **Legalized Invoice:** To verify the invoice's accuracy, many nations require the exporter to have the commercial invoice validated by the local chamber of commerce in the exporting country. This commercial invoice gets authorized for the importing country after it has been certified. For example, authorized invoices are required for imports from India in Mexico.
III. **Customs Invoice:** In this case, the importing nation needs the commercial invoice to be generated in its own format, which is normally done to prevent dumping. The information necessary is nearly identical, and such invoices must be self-attested by the

exporter. The United States, Canada, and Australia are examples of such countries.

List of Items to Bring

The number of packages, the quantity packed in each of them, the weight and measurement of each package, and the net and gross weight of the overall consignment are all listed in this document. The actual weight of the things is referred to as net weight, whereas the weight of the items plus the weight of the packaging material is referred to as gross weight. In reality, it contains nearly all of the same information as a business invoice, with the exception of the rate and total amount. It disregards the financial aspect of the deal in favor of the physical and tangible aspects.

When a shipment consists of only one item packed in a single package, the packaging details may be included in the invoice. However, regardless of the size of the shipment, both documents are employed as a common trade custom.

The packaging list is useful for the exporter as a crosscheck of products supplied while shipping the shipment. It comes in helpful for port staff while arranging cargo loading and offloading. It is also a necessary document for customs officials, as it allows them to perform physical inspections of cargo and conduct weight and measurement checks on the items without difficulty against the declarations provided by the exporter in the packing list. Instructions for Shipping: This document acts as a checklist of the exporter's instructions for a specific cargo to the shipping firm. Inspection Preparation: This is the format for notifying the Export Inspection Agency (EIA) about the shipment and inviting them to inspect it.

Inspection Certificate: This is the certificate that the EIA issues after conducting a pre-shipment inspection of items for export that fit within the notified category of products that require mandatory pre-shipment inspection.

Certificate of Insurance/Policy of Insurance: Because the stakes are generally quite high in the export company, insurance is a critical component. Protection in the form of insurance coverage is required for the duration of the products' transportation from the exporter to the importer.

Regular exporters usually choose an open insurance coverage and pay for it as they ship. They must also submit an insurance declaration to the insurance company. The insurance company issues an insurance certificate, which is a negotiable instrument, in response to this declaration. A policy covers all of the terms and conditions of cargo insurance, whereas a certificate is granted on a case-by-case basis. An open policy can be used as proof of insurance for products that have been sent.

Airway Bill/Bill of Lading/Combined Transport Document: Transport Documents are another name for these documents. Let's take a look at each one separately:

1. **Bill of Lading:** A bill of lading is a document that describes the goods when commodities are carried through ocean (marine) conveyance, such as ships, this is issued. The shipping firm issues a set of Bills of Lading to the exporter when the goods are eventually handed over to the shipping company for loading on board the ship for shipment to their overseas destination. This collection may be used for a variety of things. It is both a receipt indicating the shipping firm's physical acceptance of the cargo and a contract of carriage between the exporter and the shipping company for the transportation of the goods to their designated destination. In addition, the bill of lading serves as a title document for the commodities. Only if the importer has the bill of lading does he have the authority to take possession of the item in his own nation. This document is the instrument through which the exporter transfers ownership or title of the products to the buyer.

Because it may be transferred by endorsement and delivery, a bill of lading is a negotiable instrument. However, as previously said, it also provides several non-negotiable functions. As a result, it's always sold as part of a set that includes both negotiable and non-negotiable copies.

The term 'freight paid' or 'freight to pay' can be seen on a bill of lading. depends on whether the freight is played or will be picked up at the destination If the exporter has already paid the freight at the port of loading, the shipping company will stamp the bill of lading as freight prepaid, and if the freight has not been paid and must be collected from the importer at the port of discharge, the shipping company will stamp the bill of lading as freight collected or freight to pay.

2. **Airway Bill:** An airway bill is a bill of lading that is used when items are transported by air. It's also known as an airway bill of lading or an air consignment note. On two respects, it's similar to an ocean bill of lading. It performs two functions: one, it acts as a carrier's receipt of goods, and two, it acts as a contract of carriage between the shipper and the carrier.

It does not, however, function as a document of title to the cargo, unlike a maritime bill of lading.

As a result, it is a non-negotiable contract.

Once the importer achieves customs clearance, the items will be delivered to the party listed as consignee on the AWB without any more procedures. As a result, an exporter should verify payment receipts, as shipping items directly to an importer through air is highly dangerous.

An airway bill is produced as a set of 12 copies, including three originals, as per IATA (International Air Transport Association) regulations:

(a) The color of the First Original is green. It is intended for the carrier issuing it, and the exporter or his representative must sign it.
(b) The second original is pink in color and is intended for the importer (consignee). It travels with the package to its final destination and is signed by the carrier or his representative.
(c) The third original, which is blue in color and intended for export, is for the exporter. The air carrier has signed it. Once the consignment has been accepted for airfreight and turned over to the consignor

3. **Multi-modal Transport Document:** This is sometimes referred to as a Combined Transport Document. Since the popularity of containers, the notion of multimodal transportation has gained traction. Containerization has enabled items to be transported from their point of origin, such as a factory or warehouse, to their final destination, which are the buyer's facilities in another country. Containers are employed in India's domestic transportation as well. The Indian Railways provide a door-to-door service. Containerized commodities are moved from one nation to another using various forms of transportation.

The containers are loaded on trailers (road transport) from the exporter's premises, and then transported by rail to the loading port, where they are ultimately loaded into the vessel. Similarly, the containers arrive at the importer's location in a foreign nation via numerous or combined forms of transportation.

The integrated transport document is used to cover the whole cargo trip utilizing several forms of transportation.

Certificate of Origin: For the importer in his nation, this document acts as documentation of the country of origin of products. Importing nations often need this to be presented at the time of import cargo customs clearance. It also plays a role in determining the import duty responsibility and rate in the nation of origin. This certificate specifies the characteristics of the items to be sent as well as the country in

which they are grown, manufactured, or produced. To be eligible for this type of certification, such commodities must have a significant value addition in the country of export. If the certificate of origin fits into the GSP category, it also comes with the benefit of preferential duty treatment.

(a) **Non-Preferential:** This type of certificate of origin is usually issued by the local chamber of commerce in the exporting nation. It merely acts as proof of nation of origin and does not provide importing countries with any tariff advantages. The exporter must submit an application to the local chamber of commerce in a defined format, and the chamber will provide the certificate of origin after reviewing the application. The accompanying CD contains the formats for both the application and the certificate of origin.

(b) **Preferential:** Importing nations that give concessionary (preferential) import tariffs to particular countries under certain trade agreements are compelled to provide these.

For exports from India, the following preferential certificates of origin are now valid: Generalized System of Preferences (GSP): Many affluent countries, including the United States, Japan, Switzerland, Canada, Hungary, the European Union, Norway, and New Zealand, grant developing countries preferential tariff treatment under this arrangement. This is a non-contractual tool, and the offer is made unilaterally and without reciprocity. These nations' GSP programmers are regularly reviewed and updated to provide specifics on specific advantages available under certain product categories. These benefits are usually made accessible to exporters when they submit appropriate information in a GSP form.

Global System of Trade Preferences (GSTP): This is a reciprocal agreement between developing countries that provides concessional tariffs. Many other developing nations have similar agreements with India. Exporters in India can get a GSTP certificate of origin from the EIA (Export Inspection Body), which is the only agency allowed to

issue these certifications, in order to take advantage of these privileges.

The SAARC Preferential Trade Agreement (SAPTA), the Bilateral Preferential Trading Agreement with Afghanistan, the Indo-Sri Lankan Free Trade Agreement, and other preferential trade agreements exist.

The reservation slip provided by the shipping business in response to the exporter's or his agent's request for booking ship space for a cargo is known as a shipping order. This document is known as a Carting Order in the event of goods transportation by air.

Mate's Receipt: Once the commodities have been received on board the ship, the master issues a mate's receipt to the port authorities for each shipment. The exporter must next receive this receipt from the port authorities, either personally or through an authorized agency, by paying any charges owed to them. Only after receiving the mate's receipt does the shipping firm issues the bill of lading to the exporter. This document is not a title document.

It's just a receipt for items. It is, nonetheless, a critical document since without it, the exporter would be unable to receive the products' title document, namely the bill of lading. As a result, the exporter should get the mate's receipt from the port authorities as soon as the items are loaded onto the ship. Any delay here might lead to even further delays, resulting in undesirable losses.

A bill of exchange, sometimes known as a Draft, is a payment-making instrument. It is a written unconditional order for payment from a drawer to a drawer, ordering the drawer to pay the drawer or a named payee a specific sum of money in a certain currency at a set or determinable future date.

The exporter is the drawer, and he issues an unconditional order in writing to the importer (drawer), requesting that he pay a specified quantity of money to himself or his nominee (endorsee). This order

might be for immediate payment, known as a bill of exchange at sight, or for payment at a later date, known as a since bill of exchange.

Sight bills of exchange are often used with the Documents against Payments (D/P) method of receiving money, whereas since bills of exchange are typically used with the Documents against Acceptance (D/A) method. Because none of these procedures provides any assurance to the exporter that payment will be made, these bills are usually issued under a letter of credit to secure payment.

Bills of exchange for usage are drawn for durations ranging from one to six months. These are negotiable, and the exporter normally offers a reduction.

Shipment Advise: The exporter sends the customer this document, referred to as a shipment advice, shortly after the shipment is completed to give him with all shipment details. This acts as a notification of the shipment ahead of time, allowing the importer to make arrangements for delivery.

Letter to Bank for Document Collection/Negotiation: This is a typical letter that covers a variety of instructions that an exporter must provide to his bank when submitting shipping papers for negotiation/ collection.

Let's have a look at the regulation documents:

Exchange Control Declaration Forms: All exporters from India, with the exception of those selling to Nepal and Bhutan, are obliged to file an exchange control declaration form in the prescribed format under the Foreign Exchange Management (Export of Goods and Services) Act, 2000.

The goal of this statement is to guarantee that exporters receive their revenues on schedule and to keep track of defaulters.

The exporter must submit export paperwork to the Authorized Dealer within 21 days after the date of shipping, according to FEMA. Six months from the date of shipping is allotted for complete export value realization.

Document of Freight Payment: This certificate serves as proof of freight payment. It verifies that the exporter has paid the required freight. It's the same as a freight receipt.

Certificate of Insurance Premium Payment: This document verifies that the insurance premium has been paid.

Forms ARE I/ARE II: These are forms for Clearance of Central Excise. Only those exporters who are subject to Central Excise must utilize these.

These are standard application forms for seeking approval from the Central Excise Authorities to remove excisable commodities for export. Another form, the CT-1, is used to request authorization from the Central Excise authority to remove excisable items from the country without paying excise duty.

The most significant document required by customs officials for allowing exports is the shipping bill/bill of export. If you're exporting by sea or air, you'll need a shipping bill, and if you're exporting by land, you'll need a bill of export. Only when the shipping bill has been stamped by customs authorities are the items authorized to enter the port. It includes information such as the name of the exporter, the name of the importer, the description of the products, the port of loading, the port of discharge, the markings, the number, the quantity, the FOB value, the country of destination, the name of the vessel or flight number, and so on. Copy of the Shipping Bill/Export Application/ Dock Chillan held by the Port Trust: This is the same document as a shipping bill.

The goal here is to compare and contrast the various port and dock fees. In marine shipping, this is employed.

Payment of Port Charges Receipt: This is the receipt provided by the Port Trust Authority once the exporter has paid his or her port dues.

Vehicle Ticket: This ticket acts as an entry pass for the exporter to enter the port and make his export cargo ready for shipment to its final destination.

Putting together an Export Order

The export order is a crucial document since it serves as a foundation for the preparation of other papers in international trade operations. Commercial and regulatory documents play important roles in international commerce, and no transaction may take place without them. Such documents differ from one nation to the next, from one port within a country to the next, and from one commodity to the next.

For example, as compared to developed nations, the number of papers used in developing countries is generally larger, as developing countries continue to employ a range of documents to restrict or regulate their imports.

Similarly, documents vary by port within a country, such as an Export Application for shipments sent from Chennai and Cochin; a Port Trust copy for shipments sent from Mumbai, JNPT, and Kandla; and a Dock Challan for shipments sent from Kolkata and Haldia, despite the fact that they all serve the same purpose. Countries have grown increasingly sensitive to product quality and technical requirements in the LPG&M era, and may need a specific document to be accompanied for inspection by a licensed agency. As a result, it is recommended that all of these issues be considered in advance and written down in an export order.

The first process that an exporter must accomplish is to acknowledge receipt of the order from the overseas purchasers. Acknowledging an export order is not the same as confirming it, and it is recommended that an exporter thoroughly examine an export order before

confirming it to a foreign buyer. Examining the export sequence is particularly crucial since it gives you one last chance to make any required modifications. It can be observed that the terms and conditions issued to the importer must be followed by the export order. Payment conditions, for example, are crucial to consider. pricing, delivery date and schedule, product specifications, pre-shipment inspection, special packaging, labeling and marking, quality issues, quantity, shipping markings, maritime insurance, needed trade paperwork, and so on. If the exporter has any questions or concerns, he can ask the importer for clarification. Once the export order has been scrutinized and the exporter is happy, he can meet all of the terms and conditions specified in the export order. With his expression of appreciation, he must spontaneously affirm the same to the importer.

Following receipt of the export order confirmation, the exporter must follow the measures necessary to engage into a formal international sales contract with the purchasers. There are no universally accepted norms and regulations governing international sales contracts. It has been observed that in some circumstances, it is only a one-page document, while in others; it may be a 15-page volume with several appendices, extra requirements, and so on. Only verbal pledges can sometimes turn into an international sales contract, although this differs from exporter to importer and vice versa.

However, it is recommended that exporters and importers sign into an international sales contract since foreign trade is fraught with dangers, and a sales contract provides legal protection through acceptable papers during arbitration in the event of a disagreement. The International Chamber of Commerce also recommends exporters and importers to write down sales contracts in order to minimize conflicts, and if disputes do arise, the ICC assists in the smooth progression of the arbitration procedure by providing solid evidence. In some nations, signing an international sales contract is required. All of these difficulties must be addressed in advance by the exporter in order to avoid any future unanticipated situations.

Description of the Export Order

An export order is a document provided by the importer in response to the exporter's pro forma invoice, in which the importer expresses his desire to acquire items/commodities/services from the exporter. It must include the essential aspects such as terms of payment, price, delivery date and schedule, product specifications, pre-shipment inspection, special packaging, labeling and marking, quality issues, items, quantity, shipping marks, marine insurance, and trade documents required for the trade deal, as well as the exporter's pro forma invoice/quotation number and date. Before confirming to the importer about his desire to complete the order, the exporter or his trusted management must correctly and thoroughly investigate the export order.

Export Order Acknowledgement

Customer is king, whether he is a domestic or international purchase, and he must be appreciated. Allowing a company or a chance to serve As a result, the exporter should write a brief thank-you note to the importer for the export order. The exporter should express his joy and appreciation to the importer as well. He could also state that he will contact the importer after thoroughly reviewing the export order. A thank-you letter should be official in tone and concise in length.

Examining the Export Order

"Prevention is preferable to cure." The same may be said for an export order. The exporter must carefully examine the contents of the export order; otherwise, he may have problems receiving payments due to quality disputes, specifications disputes, discrepancies in documents during letter of credit negotiations, or other circumstances beyond his and the importer's control, such as importing country exchange regulations, sanitary photo-sanitary regulations, and so on.

The following are the main parts of an export order that should be carefully studied.

1. Product (item):
2. Dimensions and details:
3. Inspection prior to shipment:
4. Payment Conditions
5. Marking, labeling, and special packaging:
6. Delivery & Shipment Dates:
7. Marine Insurance is number seven.
8. Documents

Export Quotations Clarifications

If the exporter is unhappy with the terms and conditions of the export order, he can request that the importer amend the clauses/conditions after a consensual discussion. Any of the following topics can be discussed with the importer by the exporter.

1. Payment Conditions
2. Cost
3. Schedule and Date of Delivery
4. Product Information
5. Inspection prior to shipment
6. Unique Packaging
7. Labeling and Marking
8. Quality Issues
9. Quantity of Items
10. Number of items
11. Marks on Ships
12. Marine Insurance
13. Any additional documentation that may be required.

Some phrases used in exporter orders, such as immediate delivery, excellent quality, rapid shipments, and so on, should be thoroughly investigated by the exporter.

The exporter normally does not set a deadline for receiving explanations and assumes that he will receive such clarification from the importer in a fair amount of time. However, there is no harm in

the exporter imposing a time restriction of, say, fifteen days or so for the importer to provide these explanations in order to expedite the operation. When the exporter receives the importer's explanations, he must confirm them with the importer before beginning work. The confirmation should be sent in the form of a printed form or in the form of a simple letter. The standard procedure is to reiterate the basic conditions on which the exporter accepts the export order in order to completely clarify the situation.

Conclusion

This study covered the Indian export documentation system, which is critical for both exporters and export managers to comprehend. The significance of complete and precise paperwork in export operations was emphasized. Documentation that is inaccurate or inadequate will result in significant financial and goodwill losses.

In India, export documentation has advanced significantly, notably after 1990. Prior to 1990, all paperwork was done by hand and was not well organized. The goal of an aligned sequence of papers is to print as many forms as feasible on the same size paper while keeping common elements of information in the same relative location on each form. Trade papers are aligned in a consistent fashion under ADS since they are based on the UN Layout Key. The Indian classification of export papers into Commercial and Regulatory documents was then described in detail, document by document.

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03

The Role of Endogenous Resources in a System of Good Rural Governance

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Abstract

Today, we are going through economic changes that are fundamentally altering the conditions of the world economy, as previous sources of growth have been exhausted, returns on productive capital have fallen, investment has declined accordingly, and all this has been compounded by the shock of the financial crisis. The core economies of the major industrialised countries are under increasing strain, partly because of the growing environmental concerns and partly because of the crisis in traditional production bases, which has been exacerbated. In this context, economic development based on endogenous resources and the development of local markets is becoming an increasingly important factor, as the use of locally generated income has become an inevitable economic strategy in many areas. In my study, I will try to put this issue in context and find links to the development of good governance systems.

Keywords: good governance, regional development, local economy.

Introduction

The growth period of the last decades has changed the scale of needs, the demands have changed, many new elements of consumption have emerged, which are natural needs with the spread of the idea and

institutions of the welfare state, and the closely related system of good governance is also in transition. All this is expressed in social and societal action (e.g. environmental movements), new lifestyle initiatives (e.g. new age), communities finding their own identity, and the growing need for autonomy and self-reliance, which is accompanied by the rise of regionalism. In this multifaceted context, the new regional development strategy has been seen in many areas as a way of exploiting intra-regional opportunities, potentials, renewing and developing own strengths (Káposzta-Tóth T, 2014).

Grassroots development, building on regional potentials as endogenous resources, is expected to create a new impetus for renewal develop programmes that are different from the previous ones, based on natural, environmental and regional economic endowments and conditions, by reassessing and reassessing them the socio-cultural traditions of the areas concerned will be integrated, and unused and untapped resources will emerge through the participation of the population in social decisions and actions. The new territorial policies focus on the endowments and potentials of regions and territories, which are available as endogenous resources for development and can be activated under the right conditions. The driving force behind this activation is the local government system, which is necessary for the functioning of a good state in the majority of the backward areas, and I therefore consider it a priority to examine the links between these two. There are different professional opinions on the interpretation of regional potential, with experts on the subject giving different names to the development actions associated with it: ‘development from below’, ‘selective autonomy’, ‘autonomous regional development’ (Enright, 1998). However, all these approaches are unified in that they reawaken the awareness of local and regional communities of their specific, ‘natural’ municipal-regional endowments, their productive traditions, the specific skills of the available workforce, and, by activating the political goals and cultural endowments of the region, they can gain comparative advantages over other regions, thus strengthening the demand for good governance (Aboelnaga et al., 2019).

Due to changes in resources, revaluation and socio-economic conditions, these endowments can be the carriers, the agents of regional renewal. Previous theories of growth neglected endogenous resources, as the nature of the division of labour meant that resources (capital, power, information) were concentrated in the centres, at the top of the settlement hierarchy, which went hand in hand with a strong specialisation of regions (Ceryová et al., 2020).

Demand for peripheral areas was only due to the resources they favoured, and thus they were tied to traditional export sectors, whereas they could have been exploited in other ways to contribute more innovatively and efficiently to the development of the region and to the promotion of good governance. Innovation ideas have also been stalled and not developed due to communication barriers, lack of market knowledge and underdeveloped technology, resulting in a passive entrepreneurial attitude. In the end, regional resources and capabilities were left 'fallow' for demand factors outside the region, while many functions were depleted or even degraded, or at best merely preserved (Nagy-Siphesihle, 2021).

Accordingly, the aim of the new spatial development is closely linked to the system of good governance, i.e. the focus is not on re-mobilising the endowments of highly developed regions, but on the utilisation and activation of additional-endogenous-resources and potentials within the region. The basic problem of development, in my opinion, is how to integrate territorial factors into the system of social production and activities through efficient allocation, so that their functioning is optimal under the given economic and social conditions (Szeberényi- Papp-Váry, 2021).

The roots of this theory lie in the concept of generative growth, which states that the growth of the larger territorial unit can be derived from the autonomous development performance and capacity of the regions, while regional economic development based on comparative advantages can be understood as a distribution of aggregate growth across regions. Regional potentials as endogenous resources are very

broad. It can be assumed that “the interpretation of the combined system of geographical, environmental, historical, cultural, social and economic factors in individual localities and regions and the factors influencing the activation of these value domains” (Rechnitzer, 1998) can play a decisive role in setting a given territorial unit on a modernisation path. Each of these endogenous factors can influence the quality of life either directly or indirectly, and are therefore closely linked to the system of good governance, and can be found in the other tree, or can be the result of the interaction of the potential components. The geographical potential already defines the market opportunities or links of a region. This factor can be used to characterise transport and communication infrastructure, its relationships and constraints (Gjokaj et al., 2021).

The labour potential of the region is already reflected in the composition of the population, but it also limits the socio-cultural endowments and affects the capital stock and its activity. The endowments inherent in the population of settlements can be found in the capital potential, but also in the infrastructure systems, and can have a repercussion on the labour force and the human dimensions. It can be seen that these endogenous factors can be interpreted in isolation, but are interrelated through their mutual determinants, and can even trigger activation processes, trigger or carry the potential for renewal of a given space under certain social and economic conditions. Spatial potentials can be interlinked, creating interdependencies between them, networks that can open up new spaces for activation and generate other, additional endogenous resources. Territorial potential is therefore the sum of the endogenous resources of a region. These assets have been preserved, hidden or left fallow in past economic relations and development models. It is my conviction that it is the task of good governance to link them, to understand their system and to integrate them into development. In changed circumstances, they can be activated by exogenous influences that are naturally suited to them, and can be the vehicles for the renewal of territories. Their interrelationships, overlaps and

networks can offer new dimensions to regional development if dynamic interactions are reinforced by exogenous factors, i.e. synergies can shape a new development path for spatial renewal.

The role of endogenous resources in the development of the local economy and public administration

The local economy is the lowest level of economic activity where production and consumption are directly linked. This type of economy is both traditional, because it still exists in many parts of the world, and innovative, because it is increasingly being rediscovered as an alternative to consumerism and as a means of economic development in areas facing economic difficulties (Porter, 1998, 2000).

Historically, the local economy has been fundamentally determined by local conditions, with no long-distance transport of goods and no spatial separation of production, processing and consumption. The reorganisation of the local economy can be achieved through business promotion, cooperation between businesses, raising public awareness, promoting direct producer-consumer relations, and community organisation to raise awareness of the contribution that people themselves can make to the economic recovery of their own environment. The explicit aim is to ensure that the results of economic activity are locally exploited, either as a product to be bought, as a service to be provided, or as jobs and income, in which the local government and public administration system has a significant role to play (Káposzta et al., 2017).

In other words, local economic development is not simply local, but economic development of local interest, in which the interconnectedness of good governance is an important factor. It aims to support the local market by stimulating local businesses and economic activities for the benefit of the local community. Its aim is therefore not exclusively economic, but essentially community and social: to improve the quality of life of local people, not to maximise profit at any cost. It can therefore be called local community

economic development, referring to both its approach and its methodology. Ideally, local economic development should be a local initiative, but may initially require external intervention and expertise. This depends on the availability of skilled and committed professionals in the area to act as ‘drivers’ for the initiation and organisation of the process, and on the availability of sufficient trust capital to mobilise the local community (Porter, 1998, 2000).

This local market required ‘local farmers, artisans, craftsmen, small artisans, retailers’, thus providing employment. The importance of boosting and developing the local economy is therefore still of paramount importance today. There are many benefits, including environmental, economic and social, that justify the creation of a competitive local economy, in which I am convinced that the system and role of good governance is indispensable. In today’s economic system, the local economy and local economic development are the lowest level of the economy where production and consumption are directly linked, i.e. in the local space. This type of local economy is both traditional, because it still exists in many parts of the world, and novel, because it is being rediscovered as an alternative to consumerism. Until modern times, the economy was fundamentally determined by local conditions. The long- distance transport of goods and the spatial separation of production, processing and consumption were much less prevalent than today. Individual livelihoods relied increasingly on self-sufficiency (Lengyel, 2010).

In rural areas, people produced a large part of their own food. This local market required local farmers, craftsmen, artisans and traders, thus providing employment. Today, by contrast, the local market is mostly external and global. The ‘local market’ is becoming less and less sustainable as the economy becomes globalised. Local producers and entrepreneurs sell most of their products outside their localities and regions, and the local market is typically dominated by goods transported from elsewhere, often very far away (Goda-Tóth, 2013).

This is both a cause and a consequence of the fact that in many ‘deprived’, backward settlements, the local economy has almost

disappeared, limited to a few businesses and shops, while many people live without a job and, as a result, have low consumption. All these factors illustrate the systemic role of local government. In the face of all this, cooperation plays a key role in local economic development. One of its most important features is that it involves local actors (economy and society) working together to stimulate local economic activity, implementing actions that are adapted to local conditions, building on local resources, and seeking to meet existing local demands and new ones arising from new situations (Áldorfai et al., 2017).

Joint thinking and joint action by business, local government and the local community can help to build on specific local assets and enable the community to preserve its values and opportunities in changing local and external circumstances. This also means improving its adaptability. At the same time, it is always a pro-active adaptation, whereby local values, traditions and resources are preserved and used sustainably, and the needs of the local population are met in a way that is consistent with the requirements of environmental, social and economic sustainability in the long term (Siphesihle- Nagy, 2021).

Cooperation can also be expressed in a territorial dimension: why is it necessary to develop the local economy in a global world? Local markets are a way of counteracting the negative consequences of globalisation, and local supply systems are a way of counteracting the negative consequences of globalisation, based on the most direct and shortest possible sales- consumption relationship between producer and consumer. The increasing number of grassroots local markets and local supply initiatives in Hungary show that, with proper organisation, the sale of goods can be made secure, making production, supply and the livelihoods of families living from these activities predictable. Perhaps most prominent in rural areas is the emphasis on local food products, rich in flavours and aromas, of high quality and in demand both at home and abroad, yet there is a growing predominance of imported goods and a decline in domestic products. These factors are also playing an increasing role in

strengthening rural security. Local or direct sales, direct producer-consumer relations, the creation of small-scale producers and local processing are still not very common in Hungary, so I consider the work of local government organisers to be important, as the decentralised food economy has many advantages: locally produced food (fruit and vegetables) is fresher (harvesting takes place at the physiological stage of ripening), requires less processing and preservation, and thus retains its nutrients better and is healthier. More diversified, polycultural local food production has a higher tolerance to environmental stresses and is less prone to higher levels of contamination. Local specialities are not only beneficial from a health point of view in counteracting the adverse effects of food monoculture, but also have a significant economic stimulus effect (Nagy et al., 2018).

The question arises: is there an economically viable local economy as opposed to the current global one? The answer obviously depends to a large extent on the economic environment (subsidies, regulations), but the results of full life-cycle analyses often support the advantages of alternative economic and production systems. Supporting the local economy by preserving jobs and creating new ones is an important tool for rural development and can also contribute significantly to population retention (Swinburn, Goga-Murphy, 2004).

The most important community economic benefit is the local multiplier effect, which helps the development of disadvantaged areas in particular by keeping a large part of the income generated in local communities and generating new income, thus helping to achieve the objectives of local good governance. The development of the local economy also strengthens social relations and solidarity. The main component of a sustainable local economy is the preservation of local, traditional farming knowledge (patterns of sustainability) and the practical application of the most appropriate and useful in the current situation, based on a wide range of community resources (natural, economic, cultural, political, social, individual). Strengthening communities is the key to building and rebuilding a viable local

economy, as weak communities lead to a vulnerable society characterised by increased social injustices and socio-economic tensions and conflicts, which in a cycle, inhibit the growth of social capital (Todaro-Smith, 2006), making it difficult to perform the functions of good governance. Overall, local economic development has a number of positive effects that are of relevance to territorial and rural development:

- It generates local entrepreneurial activity
- It has a job-creating and job-saving role
- Mobilises the local community and expands the local cooperation network
- Leads to the sustainable use of local resources
- Strengthen local identity and local patriotism
- Increases the population retention and improves the liveability of the municipality
- Regenerates town-rural links.

The economic usefulness of local products

In addition to the benefits of local economic development, it is worth taking a detour towards local products. Today, perhaps the most fashionable and best known tool for local economic development is the production and development of local products and, related to this, but in our case treated as a somewhat separate and distinct group of tools, the activities of marketing and promotion of local products (Kajner, 2009). Promoting the production of local products is primarily aimed at supplying the population of the area, but interventions can also be aimed at developing products that can be sold (Lengyel-Deák, 2002). This requires taking account of local conditions and traditions, identifying local values and skills, and drawing up a register of values and an inventory of values, which the institutions of good governance have a very important role to play in drawing up and constantly expanding. There may be a need to develop and protect local values and potential (e.g. in the context of a nature park) and to identify local drivers (e.g. market research, SWOT

analysis). In the development of local products, it is of paramount importance to promote organisation along value chains, including processing, storage and transport activities, in addition to promotion and marketing (Tóth, 2018).

The promotion of supplier and buyer networks and cooperation is a key element of this process. Many other measures can be taken to support the marketing of local products, from the development of local markets, market infrastructure and market services, to the development of buying circles, the development of local product images, the development of local product sample shops (locally or in nearby towns, possibly online), or the setting up of local product shelves in supermarkets (Lengyel, 2010).

It also includes the widespread use of marketing tools, local product demonstrations at village fairs, festivals and fairs, and the development of model farms that can be visited. The latter have the advantage that, in addition to encouraging the purchase of local products, they contribute to the preservation of local values and farming traditions, strengthen local ties and identity, and can also improve tourism potential (Káposzta-Tóth T, 2014).

In rural areas, direct and online marketing opportunities are of particular importance. In rural and underdeveloped areas, promoting a gradual shift away from subsistence and subsistence farming towards higher levels of the value chain, and the development of a diversified agricultural economy per landscape unit can help to produce quality, marketable local products and to develop local brands. Local market supply should be encouraged to minimise transport costs and the environmental burden of transport. In the light of the above, I believe that the development of local markets, the implementation of local marketing initiatives, the local cooperation that triggers them and the formulation of local economic development strategies that include local marketing are important factors in the rural economy. In order to implement the economic development strategies that are being developed, it is necessary to assess local production capacity, local

needs and sales opportunities, to link production and sales processes (cooperatives, restaurants, public catering, cooperation between local authorities) and to plan production. I also consider it important, in addition to providing opportunities for local markets, fairs and pavilion sales, to introduce local product trademark systems and to raise awareness of local products.

Conclusions

All this shows that rural economic development cannot be achieved without the cooperation of local economic actors. In addition to the economic, educational and service systems of these actors, a development model capable of fulfilling all the tasks of a sustainable economy can be developed through the joint cooperation of local government, other administrative bodies involved in good governance, and the rational and intelligent strategic planning of EU and national funding. I believe that the development of an organised, traceable, national production, processing, logistics and marketing strategy and system, based on a sub-regional level, can bring development to the economy of a given area, thus also significantly contributing to the strategic tasks of good governance. In my opinion, it is necessary to encourage the creation and development of small-scale processing capacities based on local products and production, combined with the strengthening of family farms and the development of local marketing. The aim is to increase added value and to keep a proportionate share of income local, thereby improving local living conditions. This will require close cooperation between local, key social players, local heroes, businesses and local authorities.

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04

Epiestemology of Ecofeminist Perceptions: Reason and Experiences

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Abstract

Epistemology is a branch of philosophy concerned with knowledge: what do we know? How did we come to know what we know? How do we get knowledge? What distinguishes some knowledge from others? Epistemology, like many other academic subjects, has traditionally been male-dominated, emphasising and favoured impersonal theoretical and scientific knowledge. In response, feminist epistemology "studies the various effects of gender norms and concepts, as well as gender-related interests and experiences, on the production of knowledge." Feminist epistemology contends that all knowledge is situated, in contrast to the traditional understanding that there is such a thing as universal knowledge, and that this type of knowledge is the norm. In this work, I will analyse the claims made by conventional and feminist epistemologists in an attempt to draw me in. My long-term objective is to establish the groundwork for an ecological feminist epistemology. To do this, I will assess the ideas of reason, objectivity, and values, as well as the knower's position in social, political, and natural settings.

Keywords: Epistemology, knowledge, ecofeminist, gender.

Background

Traditional epistemology defines knowledge as justified true belief, however this definition is problematic at best and inadequate and

exclusive at worst. There are issues with this definition for each of its constituent words. What mechanisms, for example, are used to justify beliefs? What characteristics enable a belief to be justified? When is justification sufficient? What if a belief is correct yet incorrect? Is this still considered knowledge? What if I am aware of something but do not believe it? Is knowledge really wisdom if I refuse to embrace it?

Traditional epistemology likewise places a high value on objectivity since it is critical to the ideal sort of knowing that it promotes. According to epistemologist Thomas Nagel, self transcendence is fundamentally being outside of oneself if one wishes to escape the true risk of knowing just that one knows nothing. He writes that "a self-transcendent concept should ideally explain the following four things:

- How the world is?
- What we are?
- Why the world appears in some ways to beings like us and in some ways are not the same?
- How can beings like us arrive at such a notion?

An objective perspective of the world is the finest picture of the world, and objectivity allows us to gather the most information in this world. For various reasons, this idea is questionable.

Nagel's thesis of being visible from everywhere is based on the assumption that the mind exists outside of the body. But what if the mind and body aren't separate? What if the mind is completely reliant on the body? In their book Philosophy in the Flesh, cognitive linguist George Lakoff and philosopher Mark Johnson proposed that the mind is embodied; that the fundamental structure of reason stems from the account of our existence. With the assertion that logic comes from the body and does not travel through the body, this theory directly challenges orthodox epistemology. Because the nature of our physical experiences determines the patterns and structures of our thinking, we simply cannot separate physical, personal experiences from logical reasoning. Reason, according to Lakoff and Johnson, is not a

transcendent characteristic of the universe or a distinct intellect. Instead, it is defined by the qualities of our human body, the unique description of our brain's neuronal structure, and ours in the environment. It is significantly affected by the particulars of daily functioning. Knowledge isn't the only thing that can't be abstracted. The explanation is entirely reliant on the body. To mention a few, Medium works extensively. Any following thoughts will eventually be embodied as long as we rely on current embodied concepts.

Knowledge & Reason: Human Experience

However, Lakoff and Johnson's argument has some unneeded implications. If the body is where the mind takes root, then individuals with a better body have a better mind as well. Furthermore, since reason is what distinguishes us as humans, people with superior brains, who are more logical, are more human. So, if a better body equals a better mind, and a better mind equals a better person, persons with better bodies are more human. Obviously, this theory is a slap in the face to our post-Enlightenment sensibilities and has hazardous ramifications if put into effect. What we shall witness is the dehumanisation of all those who are not human enough, lowering them to the rank we already designate to animals. Lakoff and Johnson, on the other hand, dismiss this view. Their reasoning is evolutionary and understanding, which fundamentally alters our connections with other animals and rationalises our perspective of humans in a new way. Thus, reason is not the essence that distinguishes humans from other creatures, but it does maintain us on a level with them.

According to Lakoff and Johnson, the cognitively unconscious occurs continually in our brain, but since it is unconscious, we may not even begin to comprehend it. It's there, and everything we're experiencing makes sense. All unconscious mental operations connected to perceptual systems, meaning, inference, and language are correctly described by the phrase cognitive unconscious. Because these operations are occur on an unconscious level. We may be completely

unaware of what is going on in our heads. It is a misconception to believe that pure philosophical contemplation can decrease the depths of human comprehension. Traditional philosophical analytical approaches, including phenomenological introspection, do not come close to helping us to understand our own minds. According to Thomas Nagel, there is no detailed imagination everywhere. There can be no view from anyplace since the body cannot be there, and hence the mind cannot be anywhere; there is just no meaning. We have no physical, universal, objective vision, and even if it existed, we have no way of knowing about it.

If we abandon the concept of universal, bodiless knowledge and reason, all that remains is local, contextual knowledge. This is not to argue that in the absence of universal knowledge, we should settle with situated knowledge, which is merely a matter of opinion. Rather, localised knowledge may endure knowledge evaluation tasks that universal knowledge cannot. And can do so much more in terms of self-reflection and authenticity. In conventional epistemology, for example, the view is maintained that objectivity is an intrinsic aspect of knowledge and that it is value-free, impartial, and definite.

However, feminist philosopher Sandra Harding believes that the information we regard as objective is really useful. Why there are so many sexist and andocentric biases in major scientific descriptions and interpretations of nature and social life if the natural and social sciences are intended to be value-free? Science, which we use as our paradigm for knowing, is constantly interested in and initiated by society. Sandra Harding contends that even our standard idea of fairness is insufficient to attain the goals it seeks. It does not properly reject all data, and those values do make it through the net are invisible.

Belief in the honesty and trustworthiness of other thinkers, researchers, and scientists is essential for knowledge growth and creation. Hardwig contends that humans cannot know anything without faith. As children, we depend on our parents' epistemic

authority. We have faith in our instructors at school. We have faith in our instructors at university. We rely on the publications of other researchers as researchers. As long as we continue to develop knowledge, these patterns will endure in every interaction that impacts how we produce it. Without faith, knowledge collapses in itself since it is constantly immersed in a complex and limitless web of belief. Hardwig contends that those who trust tend to know better. When knowledge is limited to the strength of a trust-based relationship, ethics becomes inextricably linked to epistemology.

The Ecofeminist Perspective: Epistemological Narrative

Ecofeminism is a social, political, ideological, personal, and spiritual movement that opposes the simultaneous oppression of nature and women and works to abolish the patriarchal systems that perpetuate such oppression in order to preserve both women and environment. They are regarded as sensitive, courteous, and thoughtful creatures. of respect and concern, and aspires to empower women and nature in societal institutions.

Ecological feminist philosophers define eight boundary conditions that ecological feminism uses to establish a foundation for a distinct feminist and ecological ethics. And it is critical to grasp the boundary constraints established for ecological feminist ethics and to construct an epistemic theory in accordance with those circumstances..

- Ecofeminism is, at best, anti-nature. It opposes any nonhuman nature manner of thinking or behaviour that displays a reasoned, values-based, or dominating viewpoint.
- Non-hierarchical interactions must be incorporated and emphasised in ecological feminist epistemic ideals. When a claim to knowledge is interpreted as a claim to authority, there is an epistemic relationship with others based on mutual respect and the preservation of distinct knowledge.

- The structure of ecological feminism is pluralistic. It perceives and maintains distinctions between people and, at least, certain components of nonhuman nature.
- Ecological feminism regards theory as theory in process.
- Ecological feminism is inclusive. It emanates from the voices of women. Those who have experienced nature's damaging dominance and how that dominance is tied to their subjugation as women.
- Ecological feminism makes no effort to provide an 'objective' point of view.
- Ecological feminism offers a core area for values such as compassion, love, friendship, trust, and suitable interpersonal values. It holds that our interactions with others are crucial to our understanding of who we are.
- Ecological feminist epistemology must finally adopt a here-and-now perspective. This approach acknowledges human experience not just as information, but also as a temporal location, as the result of a plethora of events that precede and shape it. It also acknowledges knowledge as socially and geographically situated, and so somewhat peculiar to a knower in a given social position in a specific culture.

Conclusion

The variety of strands in our collection strengthens and expands our awareness of the world, ourselves, and others we know. This tapestry's infinite also provided limited knowledge from limited brains. This implies that the tapestry is always evolving. It has always been a work in progress, and it will never be finished unless personal experiences are incorporated. The variety of events adds to the tapestry rather than detracts from it. Within an ecological feminist perspective, knowledge is ultimately generated through listening to, appreciating, and learning from the stories of others.

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05

Quo Vadis of Firm Digitalization in Slovak Agriculture?

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Abstract

In this paper, we examined the position of Slovakia and businesses in the agricultural sector using the Digital Economy and Society Index (DESI), which allows us to measure a country's progress towards a digital economy and society compared to other countries. The main reason for choosing this index was its geographical coverage, as DESI covers all EU countries. The Digital Economy and Society Index is an online tool for measuring the progress of EU Member States toward a digital economy and society. DESI combines 44 indicators (pillars) and uses a system of weighted criteria to rank each country based on its digital performance. Slovakia ranked 22nd out of 28 EU Member States in 2020 (the UK is still included). Although some indicators have improved, Slovakia's score has fallen. Most indicators have not improved enough to keep up with the EU average. As a result, Slovakia lags behind the EU average in human capital, the use of internet services, and digital public services. Slovakia is performing well in fast and ultra-fast broadband coverage, the share of Information and communication technologies (ICT) professionals has increased and the number of people who have never used the internet has decreased. However, this will certainly change in the coming period due to the COVID-19 pandemic. Many businesses have had to switch to online trading to sustain themselves in times of crisis.

Keywords: digitalization, digital enterprise, information and communication technologies, knowledge economy and innovation

Introduction

Compared to other sectors, agriculture has several specificities. These include the impact of climatic and soil conditions, seasonality in production, and the associated consequences. It is always clear at the beginning of the marketing year what the objective is, but it is never certain whether this objective will be achieved. That is why, perhaps more than in other sectors and branches of the national economy, farmers increasingly need to use information and communication technologies for rational management in the course of changing conditions in the production process. Nowadays, it is common to use technological devices such as various types of weighing systems, feed wagons in livestock production, global position system (GPS) in mechanization, and various stock management technologies on farms. Modern information systems automatically integrate these sub-systems and their operational data can be used directly in farm management. Mobile access to data, as well as data entry into the Information system (IS) directly in the field, is a common requirement for the economic management of an enterprise. Any data from the IS can be processed on the mobile platform. The fourth industrial revolution (Industry 4.0) is characterized by the massive use of information and communication technologies in industry and agriculture. According by Hoppman C and Schmitz M, (2020) digitalization is defined as vertical integration of business models in one organization implying introduction of digital technologies at all strategies: development, procurement, production, logistic and service. It is the next step in the development of robotics and information technology1. Agriculture as one of the sectors of the national economy necessarily requires a piece of fully active information and communication system that reflects the increasing digital needs of farmers. Strengthening the organization of actors, structuring the exchange of knowledge and information, and their

implementation, as well as digitization, are key to a rapid digital and green transformation to more sustainable agriculture in Slovakia. The future role of farms should also include tailored services on sustainable management options, climate impacts and adaptation options, assistance with launching and facilitating innovative projects that respond to farmers' needs, including digital technologies, and last but not least helping farmers to adapt to the digital environment. Much faster broadband connections need to be made available in rural areas of Slovakia, as they can help with job and business creation, generational change, and the provision of support services that can improve the overall quality of life in rural areas[1]. Digitalization is also directly affecting agricultural production. Data are automatically captured and recorded, measured directly by sensors on various production equipment, to manage production, both by humans (zootechnical records) and by the equipment itself (e.g. automated lines or even robots). A higher level of digitization is automation and subsequent robotization. It used to be said that robots were the preserve of the automotive and electrical industries, but the truth is that robots have also begun to be applied in agriculture. Today, several robots are working in agriculture (milking robots, feed preparation robots). Industry 4.0 will also have an impact on agriculture, with individual devices communicating autonomously with each other and organizing production processes independently. For many years there has been talk of third-millennium farms where on-farm production will take place without human intervention[2]. According by Dayioglu M.A et al., (2021) the transition from primitive to digital is given with road maps covering agricultural and industrial revolutions at four stages on timeline. Digital agriculture combined under precision agriculture and Agriculture 4.0 are handled based on domains covering monitoring, control, prediction, and logistics. Digital technologies are explained with application

[1]Commission recommendations concerning the strategic plan of Slovakia's CAP: https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/analytical-factsheet-eu-level_en.pdf.

[2]https://link.springer.com/article/10.1007/s00550-020-00509-x.

examples such as the Internet of Things (IoT), cloud computing, big data, artificial intelligence, decision support systems, etc. Wearable sensor technologies, real-time monitoring systems tracking whole conditions of animals in livestock, the IoT-based irrigation and fertilization systems that help enhance the efficiency of irrigation processes and minimize water and fertilizer losses in agricultural fields and greenhouses, blockchain-based electronic agriculture, and solutions based on drones and robotics that reduce herbicide and pesticide use are handled systematically.

In modern conditions, the innovative development of agriculture has reached a high level and ensures a steady growth in agricultural production. According to Alekseeva, S. et al. (2021) the identification of new reserves for the growth of agro-industrial production will give a new impetus to the development strategy of the agro-industrial complex, one of which is the digitalization of agriculture as the basis for the stable functioning and growth of its efficiency. The work of the agricultural sector directly affects the employment, quality and standard of living of millions of Russians, as well as the food and national security of the country. One of the goals of the implementation of the agro-industrial complex development strategy is its digital transformation, which correlates with the national policy to accelerate the introduction of digital technologies in the economy and social sphere.

On different four scenarios of digitalization of the agri-food sector were developed for Europe in 2030 note Ehlers, M.H et al. (2022) They comprise of: (a) digitalization of the sector following current directions at current rates as a baseline scenario, (b) strong digitalization of a regulatory government, (c) use of autonomous farming technology and (d) digitalized food business.

These explorative scenarios entail various gaps in achieving European agricultural policy goals. Dayioglu, M.A et al. (2021) in his article Digital Transformation for Sustainable Future-Agriculture 4.0 states that in the last few years, while the COVID-19 pandemic affects food

supply chains around the world, the agriculture sector also has faced many global problems, such as global warming, environmental pollution, climate change, and weather disasters. It has known that technological opportunities are available for human beings to get out of these predicaments, solving the interconnections between food-water-energy-climate nexus, and achieving agricultural transformation from traditional to digital. The transition from primitive to digital is given with road maps covering agricultural and industrial revolutions at four stages on timeline. Digital agriculture combined under precision agriculture and Agriculture 4.0 are handled based on domains covering monitoring, control, prediction, and logistics. Digital technologies are explained with application examples such as the Internet of Things (IoT), cloud computing, big data, artificial intelligence, decision support systems, etc. From precision agriculture to Industry 4.0 Unveiling technological connections in the agrifood sector Trivelli, L et al. (2019) states that purpose circumstances that are have a significant impact on it. In particular, environmental sustainability related to the increase of worldwide population, and market demand for agricultural products (with consumers more and more aware about cultivation and breeding techniques and interested in healthy and high-quality products) represent two of the key challenges that the agricultural sector is going to face in next years. In such a landscape, technological innovations that can support organizations and entrepreneurs to face these problems become increasingly important, and Industry 4.0 is the most striking example. Indeed, the Industry 4.0 paradigm aims to integrate digital technologies into business processes to raise productivity levels and to develop new business models. In its scale, scope, and complexity, this transformation is as fundamental as any technological change in the past. It is not yet entirely clear how this change will evolve further, but what is clear is that the response to this change must be integrated and comprehensive, involving all stakeholders on a global basis from the public to the private sector (Industry 4.0en, 2018). One of the main ideas why this philosophy and therefore this concept-Industry 4.0-has taken hold and why it has

started to take hold is the expected increase in productivity, production efficiency, reduction in energy and raw material intensity of production, optimization of logistics routes, smart infrastructure and many other related, interconnected things related to increasing competition and pressure to reduce consumption in production in conjunction with the use of new technologies Čierny, M. (2017). ICT tools enable the storage, processing, analysis, and sharing of vast amounts of data. In terms of benefits to businesses, the information available from enterprise data enables managers and employees to make decisions quickly and accurately so that they can effectively manage operations and respond quickly to business opportunities or threats. Communication networks also allow decision-makers in different locations to easily collaborate when they need to make joint decisions. The relationship between crop management and online farm data and its use has been addressed in the research work of Walters and J.R and Light, K. (2021). According to the authors Gavrila, S.G and Ancillo, A.D. (2021) digitalization and its speed of implementation in individual sectors of the national economy is also influenced by the COVID-19 pandemic was found to be an unfortunate accelerator, regarding entrepreneurship and innovation as a digitization and digital transformation lever, with the results of the Internet domain registration analysis as a reliable indicator. Value confirms the existence of new non-invasive approaches to complementary information, such as Internet domain registration analysis, that could serve as an early and quick indicator of innovation and entrepreneurship initiatives within business activities. Other equally important factors include the impossibility of the region's existing infrastructure to directly affect the internal component of the digital transformation of agricultural production, the low share of agricultural employees with a high level of digital literacy, as well as the lack of information technology specialists with additional knowledge of agricultural features. Nemchenko, A.V et al. (2020) states in his publication, that one of the goals of the implementation of the agro-industrial complex development strategy is its digital transformation, which correlates with the national policy to accelerate

the introduction of digital technologies in the economy and social sphere. Digital technologies will significantly change the quality of technological process control and decision-making at all levels. The real prospects of the domestic agricultural sector in the direction of digital transformation include the transition to a qualitatively new level of use of agro-industrial technologies-“smart agriculture”, including precision farming, smart farms and others using elements of artificial intelligence.

Gscheidle, V. et al. (2022) insights into the significance of digitalization for farms in Germany and provides an overview of the current state of play in the use of digital technology in crop and livestock farming. The analysis of the results shows that most farmers surveyed recognize the importance of digitalization and that they expect its importance to increase significantly by 2030. For crop production farms it is currently IT systems (84.5%) and support systems for data capture, data management and the analysing of data (69.6%) which are most important. Legal structure, the amount of land farmed, and the level of education are structuring parameters in this context. Cattle farms are increasingly relying on sensors to collect process data of technical equipment (43.8%) and for documenting animal activities (42.9%) while pig farms are using automatic ventilation systems (96.0%) and automatic feeder systems (94.0%).

The digitization of the agri-food sector is a strategic priority in the political agenda of European institutions. The opportunity to improve the competitiveness and efficiency of the sector offered by new technologies comes together with its potential to face new economic and environmental challenges according Jorge Vazuez, J. et al. (2021).

Chiles, R.M et al. (2021) also states that the emergence of the “4th Industrial Revolution,” i.e., the convergence of artificial intelligence, the Internet of Things, advanced materials, and bioengineering technologies, could accelerate socioeconomic insecurities and anxieties or provide beneficial alternatives to the status quo. Our

exploration of this space involved multi-sited ethnographic research in both (a) the cellular agriculture community and (b) alternative economic organizations devoted to open source licensing, member-owned cooperatives, social financing, and platform business models. Upon discussing how these latter approaches could potentially facilitate alternative sociotechnical pathways in cellular agriculture, we reflect upon the broader implications of this work with respect to the 4th Industrial Revolution and the enduring need for public policy reform. The relationship of crop production management and online farm data and their use was addressed in their research work Walters, J.R and Light, K. (2021). The Online Farm Trials (OFT) database is a digital database of crop research field trial data from across Australia that has the potential for use as a discipline-specific source of grey literature to inform systematic reviews and meta-analyses. However, according by Duncan, E. et al (2021) the idea of farmers leveraging digital infrastructure in their operations is not new, as agronomic research in this vein has existed for over 30 years. Contemporary discourse in precision ag tends to favour emerging digital technologies themselves over their embeddedness in longstanding precision management approaches. This discussion ultimately helps us name a larger dilemma: that the smart agricultural economy is perhaps less about supporting land and its stewards than promising future tech and profits. For use a geographic information system (GIS) Based Land Suitability and Gross Value Evaluation pointed out by Cullu, M.A et al. (2022). The era of digital information through electronic media and the flow of information through the virtual world network system has now penetrated remote villages. Dissemination of agricultural technology information by utilizing the internet network (online) greatly assists agricultural extension agents in carrying out their main duties by interpreter Umbara, D.S et al. (2021).

Materials and Methods

The research on the use of information and communication technologies in enterprises in the agricultural sector in Slovakia will

be aimed at assessing the state of digital transformation in agriculture, which should serve not only to solve the economic, managerial, and organizational problems of enterprise development but also determine their contribution to the implementation of the Industry 4.0 strategy and the socio-economic development of enterprises. The Statistical Office of the Slovak Republic collects data on the use of information and communication technologies in all key sectors. However, there is a lack of data for the agricultural sector. There is a lack of data on the use of computers, internet connections, the use of applications, social networks, or websites. For this reason, a questionnaire survey focusing on agricultural enterprises and the use of ICT resources was conducted in 2016-2020.

To achieve the objective regarding the analysis of the DESI index by Kaufman, L. and Rousseeuw, P.J (2005) it was necessary to aggregate the data sources from the European Commission website and create the necessary database for further processing. The DESI (Digital Economy and Society Index) is a composite index that summarizes indicators of Europe's digital performance and tracks developments in the digital competitiveness of the European Union Member States. In this paper, we assess the horizon from 2014 (the first year of measurement) to 2020. It covers all EU Member States and data are still available for the UK, although it has left the EU. The DESI consists of five basic dimensions:

- Internet connection.
- Human capital.
- Use of internet services.
- Integration of digital technologies.
- Use of public services.

The resulting DESI value for a country is calculated as follows:

DESI = Internet Connection*0.25* + Human Capital*0.25* + Use of Internet Services*0.15* + Integration of Digital Technologies*0.20* + Use of Public Services*0.15*
* Value of weights determined by experts

For the DESI, there was a slight change in methodology in 2018. Using the MIN-MAX method, the data were recalculated to use a scale of scores from 0 to 100 (0-lowest score, 100-highest score). Further, for comparability, it was necessary to normalize the data and apply the current weighting system for each dimension for both indices. A semi-log model was used to detect the growth rate for comparing the changes in methodology with the actual data. This model is one of the growth models and is standardly used to calculate the growth rates of various variables.

The survey on the use of information and communication technologies in enterprises is regularly conducted by the Statistical Office of the Slovak Republic. As these publications do not include surveys for the agricultural sector, the questions in the questionnaire were chosen so that agriculture could be compared with others. The questions (Table 1) of the questionnaire were formulated as follows:

Table 1: Questionnaire questions

A	General data on the company
B	Do you and your employees use a computer at work?
	Do you and your employees use the internet at work?
	What type of connection do you use?
	Does your company have its own website?
	For what purposes do you use your website?
C	Do you use any information management tools?
	Do you use e-commerce in your business?
	For what purpose do you use e-commerce?
D	Do you use cloud computing services?
	How do you use cloud computing services?
	Do you use RFID - Radio Frequency Identification?
	How do you use RFID services?
E	What percentage does expenditure on the purchase or renewal of ICT assets represent of total expenditure?
	Comment on the level of agreement or disagreement with the statements on ICT.
F	Do you use social media to promote your business?
	Which social media or social media tools do you use?
G	Are you know the term "Precision Farming"?
	Does your company make use of the possibilities of precision farming?
	Which precision farming tools do you use?
	Do you use any of the mobile application in connection with precision farming?
	Which application do you use?
	Provide your level of agreement or disagreement with the statements about precision farming.

Source: Own processing

The representativeness of the sample was verified using the Chi-square test of goodness of fit against the actual number of enterprises. The result of the test confirmed the representativeness of the sample set. The existence of dependence between identification and opinion questions was verified using the Chi-Square test. The opinion questions of the questionnaire survey defined in the Likert scale were verified by a reliability test. This test is used to assess the reliability of the questions and estimate the internal consistency of a set of variables in terms of range. Cronbach's alpha coefficient is the most common measure of internal consistency. To summarize the collected data, descriptive statistics (mean, mode, median) were used. MS Excel and SAS were used in the analysis of all data.

Results and Discussion

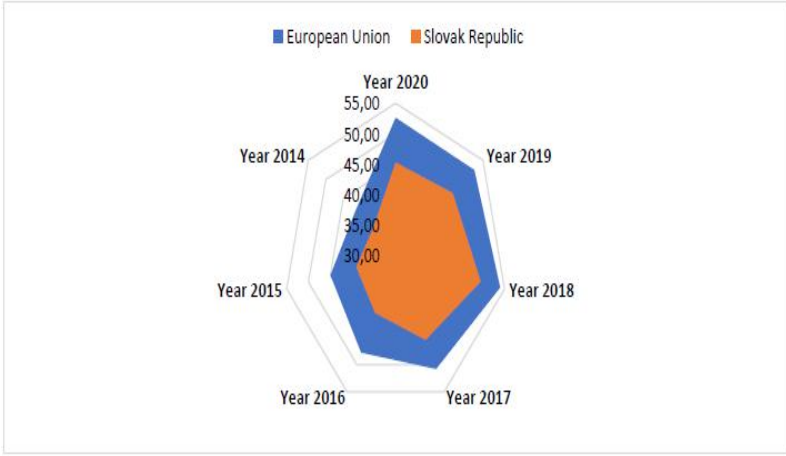
All work activities carried out by economic entities in Slovakia are subject to SK Industry 4.0 throughout the organization digitizes and integrates processes in the vertical direction from product development, through purchasing, to production, logistics, and services. Within production, data on operational processes, process efficiency, and quality management as well as short-term planning are available in real-time, can be supported by augmented reality, and optimized in an integrated infrastructure of information systems within the production company.

The Digital Economy and Society Index (DESI) is an online tool to measure progress EU Member States towards a digital economy and society. DESI was first calculated in 2014, based on data from 2013. DESI combines 44 indicators (pillars) and uses a system of weighted criteria to rank each country based on its digital performance. It collects a set of indicators that are in different digital country agendas in Europe. The indicators are not immutable, as evidenced by the modification of the index over the years. The index is divided into five main dimensions, which in turn are composed of pillars. DESI scores range from 0 to 1 and 0 to 100, respectively, with the higher the score, the higher the score, the better the country’s performance.

The main dimensions of the index are as follows:

- **Internet connectivity**-broadband deployment infrastructure deployment and its quality.
- **Human capital**-the skills needed to take advantage of the opportunities offered by the human capital-the skills needed to take advantage of the opportunities offered by the digital society.
- **Use of Internet services**-the variety of activities that citizens carry out online.
- **Integration of digital technologies**-digitisation of businesses and the development of online commerce.
- **Digital public services**-digitisation of public services with focusing on e-government.

If we look at a comparison of the position of Slovakia and the EU over the period since the index has been measured, Slovakia has lagged well behind the EU values every year. The comparison is shown in Figure 1. The best value of the DESI index was achieved by Slovakia in 2018. In contrast, the worst value was measured in the first year of measurement, i.e. in 2014. A comparison of the average value of the index of the three best countries, Slovakia, the EU, and the three worst countries over the measured period also provides an interesting insight. The index value of the best countries ranges from 60 to 70. The countries that were in the top three each year were Finland, Sweden, Denmark, and the Netherlands-the order varied in some years. The index value of the worst countries ranged from 27 to 39. Each year, Greece, Romania, and Bulgaria were ranked as the worst countries.



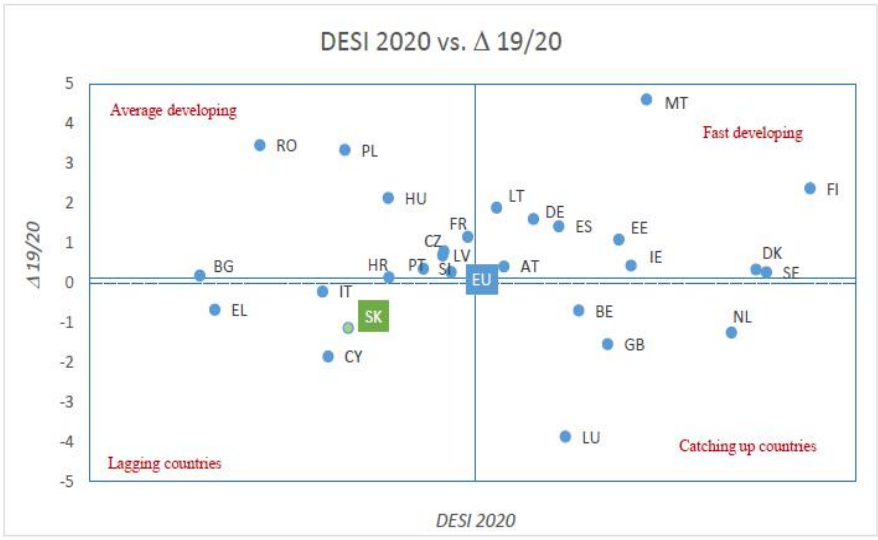
Source: own processing

Figure 1: Comparison of index DESI values for Slovakia and the EU

Slovakia is categorized as a lagging country, i.e., the index scores are below the EU average and the country is also developing more slowly than the EU average. Countries such as Cyprus, Italy, and Greece are in this category. The top performers, i.e. fast-developing countries, are Sweden, Denmark, Finland, Ireland, Estonia, Spain, Germany, Austria, Lithuania, and Malta.

The group of moderately developing countries includes Slovenia, Latvia, Portugal, France, Croatia, the Czech Republic, Bulgaria, Hungary, Poland, and Romania. The catching-up countries are Belgium, the UK, the Netherlands, and Luxembourg. Interestingly, Italy has moved from the Medium Developing to Lagging category, with the same change for Slovakia compared to 2018 (before the change in methodology). Malta, Denmark, Finland, Sweden, Germany, and Estonia all saw a shift to the Emerging category. The classification of EU countries into clusters is shown in Figure 2.

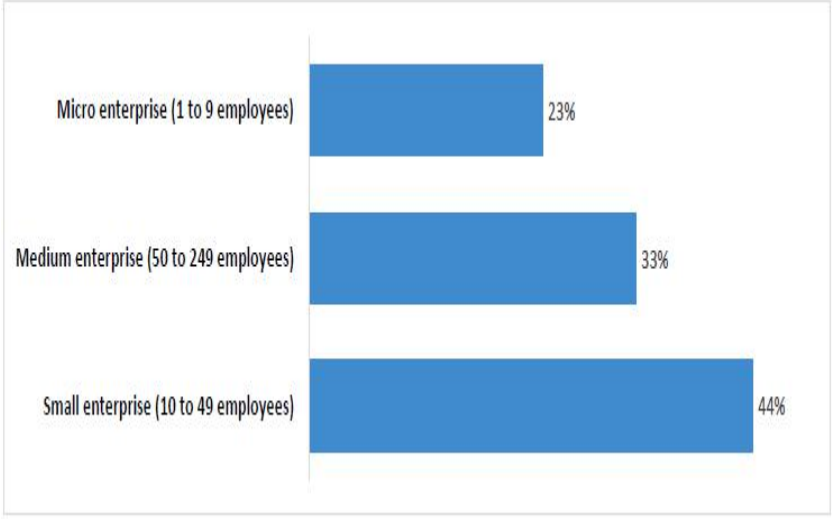
Modern agribusinesses are expanding their product and service offerings to customers by providing innovative data-driven solutions as well as various integrated platform solutions. These innovative approaches are primarily used to generate additional digital revenue and to optimize customer relationships.



Source: own processing

Figure 2: Country classification into groups per year 2020

Digital products and services thus provide comprehensive solutions in their digital ecosystem. According to the number of employees, enterprises were classified into four categories, namely micro-enterprise, small enterprise, medium enterprise, and large enterprise.



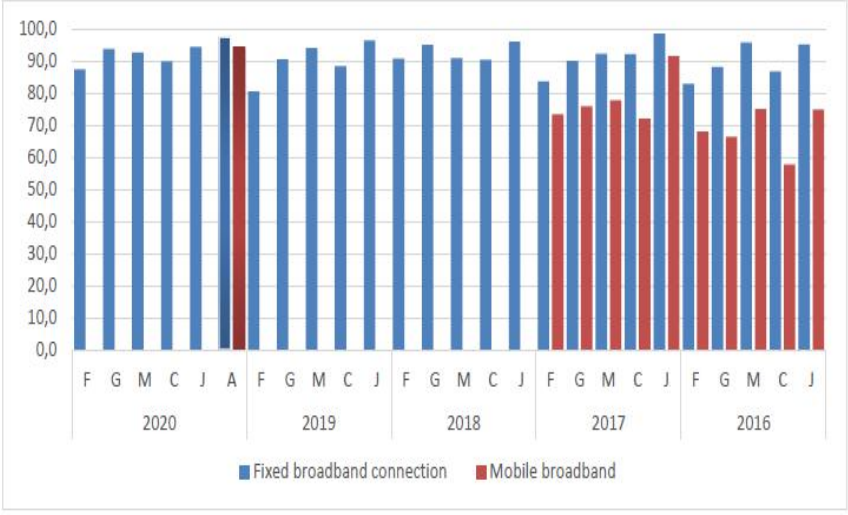
Source: questionnaire survey, own processing

Figure 3: Share of enterprises by number of employees

Large enterprises were not represented in the sample. Small enterprises accounted for the largest share (44 %), and micro-enterprises for the smallest share-23 %. Based on the results of the questionnaire survey, it can be concluded that all enterprises reported active use of computers at work, as well as the use of the Internet at work. The types of connectivity used can be classified into two main categories:

- Fixed broadband-xDSL, ADSL, SDSL, cable modem, UMTS.
- Mobile connections-laptops, Wi-Fi, Bluetooth.

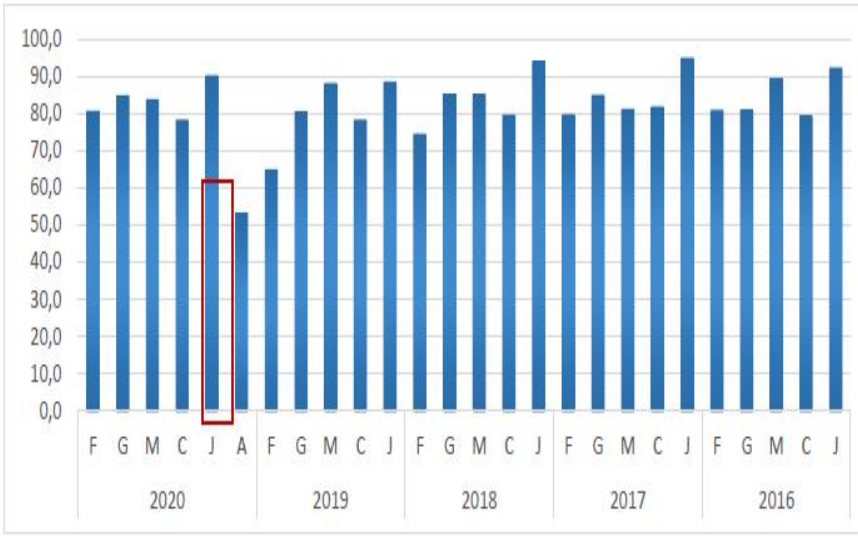
A period of five years was chosen for the comparison of the sections. The reason for selecting this particular period is the availability of data-some values were not surveyed before 2016. Information on mobile broadband is also not available for 2018-2020. To compare each section with the agriculture section (A), the information found from the questionnaire survey has been added to Figure 4 for 2020. As can be seen in Figure 4, Section A does not lag behind the other sections. There is a higher use of fixed connections in businesses than mobile connections.



Source: questionnaire survey, own processing

Figure 4: Types of connections used in enterprises

Every enterprise that wants to increase its visibility should have a website to ensure a stable customer base. However, based on the results of the questionnaire survey, it can be stated that 100 agricultural enterprises are not sufficiently aware of the importance of having their website. Just over 50 % of the enterprises in the sample have their website. Compared to the other sections, this is the lowest proportion (Figure 5).



Source: questionnaire survey, own processing

Figure 5: Company's website

One of the most important tools for promoting a business is its website. Since 1991, when the first website was created, more than 1.9 trillion websites have been registered to date. Their number is growing exponentially every year. Every business that wants to increase its visibility should have a website, which will ensure a stable customer base. However, based on the results of the questionnaire survey, it can be concluded that agricultural enterprises are not sufficiently aware of the importance of having their website. Just over 50 % of the enterprises in the sample have their website. Compared to the other sections, this is the lowest proportion (Figure 5).

Conclusion

As can be seen from the article innovation and technology are becoming an increasingly important factor determining the success of business activity. Technology provides businesses with higher growth, competitiveness, increase efficiency and enable businesses to create new markets. Digital transformation strategy Slovakia 2030 emphasises innovative technologies (Internet of Things, Big Data, artificial intelligence).

The following suggestions can be drawn from the results obtained:

- To steer Slovakia towards better digitisation,
- Integrate more information technology into agricultural enterprises:
  - improve the use of websites,
  - make more use of e-commerce opportunities,
  - invest in Radio Frequency Identification technology,
  - increase investment in the renewal and purchase of new technologies,
  - improve the presentation of the farm and products through social media,
  - focus on the opportunities offered by precision farming and start make more use of them.

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06

Mega-Regional/ Plurilateral Trade Agreements: An Alternative to the WTO?

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Abstract

Although, world trade has grown dynamically over the decades since World War II, the WTO's 27-year history is far from a success story. Not a single trade Round has been successfully completed, its members have adopted only one single comprehensive multilateral agreement, that is the Trade Facilitation Agreement. The only well operating division of the WTO has been dispute settlement.

Tariffs are generally low, but to reduce the burden of non-tariff barriers in countries that are important export markets, WTO members conclude so-called regional trade agreements (RTAs) with each other. These agreements are usually bilateral but can also be concluded among more than two countries. Some RTAs, due to their geographical characteristics, world economic importance and large scale, are called Mega-Regional trade agreements. Generally, these mega- regional agreements cover broader issues than trade. Our study covers the three most important Mega-Regional trade agreements, out of which one was ended without conclusion and were ratified and entered into force, such as the Trans-Atlantic Trade and Investment Partnership (TTIP), the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP). We examine the Trade in Services Agreement (TiSA) in the framework of which 22 WTO member countries launched negotiations to eliminate the inability of GATS to act for the

liberalization of trade in services. Al the above negotiations can be called plurilateral, since more than two WTO member countries are negotiating in a WTO conform framework, but they are not multilateral, since not all WTO members join them. This type of negotiations/ agreements could be a new model for the development of WTO: some members conclude a plurilateral agreement then the rest of the member countries are free to join (or not)! JEL: F00, F13

JEL: F00, F13

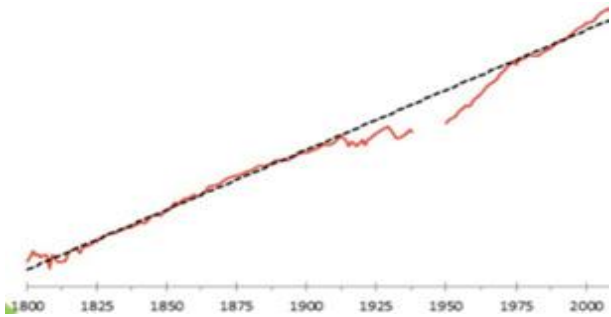
Introduction

The World Trade Organization (WTO) was born out of the Uruguay Round negotiations in 1994 and became operational as of January 1st, 1995. The WTO consists of the General Agreement on Trade and Tariffs (GATT) which regulates trade in industry and agriculture, and General Agreement on Trade in Services (GATS), which deals with trade in services. The WTO also includes 27 multilateral agreements[1], known as the Codes, that is: it is a specialized organization of the UN (with member countries) and a set of agreements (with parties). Perhaps the most important part of the WTO is the Dispute Settlement Body (DSB), also created during the Uruguay Round, which provides a mutually agreed mechanism for settling trade conflicts, disagreements among WTO member countries.[2]

[1] "Multilateral" in the WTO dictionary means that all member countries/parties have agreed to the agreement.

[2] "Resolving trade disputes is one of the core activities of the WTO. A dispute arises when a member government believes another member government is violating an agreement or a commitment that it has made in the WTO. The WTO has one of the most active international dispute settlement mechanisms in the world. Since 1995, 612 disputes have been brought to the WTO and over 350 rulings have been issued." See: https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm Downloaded: 11, 04, 2022.

World trade has grown dynamically over the past two centuries or so, with particularly impressive expansion in the decades since World War II (See: Figure 1.) and has reached a record amount of USD28.5 trillion in 2021.



Source: Federico-Terra-Junguito, 2016

Figure 1.

Many experts and politicians are saying that "world trade has never been so free than nowadays" and, from a certain point of view, it is true. Nevertheless, world trade has always been and still is fraught with constant conflicts and disputes. On the other hand, the WTO's 27-year history is far from a success story. Not a single trade Round has been successfully completed[3]: the Millennium Round[4], intended to be launched in 1999, ended in complete failure and scandal; the Doha Round, launched in 2001, was 'suspended' in 20066 [5]-and since

[3]Under the GATT, 8 rounds were successfully concluded between 1947 and 1994: the first 5 resulted mainly in tariff reductions for manufacturing, while the Kennedy, Tokyo and Uruguay rounds produced very significant trade policy results-in positive trade discrimination for developing countries, in agricultural trade, non-tariff measures, patent protection, copyright, etc.

[4]The WTO Millennium Round was supposed to be part of the UN's overall Millennium Development Agenda.

[5]The only practical success of the Doha Round was the "Cotton Agreement", which forced some hitherto reluctant developed members of the WTO, above all the US, to apply the principle of customs-free market access for least developed members to cotton as well. This affected four especially poor African countries in particular.

then has failed to be concluded or declared a definitive failure. Since the beginning of the operation of the World Trade Organization, its members have adopted only one single comprehensive multilateral agreement, that is the Trade Facilitation Agreement (TFA) which is a mostly technical one[6].

The only well operating division of the WTO has been dispute settlement. The Dispute Settlement Body is authorized to deal with any trade subject related to any agreement figuring in the Final Act of the Uruguay Round "that is subject to the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU). DSB has authority to establish dispute settlement panels, refer matters to arbitration, adopt panel, Appellate Body and arbitration reports, maintain surveillance over the implementation of recommendations and rulings contained in such reports, and authorize suspension of concessions in the event of non- compliance with those recommendations and rulings[7]." As of 28 March, 2022, 612 cases were referred to the DSB by member countries, out of which 180 cases are under consultation, 37 Appellate Body Reports were adopted, in 95 cases implementation were notified by the respondent, further 104 cases were settled or terminated, etc[8]. Nevertheless, the Appellate Body become unable to review appeals since, as of 30

[6] "WTO members concluded negotiations at the 2013 Bali Ministerial Conference on the landmark Trade Facilitation Agreement (TFA), which entered into force on 22 February 2017 following its ratification by two-thirds of the WTO membership. The TFA contains provisions for expediting the movement, release and clearance of goods, including goods in transit. It also sets out measures for effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues. It further contains provisions for technical assistance and capacity building in this area." See: https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm Downloaded: 11, 04, 2022.

[7] https://www.wto.org/english/tratop_e/dispu_e/dispu_body_e.htm Down loaded: 11, 04, 2022.

[8] https://www.wto.org/english/tratop_e/dispu_e/dispu_current_status_e.htm Downloaded: 11,04, 2022.

November 2020, AP has not had more sitting member-due to the "sabotage" of the appointment of a new president and 6 new members by the Trump-administration. In late 2019, the then Director General Roberto Azevêdo stated: "A well-functioning, impartial and binding dispute settlement system is a core pillar of the WTO system. (…) Rules-based dispute resolution prevents trade conflicts from ending up in escalating tit-for-tat retaliation-which becomes difficult to stop once it starts-or becoming intractable political quagmires[9]." AB impasse[10] seems to be resolved sometimes soon: nomination process was launched in early 2022 and a Formal Meeting is announced for 27 April 2022.

Unresolved problems, subjects of conflicts, search for alternatives

Tariffs today are historically very low-especially in industry (both manufacturing and extractive), where there have been no serious conflicts between member countries for years.

Agricultural protectionism, however, is as sensitive an area of international trade as it has always been since the GATT was founded. Although the Uruguay Round provided for the use of Aggregate Measurement of Support (Total AMS), which includes all product-specific and non-product-specific supports1[11] in one single figure (expressed in the percentage of the price -such as a tariff), and their reduction. However, very little progress has been made in this area since 1995: the system of agricultural protectionism in many

[9] https://www.wto.org/english/news_e/news19_e/gc_09dec19_e.htm Down loaded: 11, 04, 2022.

[10] As of 11 April, 2022 there are 21 current cases in which notifications of appeal have been made. As indicated in the opening paragraphs, at the current time the Appellate Body is unable to review any of these notified appeals given the ongoing vacancies." See: https://www.wto.org/english/ tratop_e/dispu_e/appellate_body_e. htm Downloaded: 11, 04,2022.

[11] Total AMS, in a different formulation, is the total amount of export subsidies, production subsidies and import duties, quantified in one dingle figure-and that number can be used as a customs duty.

WTO member countries, in several groups of member countries, is always complex and opaque and many WTO member are far from meeting the Uruguay Round targets in this area.

As far as trade in services is concerned, this is the area where world trade has grown most spectacularly in recent decades-most notably in telecommunications and financial services. In addition, internet commerce has now become a key and decisive element of international trade: internet commerce has fundamentally changed the traditional structure of trade: the chain of production-foreign trade-wholesale-retail has changed radically, and the logistics of the whole system have become globalized. GATS, that seemed maybe the most important and most up-to-date element of the outcomes of the Uruguay Round, has proved incapable of global rulemaking in this area. Similarly, GATS has proved inadequate to protect intellectual property rights and patents in digitalized world trade. GATS is the brainchild of the second half of the 1980s, barely usable in the age of the internet, global internet commerce. Moreover, in services, many countries do not apply the principle of national treatment: Portugal, for example, imports oranges from Brazil, which it can market anywhere in the single market of the European Union-but a license to operate issued in Portugal for an engineer, an architect or an auditor is not valid in other EU countries.

As it was mentioned earlier, tariffs don't hamper any more international trade-the more and the bigger is the problem of non-tariff measures/non-tariff barriers. Different technical standards, as well as sanitary and phytosanitary standards and other administrative procedures are the most sensitive barriers to international trade. These barriers are particularly sensitive for potential exporters because they are difficult to understand, difficult to compare between countries, and are not non-discriminatory.

To reduce the burden of non-tariff barriers in countries that are important export markets, WTO members conclude so-called regional trade agreements (RTAs) with each other. These agreements are

usually bilateral but can also be concluded among more than two countries. WTO-recognized RTAs comply with general WTO rules but contain reciprocal concessions/favors that are not prohibited by the WTO but which not all members are willing to provide to other member countries.

According to WTO "Non-discrimination among trading partners is one of the core principles of the WTO; however, RTAs, which are reciprocal preferential trade agreements between two or more partners, constitute one of the derogations and are authorized under the WTO, subject to a set of rules[12]." Furthermore, according to the Deputy Director General of WTO, „The multilateral trading system-the rules incorporated into the WTO-along with the contributions of the WCO[13], on the one hand, and regional and bilateral trade agreements, on the other, share the task of regulating global trade. They are complementary. It is not a choice of one or the other, multilateral or bilateral. Each has its strengths and drawbacks. (…) regional trade agreements (RTAs), that is, sub-multilateral trade agreements, in force which are notified to the WTO, covering goods, services or goods and services[14]." (Wolff, 2020)

Regional Trade Agreements are:

- all preferential--they do not extend the benefits of the agreements to non- signatories;
- all have rules of origin that require enough content from the parties to qualify for zero tariff or other preferential treatment in the participants' markets,
- they are to cover substantially all of the trade of the signatories, per the WTO rules;

[12]https://www.wto.org/english/tratop_e/region_e/region_e.htm Downloaded: 12, 04, 2022.

[13]World Customs Organization.

[14]The number of notifications-494-is higher because an RTA having goods and services aspects requires two notifications in accordance to WTO rules; also, there are accessions to agreements and these have to be notified

- All rest upon the foundation of the rules of the multilateral trading system, the WTO rules-they add to them;
- The parties' WTO rights and obligations remain largely intact.

RTAs have become increasingly popular, according to the WTO database, currently, there are 354 RTAs in force[15]. Major players of the world trade are especially active in this field as illustrated by the following list (see Table 1) of the number of countries and groups of countries with a significant external trade volume being parties in TRAs.

Table 1: Countries' participation in RTAs

European Union	45
United Kingdom	33
Switzerland	33
Liechtenstein	31
Singapore	27
Turkey	24
South Korea	20
Japan	18
Ausztrália	17
China	16
USA	14
New Zealand	13

Source: http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx
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The main question about RTAs lies in why to crate exception for a preferential agreement when the basic principle of the current multilateral trading system and, therefore, the cornerstone of WTO's trade principles is the opposite, that is, the principle of nondiscrimination (what is expressed in most-favored-nation treatment)? "The economic theory behind these departures from non-

[15] See: http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx Downloaded: 12, 04, 2022.

discrimination is that they will result in more trade creation than trade diversion. In concrete terms, non-signatories, we can infer, tolerated the creation of the European common market, the EU-EFTA free trade agreement and EU expansion, not solely for geopolitical purposes, and the North American Free Trade Agreement (revised as USMCA), not just because RTAs in general are authorized by the GATT rules, but based on the belief that there would be net commercial benefits for all nations trading with them." (Wolff, 2020)

Some RTAs, due to their geographical characteristics, world economic importance and large scale, are called Mega-Regional trade agreements. Generally, these mega-regional agreements cover broader issues than trade. "Mega-regionals are deep integration partnerships between countries or regions with a major share of world trade and foreign direct investment (FDI). Beyond simply increasing trade links, the deals aim to improve regulatory compatibility and provide a rules-based framework for ironing out differences in investment and business climates." (WeForum, 2014) In the following, we briefly describe and analyze the three most significant mega-regional trade negotiations over the last decade and the agreements reached.

Main Mega-Regional Trade Negotiations and Agreements

Trans-Atlantic Trade and Investment Partnership (TTIP)

The Trans-Atlantic Trade and Investment Partnership (TTIP) agreement between the European Union and the USA had been promised to be by far the biggest free trade agreement in history. The EU and the US has the largest "two-way" trade turnover of the world, the EU and the US form the largest trade and investment relationship in the world and enjoy the most deeply integrated economic relationship in the world. "The transatlantic relationship defines the world economy. Either the EU or the US is the largest trade and investment partner of almost every other country in the global economy. Taken together, the economies of both territories amount to

more than 40% of world GDP and more than 40% of global trade in goods and services.[16]" TTIP negotiations were launched in 2013.

The initial objective of TTIP was to expand transatlantic trade and investment, which was supposed to increase growth and create jobs on both sides of the Atlantic. The major aim was to remove trade barriers, and the planned agreement would have consisted of four main parts: 1. Market access, including tariffs, 2. Regulatory issues and non-tariff barriers, 3. Rules, including intellectual property rights, customs and trade facilitation, trade and sustainable development, 4. Institutions. It was clear from the very beginning that since tariffs between the two partners were very low at the time of the start of TTIP negotiations, the hoped- for agreement would have focused mainly on easing and abolishing non-tariff barriers by harmonising technical rules, standards and other procedures. From the beginning of the negotiations, special interest was concentrated on regulatory issues, rules on food and agricultural products, the technical obstacles of trade and public procurement. About 80 percent of the expected gains would have come from the harmonization of rules-especially in the field of sanitary and phytosanitary measures and the abolishment of technical barriers to trade.

TTIP was in the crossfire from politicians, NGOs and economists since the start of negotiations on both sides of the Atlantic. According to the Nobel Laureate economist, Joseph Stiglitz, TTIP "was not about a free trade agreement, but about the occupation of international trade negotiations by corporations" (Stiglitz, 2015) According to Dani Rodrik, who is generally very sceptical about free trade agreements (Rodrik, 2018). TTIP intended to be the expression of the interests of the pharmaceutical industry/companies. More generally. In Rodrik's view "in the TTIP, the reduction of so-called nontariff barriers to trade between the US and Europe will almost certainly restrict the space for domestic regulatory action. Even if regulatory

[16] https://ec.europa.eu/trade/policy/countries-and-regions/countries/united-states/ Downloaded: 12, 04, 2022.

harmonization does not create a race to the bottom, the interests of investors and exporters will cast a longer shadow than before over social and environmental goals." (Rodrik, 2015) At the end of the day "TTIP seem to be about corporate capture, not liberalism" (Ibid.) Several experts were skeptical about the moderate results of TTIP based on cost-benefit analysis. Several (mostly European) NGOs expressed their fears the potential loss of democratic control over regulations and, even more, were raised with emphasis on the lack of information, the unknown character of the planned treaty. Such a comprehensive and complex international agreement can always be criticised from many points of view (and on the basis of many narrower or wider interests), but the latter criticism, namely the lack of publicity, was certainly groundless in this case. The European Commission published on its website 2 page factsheet about every of the 24 negotiating topics, the EU textual proposals about parts 2 and 3 of the negotiated agreement, and position papers related to every chapter about what the EU wanted to achieve. (European Commission, 2016)

Rarely has there ever been an international trade negotiation in which one of the negotiating parties disclosed its objectives and proposals in such a detailed manner amid the negotiations.

In January 2017, President Trump, declared immediately after having taken office, that the US withdrew its commitment to the TTIP and would not follow negotiations-but it happened "post festam"-it was a meaningless and unnecessary PR action, since the TTIP negotiations formally ended without conclusion at the end of 2016. A European Council decision of 15 April 2019 stated that "the negotiating directives for the TTIP are obsolete and no longer relevant." (Ibid.)

Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)

The major aim of Trans-Pacific Partnership (TPP) negotiations was to expand the trade and investment relations of the Asian-Pacific region.

To some extent, the initial idea was to enlarge an deepen the Trans-Pacific Strategic Economic Partnership Agreement (TPSEP), a free trade agreement that had been established among Brunei, Chile, Singapore and New-Zealand [17]. First, five additional countries-Australia, Malaysia, Peru, the United States and Vietnam-started negotiations about joining the Agreement, At the end of the process, 12 countries of the region (Australia, Canada and Japan joined the above nine countries) held negotiations, since early 2012, (Das-Hman, 2012) behind closed doors and an Agreement was signed on 5 October 2015.

TPP seemed to bet he most important economic integration agreement that was started negotiating since the establishment of the WTO, since, according to trade data of 2014, the twelve negotiating countries accounted for just under 30% of total global trade.

During the TPP negotiations, serious disputes have arisen over market access-particularly for dairy, rice, and sugar imports. This was a topical issue for the US, Australia and New Zealand, and every participant expected Japan to make the biggest concessions in this area [18]. Although there was a large agreement among the TPP countries on state subsidies, there was a dispute over the obligations of state-owned enterprises. The conflict over rules of origin was mainly over the automotive industry: the developed TPP countries had sought rigorous rules to restrict non-TPP automotive supplies. In terms of intellectual property rights measures, the time of data exclusivity for biologics test data, in the pharmaceutical industry, was the subject of the sharpest debates (and has been in the public domain as well) over the TPP throughout the TPP countries-initial positions varied between 5 years (Australia) and 12 years (USA)[19]: conflicts

[17]TPSEP was signed on 3 June 2005 and entered into force on 28 May 2006.

[18]Japan was willing to open up its agricultural markets in a historically unprecedented way because it was an important part of its overall liberalization efforts (that was the major element of ‘abenomics’. This explains Japan’s activity in mega-regional trade negotiations.

[19]The compromise reached in 2015 was 8 years of data exclusivity.

between Big Pharma, generic pharmaceutical companies and single-player health insurers were particularly difficult to reach a mutually acceptable agreement. (PIIE, 2015)

The main goals of the Obama administration for the agreement were to: reduce agricultural protectionism, to protect intellectual property rights, and to reduce restrictions in some sub-sectors of manufacturing (such as vehicle production). (Dhar, 2015) The negotiations have provoked serious criticisms, with particularly strong reservations that the TPP would have caused detrimental effects on environmental and labour laws. Trade Unions expressed their worry, the interests of large enterprises would overshadow all other interests. Nevertheless, TPP agreement was signed on 5 October 2015 agreement was signed on 5 October 2015.

In January 2017, on his first working day(!) in The White House, President Trump, withdrew US accession from the TPP. This unilateral step, obviously, created uncertainty: for a couple of months, it was unclear whether a TPP-10 or TPP-11 could have replaced the original TPP-12-since Canada hesitated on whether to stay in the agreement. (Ciuriak -Dadkhah-Xiao, 2018) Nevertheless, in no more than 13 months, a new agreement was concluded on March 8th, 2018: the remaining 11 countries signed Comprehensive and Progressive Agreement for Trans-Pacific Partnership-CPTPP (= TPP-1).

CPTPP accounts for 14 percent of global GDP and 15 percent of global trade and is fairly similar to the agreement of the original TPP: only 22 clause have been modified, usually by softening or sometimes dropping elements originally requested by the US. Nevertheless, CPTPP is the largest free trade agreement without the EU, since WWII and, at the same time, the largest trade agreement related to intellectual property rights. It was a special peculiarity of the CPTPP negotiations, that-after some months long hesitations, Japan took the leadership of the negotiations-this was the very first such case for multilateral negotiations since WWII (that was certainly due to ‘abenomics’). As far as the USA is concerned, instead of gaining

USD 100bn profit, suffers USD 2bn losses. “US withdrawal has been costly not only for the United States but also for its Asia- Pacific partners. But in addition, it shows that significant gains are possible from less rigorous but wide-membership trade agreements such as RCEP, and from high-quality trade agreements such as the TPP without the United States.” (Petri et al., 2017: 2)

Regional Comprehensive Economic Partnership (RCEP)

The 10-member ASEAN used to have free trade agreements with Australia, South- Korea, India, Japan, China, and New-Zealand-accounted for 27% of global trade.

In November 2012, ASEAN initiated negotiations to establish RCEP as a certain fusion of the above mentioned 6 free trade agreements of ASEAN to boost trade within the group by lowering tariffs, standardizing customs rules, and procedures, and facilitating market access among countries that hadn’t have free trade agreements. The major aim was to create an open trade and investment environment for trade in goods, trade in services, investments, economic and technical cooperation, intellectual property, competition, and dispute settlement-the agenda was open.

RCEP was signed on 15 November 2020: it is reducing overlaps between Asian free trade zones, the confusing diversity of trade laws, and Asian trade restrictions could be abolished. RCEP accounts for 45 percent of world population, 24 percent of global GDP, and 40 percent of global trade. As of 3 November 2021, “the ASEAN Secretariat has received instruments of Ratification/Acceptance from 6 member states of ASEAN-Brunei Darussalam, Cambodia, Lao PDR, Singapore, Thailand, and Viet Nam as well as from four non-ASEAN signatory States-Australia, China, Japan, and New Zealand. As provided by the Agreement, the RCEP will enter into force sixty

days after the date at which the minimum number of IOR/A is achieved[20]:" RCEP Agreement entered into force on 1 January 2022.

In the years 2017-2019, ASEAN's merchandise exports (to countries outside the group) ranged between $1,000 to $1,100 billion, 50-60 percent of which was oriented to Asia-Pacific countries[21] ASEAN already had free trade agreements with all six potential partners at the start of the negotiations-but they did not necessarily had agreements with each other. Therefore, the RCEP arrangement has created FTAs between Japan and China, New Zealand, and South Korea[22].

The RCEP negotiations started in parallel with the TPP negotiations, and analysts saw from the beginning a certain rivalry between the two hoped-for RTAs[23]: one natural reason for this was that China saw the RCEP as an alternative to a future RTA in the Pacific and took the initiative in the negotiations all along. (Gantz, 2016) Although in 2013 there was serious talk by China about joining TPP negotiations, after the US increasingly stressed that one of the goals of the TPP was not to involve China to write the future global rules of trade (but to lead it by the US or a group of countries led by the US), and Japan joined the TPP, China diplomatically withdrew[24] and turned its attention to the RCEP. (Ye, 2015) For Japan, both the CPTPP and the RCEP were important as part of the overall liberalization of its economic policy ("abenomics"): the Japanese government made major sacrifices for comprehensive trade liberalization. Both the TPP and the RCEP included a significant reduction of agricultural tariffs,

[20] See: https://rcepsec.org/2021/12/14/regional-comprehensive-economic-partnership-rcep-agreement-to-enter-into-force-on-1-january-2022/ Downloaded: 13, 04, 2022.

[21] See: https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?Report Id=24397Downloaded: 14, 04, 2022.

[22] See: https://www.cnbc.com/2019/11/12/what-is-rcep-asia-pacific-trade-deal-slated-to-be- worlds-largest-fta.html Downloaded: 14, 04, 2022.

[23] Australia, New Zealand, and Japan, as well as Brunei, Malaysia, Singapore, and Viet Nam are parties of both agreements.

[24] Officially, China has never joined RCEP negotiations.

which traditionally settled a key element of traditional Japanese protectionism. However, the Abe government abandoned the maintenance of high agricultural tariffs to boost industrial and services exports[25].

It is obvious, that the RCEP is a less ambitious megaregional agreement than the CPTPP: it only covers 90 per cent of customs duties-compared to 100 per cent in the CPTPP; agricultural trade is practically absent from the agreement and the treatment of services is of a rather lower quality; and the RCEP, unlike the CPTPP, deals very little with quality standards. The RCEP is a simpler, less sophisticated, and less comprehensive agreement than the CPTPP-probably the most important reason for this is that the 15 countries are of very different sizes and levels of development, and therefore have different interests-the rules adopted are general enough to take account of these different interests. This is not surprising, since the starting point was also very "simple and modest": the consolidation of the six free trade agreements (the so-called "ASEAN+1" agreements) that ASEAN had previously concluded.

It is no coincidence that the biggest failure of the negotiating process-and thus of the resulting fifteen-party agreement-India's withdrawal, is not linked to the ASEAN group but above all to the Sino-Indian relationship.

Although RCEP can significantly help market access in countries with important trade restrictions, does not go as far as the CPTPP in removing all tariffs and in comprehensively addressing trade in goods and services. The CPTPP and the RCEP are not mutually exclusive, and countries that are party to both agreements can benefit from the co-existence of them: they have access to both North American (Canada and Mexico) and Asian markets. According to a Singaporean analysis, "Singapore's simultaneous participation in TPP11 and RCEP would lead to a 2.07 percent increase in real GDP, while

[25] CPTPP is estimated to result in a 13% reduction in Japanese rice production and the RCEP could have similar effects. (Lee-Hakura, 2014).

CPTPP alone would lead to a slightly more than 1 percent increase in GDP growth, while RCEP would lead to a 1.63 percent surplus growth. This is also true for Australia, Brunei, Japan, Malaysia, New Zealand and Vietnam." (Ji et al. 2018)

It must be underlined that the RCEP is the first free trade agreement between China, Japan, and South Korea, and since all three countries are manufacturing and technology powerhouses, this agreement could lead to a significant expansion of global trade. The RCEP can make further contribution to making Asia a coherent trading area, like Europe and North America. Asia is integrated, but its core trade objective has been to supply other markets with goods. The RCEP could change all this, especially given the expected impact of the China-Japan- South Korea RTA: mutual market opening could significantly reduce transaction costs of trade and increase trade flows between the three countries-if politics does not prevent it. On the other hand, while the bulk of the three countries' final exports are undoubtedly destined for outside the region, the RCEP could change this, through the expected effects of the FTA between China, Japan and South Korea. At the same time, the integration of the manufacturing industries of the three countries in global value chains is very strong, and one of the priorities of the RCEP is to strengthen value chains in the region-regulatory convergence (especially in the manufacturing sector) and the harmonization of rules of origin could increase the efficiency of regional value chains.

The United States is outside both major Asian RTAs following the Trump administration's withdrawal from the TPP, that means that neither the EU nor the US, the traditional global trade superpowers,- have no significant influence when Asia and the Pacific set their own trade rules and standards. The RCEP agreement will certainly reduce further US influence in the region. From a political and geostrategic point of view, the fact that several important US allies have concluded free trade agreements with China, while the world feared an escalation of the trade war between the US and China, is also extremely important.

For China, the RCEP is both a free trade agreement with the region's strongest economies and a reinforcement of the economic integration it has already established with ASEAN. China has not played a leading role at all in the RCEP negotiations. Beijing originally envisioned the RCEP as ASEAN + China, Japan, South Korea, but Japan insisted on the inclusion of Australia, New Zealand, and India (apparently partly for political reasons, they wanted to include countries in the agreement, partly to balance Chinese dominance). In contrast to the EU or NAFTA, ASEAN is not in favor of strict, comprehensive, and rapid market opening treaties that go beyond tariff reductions to more intrusive domestic market relations: it may be explained by the differences in development between its member states and their different sectoral sensitivities. The aim all along has therefore been to achieve the lowest common denominator to which all countries concerned can nod. Nevertheless, China's regional economic dominance is evident, and the RCEP could further strengthen China's position in the global economic power structure.

Trade in Services Agreement (TiSA): a smaller club inside the WTO

The establishment of the General Agreement on Trade in Services (GATS) was one of the major achievements of the Uruguay Round by complementing GATT with a rule maker and regulatory body for services-a sector that became an increasingly dominant part of global trade since the 1980s. However, GATS is still unable to deliver any meaningful activity-although the liberalization of the trade in services has always been a topical issue on the WTO Ministerial Conferences. Since 1994, that is the conclusion of the Uruguay Round, there is a totally new situation in the world economy-globalisation has changed absolutely trade and investment in services.

In 2010, motivated by this passivity, 22 WTO member countries (and the European Union)[26] have launched negotiations for a plurilateral

[26]The group calls itself the "Real Good Friends of Services" (RGFS) and consist of the following members: Australia, Canada, Chile, Chinese Taipei,

trade in services agreement-in the framework of WTO/ GATS, accordingly to the GATS rules and obligations. Negotiations were launched in March 2013, and "Until November 2016, 21 rounds took place and negotiations were said to have been at an advanced stage, although the ambition to have an agreed text did not materialize and TiSA negotiations were halted. On a separate track, following a joint declaration in December 2017 Buenos Aires WTO Ministerial Conference, a group of WTO members is negotiating on domestic services regulation on a plurilateral basis[27]."

The major aim of TiSA is to achieve further liberalization in global trade in services and, et the end of the day, to upgrade GATS, which entered into force in 1995 and, since then, is became outdated (without any activity since its establishment), mostly because it preceded the internet era. The European Union was especially active in the initiative to launch and follow TiSA negotiation, since the EU is the world's leading exporter and importer of services and employs around 70% of its workforce in the services sector.

According to EU estimates, TiSA could lead to an increase in EU trade in services while social, human rights and environmental effects in the EU would be limited. Initially, TiSA was expected as an economic integration agreement according to Article V of the WTO rules. The EU's ambition was to incorporate TiSA as a multilateral agreement into the WTO later. To make it possible, TiSA would be built on the principles of the GATS, limited negotiations on market access and national treatment of international trade in services. "The EU's initial offer contained, among others, substantial commitments in computer, telecommunications, information technology and general business services. It did not contain any commitments in the

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Colombia, Costa Rica, the EU, Hong Kong China, Iceland, Israel, Japan, the Republic of Korea, Mexico, New Zealand, Norway, Panama, Paraguay, Pakistan, Peru, Switzerland, Turkey, USA, and the European Union.

[27] See:https://www.europarl.europa.eu/legislative-train/api/stages/report/current/theme/a-balanced-and-progressive-trade-policy-to-harness-globalisation/file/trade-in-services- agreement-(tisa) Downloaded: 15, 04, 2022.

audiovisual sector and excludes services 'supplied in the exercise of government authority'. In addition, the EU made no market-access offers for public utilities and also explicitly excluded water distribution, publicly funded education, health and social services from national treatment. The engagement not to back-track on current levels of openness ('standstill'), and not to reduce the liberalization levels attained in the future ('ratchet') was offered for national treatment only but did not extend to the exceptions listed in the schedules of commitments. In May 2016, the EU came up with a revised offer, which was also made public. When negotiations ended in 2016, the main outstanding issues included, reportedly, cross border flows of data and new services." (European Parliament, 2022: 2)

The TiSA, if adopted could be a new model for the development of WTO: some members conclude a plurilateral agreement then the rest of the member countries are free to join (or not)!

Plurilateral trade negotiations, plurilateral trade agreements are categories that must be learned: these categories cover the type of negotiations in which more than two but not all WTO members are involved[28]. Therefore, mega-regional trade negotiations/agreements are also may be considered as plurilateral ones. Considering the impasse of WTO and taking into account the experience of the last decade, plurilateral trade negotiations, agreements are likely to be fairly frequent. Time had verified Jaimovich and Baldwin's more than a decade-old observation about the domino effect between RTAs: "While WTO negotiations are becoming increasingly powerless, what is driving the expansion of RTAs? Our paper argues that regionalism is driven largely by the domino effect, in which nations excluded from existing trade agreements enter into negotiations to remedy the trade-distorting effects of existing agreements. This phenomenon is a

[28]Therefore, mega-regional trade negotiations/agreements are also may be considered as plurilateral ones.

challenge rather than a threat to the WTO, but it cannot be ignored." (Jaimovich-Baldwin, 2010)

However, the past period has seen further evidence of the WTO's dysfunctionality, with the creation of CPTPP and RCEP pushing the world economy towards further free trade agreements.

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07

Evalution of the International Security

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Abstract

In the Post-Cold War period, it was thought that the world would not enter into an all-out war from now on. Therefore, it was predicted that international security structures would also transform in a positive way. However, the picture that emerged after the attacks on the twin towers of international security on September 11, 2001 was not so positive. So much so that "preventive intervention" was accepted by the United Nations (UN) Security Council. This situation paved the way for the US to intervene militarily all over the world. The US intervention in countries such as Afghanistan, Iraq, Syria, etc. became legitimate and many casualties occurred in those countries. Looking at the last 10 years of the international system, it is seen that the use of military power, as it is normally known, as "hard power" has transformed. In this context, although military power is not like soft power, it has started to be used as a "smart power" in the entire international system and even in national structures. The best example of this is the military presence of the UN and Turkey in Africa. When we come to 2022, it is seen that military power is used as a hard power by Russia again. This situation is the most obvious example of the fact that the perception of security in the international system can change according to place and time.

Keywords: International security, hard power, smart power, United Nations, USA.

International Security in Post-Cold War: Developing Smart Power

The Cold War, which ended with the collapse of Soviet Russia in 1990, brought along a new world order structuring. In this system, the Western Bloc and Capitalism represented by the USA became hegemon in the world. In order to gain superiority over each other, the USA and the USSR, without directly engaging in a mutual armed conflict, using other states or groups, local conflicts, regional wars, internal conflicts, expulsion of the regime, ideological propaganda and provocations, by spreading their own views and interests, constantly armament and tensions. Forced balance and fear policies carried out in the 'Cold War' environment and period. At the core of this is the effort and struggle of the two superpowers to impose their own socio-political order and model on the world. In addition to the discussion of the "coldness" of the Cold War, it has emerged as a fact that it had as serious consequences as the hot wars. (Kantarcı, 2012: 50-52).

With the end of the Cold War in 1990, the bipolar system that existed throughout the Cold War period came to an end. With the disintegration of the USSR, communism lost its role as a political model. After the Cold War, the "New World Order" started to be restructured under the leadership of the USA. In the restructured new world order, ideologies have lost their importance and the international system has turned into a hierarchical and polycentric structure. However, when we look at the structure of the international system from an economic and political point of view, a polycentric structure has shown itself. In addition to the USA being an important economic power, there are economic power centers such as the European Union (EU), Asia Pacific Economic Cooperation Organization (APEC). From this point of view, the international system has become a structure in which both hierarchical structure and polycentricity exist (Sönmezoğlu, 2009: 2).

In this process, many military forces were used, especially in the Middle East and Africa. These military forces, which are used for security purposes, are mostly considered as “hard power”. The UN was one of them. The UN is a structure that strives to ensure security in the international system and uses its power consisting of the soldiers of the countries within it. Because the presence of the people in the region to ensure the security of the environment of peace and tranquility has been in question. However, it is another matter of debate that the UN mostly serves the interests of the USA. The most basic example of this is the “Desert Storm Operation” implemented in the Gulf War (Salha, 1993: 51-52). It is said that the UN acts under the guidance of the USA and that the UN will not intervene in a similar situation, especially by giving an example from today’s Russia-Ukraine War.

There is a question what is smart power? Joseph S. Nye Jr. the concept of smart power, which was developed together with the discourse of soft power, can be seen as an extension of the concepts of hard power and soft power in the global international system where technology is gaining momentum. Intelligent power is defined by Nye as “the combination of hard power using coercion and soft power of persuasion and attraction” (Nye, 2011: 57). As the tools of smart power; military, diplomatic, economic, cultural, legitimate and political methods/relationships can be discussed (Pallaver, 2011: 20). On the other hand, on the basis of the criteria determined by Morgenthau, who lists the factors determining the power element of the state, in order for military power to be called smart power together with the rapidly developing technology after the cold war, the technology and R&D support that a state should provide to its military power, economic power support, visionary country The wise decisions taken by the administrators taking into account the universal values and national interests, the quantity and quality of the armed forces, the inclusion of military force in diplomacy (for it to be considered as an element of soft power), the support of international and national media and NGOs are very important (Boztaş, 2021: 665).

International Security After the September 11 Attacks

One of the important points in which the international system and international security transformed is the September 11 attacks. After the attacks, the decisions taken and implemented by the UN Security Council in the international system were on terrorism. The definitions of international terrorism have been transformed and the measures taken have been shaped by concepts such as "preventive intervention". However, there were also differences of opinion among international security workers. For example, together with pessimists, who think of post-modern war as the turning point or the invisible dimension of foreign policy struggles (Özdemir, 2002: 153-154), optimists have emerged who predict that military power will be used as a smart power in the formation of security in the international system and that world peace will now be much more possible. In this context, it can be argued that the existence of military power, which will be used as a smart power with a Realist perspective, can be much more positive and productive in terms of its social reflections, since it would be imaginary to draw too much optimistic perspectives when it comes to international security.

In fact, the transformation of international security has begun to transform in this process where technological developments accelerated. In short, the technological developments after the Cold War gained great momentum during and after the September 11 attacks. These technological developments have also improved the military structures and have created great threats to the international community instead of bringing peace and prosperity. Along with the technological developments, the hard power element known in the international system, the military power, has rapidly transformed into a smart power in the process. So military power can be a hard power or a smart power according to the structures of the states in the international system. Societies and states with advanced technology, diplomacy, management, economy, media and population potential, effective and high quality, can transform their military forces into smart power as long as they can reflect these structures on their

military forces. Societies that have not developed these structures continue to use their military forces as hard power.

Another phenomenon emphasized by Morgenthau is the importance of international perception management for the military power, which can become a smart power with the support of civil society. In this context, social media, written and printed media are of great importance. In this concept, it was also claimed that the September 11 attacks were of USA origin and that the USA wanted to prevent its hegemony in the international system from being questioned, and that it acted to take the international system, which had turned into a multipolar structure, under its own direction.

The Last 10 Years: The Transition of Military Power from Hard Power to Smart Power

In the post-Cold War period, with the great development of information and communication technologies, great transformations have been experienced all over the world. This process has developed at the same pace in consuming countries as in developing countries. Another important area affected by the development of information and communication technologies has been security. In this context, when it comes to the concept of security, the concept of power is another important concept that needs to be discussed and undergoes a transformation (Boztaş, 2021: 663).

While the classical hard power in the historical process was defined as military power, today military power has turned into smart power along with technology and economic power. Smart power; It is neither hard power nor soft power. Smart power is the evaluation of both hard and soft power with a combined strategy to achieve goals. Smart power requires a strong army on the one hand and investments in alliances or partnerships in any position that will increase the country's potential of influence. In this context, smart power can be described as the work of masterful use of information and communication technologies (ICT), diplomacy and the art of warfare.

Because, deciding and applying the power in which situation, where and how it will be used together with technological support requires technology, intelligence, talent and experience (Yatağan, 2018: 74). Therefore, neither military nor economic power and technological developments alone can mean anything unless they are supported by military power, technology and economic power, or economic interests and technological developments cannot be protected by military force (Boztaş, 2021: 666).

The international system, which was dominated by a multipolar world order in the 2000s, has preserved its multipolar structure especially in economic terms after 2010. However, when viewed as an activity in international organizations, the effective influence of the USA continues to exist. When we look at the international security transformation after 2010, it is possible to see that military power is used as a "smart power", especially by the USA and regional powers such as Turkey, together with the developing technology. The fact that military power is loved and supported by the society where it is located, as well as being trusted, is the most important indicator that military power is a smart power. The situation of Turkish soldiers in Somalia and Syria is the most important example of this.

Russia Uses His Army as a "Hard Power"

The Russia-Ukraine War (Sheerin, 2022), which started on February 24, 2022, with the declaration of Russian leader Putin's invasion of Ukraine, is another important breaking point for international security. While many countries in the international system have turned to using their military power as a smart power, Russia has started to use it as a hard power.

Although the international system has rhetoric that Russia does not accept the role given to it by the USA in the new world order and that it reacts accordingly, the Ukrainian people are not accepted by the international community.

In this context, Russia, using its military power as a hard power, the reasons for wanting to show its power as harsh instead of using diplomacy; Ukraine's willingness to join the EU and NATO is perceived as a threat by the US stockpiling weapons in Ukraine.

When evaluated in the light of all these developments, we can say that whether the countries will use their military forces as hard power or smart power in the distribution of the new world order will be shaped according to the ground conditions and technological development levels and even according to the leader typologies.

Conclusion

International security is constantly changing and transforming in the historical process. Within the scope of the study, the main breaking points were evaluated within the framework of the security structure of the period. The most important element of international security, which has changed especially with technological developments, has turned into a "smart power" element, while "military power" is a hard power element. This process started especially after the Cold War and gained great momentum in the 2000s. However, there has been a new break in the recent Ukraine-Russia war, and Russia has used its military power as a hard power despite the technological power in its hands. This has shown that the basic parameters of international security are not standard and may depend on many variables such as time and place, leader typology. Therefore, together with all these variables, the states first decide whether the military power will be a smart power or a hard power.

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08

An Analysis of the Components of Professional Manager Competency Model: Based on Chinese Labour Market

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Abstract

The goal of this research is to find out the key characteristics that can represent the competency factors of Chinese professional managers. This paper extracts the common factors that can be identified with the competency of managers, so as to preliminarily infer the components of the competency model of Chinese professional managers. From the latest theoretical and practical research results in China and abroad on the competency model of managers, it can be concluded that the competency elements proposed by the researchers can basically be classified into the four competency dimensions proposed in this paper: performance behavior competency, knowledge-skill competency, ability aptitude competency and personality trait competency. At the same time, the competency elements they mentioned are: communication ability; leadership ability; innovation consciousness; knowledge application level; decision-making ability; emotional intelligence; self-efficacy; achievement motivation.

Keywords: professional managers, competency model components, Chinese labour market.

Introduction

Generally speaking, the competency model refers to the sum of the competency elements required to perform a specific task role. A unique combination of knowledge, skills and characteristics required" (Aguinis, 2019). That is, a competency model is a formalized literal description and illustration of the competencies required to achieve high-performance work output in a given position. Therefore, the competency model consists of two parts: competency dimension and competency element.

American scholar Jon Warner (2002) excavated competency component from the perspective of performance and the integration of performance and development. He established a 36 components database to represent the key components of a specific management role. He believes that professional managers can select the most important and critical 3 to 10 core competencies that they need to master to achieve future job performance from these 36 comprehensive competency elements. The 36 core competency elements proposed by Jon Werner etc. are (Jon & Xu, 2015) : analytical ability; anticipatory/forward thinking; attention to detail; adaptability; coaching ability; business awareness; communication; cost awareness; creativity/innovation; customer orientation; decision making; delegating ability; dependability; diversity orientation; drive/ motivation; emotional intelligence; empathy; empowerment; feedback; leadership; listening; perception/judgment; continuity/ resilience; planning and organization; problem solving; quality orientation; results orientation; safety orientation; self-development; ability to develop strategies; stress management; initiative/ responsibility; teamwork ability; technology application; time management and written communication.

The American business management guru Dr. Scott. Perry divided the core competencies of managers into four groups (qtd. In Zhao et al., 2002): administrative competencies (such as time management, goal and standard setting, planning and scheduling, etc.), communication

skills (e.g., listening skills, ability to provide and obtain information), supervisory skills (e.g., training, coaching, assignment, performance evaluation, restraint and building skills) and cognitive skills (e.g., problem solving, decision making, analytical thinking, etc.). In his speech titled "Corporate Culture in Globalization and Change", he pointed out that according to the 12 basic competencies set by the "MAP Management Competency Assessment", while comparing with managers in 17 countries and more than 70,000 managers who have done evaluations, in "goal and standard setting", "Chinese managers' performance is the most outstanding, with an index of 75%. The evaluation shows that the level of this capability is in the top 1/4 of the world. Other higher competencies were "planning and scheduling work", with an index of 67%; "decision-making and risk measurement", with an index of 59%. But in some competencies, the average performance of Chinese managers appears to be relatively weak. The weakest ability is "Analyzing and Organizing Information" with an index of 20%. Others such as "clear thinking and analysis", the index is 32%; "assessment deployment and performance", the index is 41%, compared with global managers in the bottom 1/3 position. From the above statistics it can be seen that the Chinese managers perform better in the work ability group and cognitive ability group related to "things", with an average index of 53%, but in the In the communication ability group and leadership ability group related to "people", the average index is 39%, which is not satisfactory. Comparing with the United States and Singapore, it is found that their managers have a very small gap in the ability of "to deal with things" and "to deal with people", which can be said to be balanced development (Zhao, 2013).

Professor Wang Lei (2012) from the Department of Psychology of Peking University, China, started from the perspective of the actual management performance evidence of Chinese enterprise managers, and conducted an empirical study on the managerial competency model (Wang, 2015). The study firstly asked 40 managers to describe the competency characteristics of successful Chinese managers by

free association method and organized them into a vocabulary containing 325 competency characteristics. Subsequently, 465 managers from 58 companies evaluated the importance of these characteristics to successful managers and their own compliance with these characteristics, and collected performance evaluation data of these managers. A correlation study was conducted between the degree of compliance of competencies and performance evaluation, and the results showed that only 23 competencies were related to performance. The 23 selected competencies were further analyzed by the importance data, and the results showed that the competency model of Chinese managers consists of four factors (Zhao et al., 2002): cognitive ability (wisdom and influence); social skills (interpersonal skills); motivation-personality traits (hardworking and charismatic); emotional intelligence (apathy, optimism), and all four of these factors are related to managerial performance. Among them, cognitive ability explained the most variation, accounting for 16.7%, and the other three non-cognitive factors explained a total of 32.8% of the variation, indicating that the level of cognitive ability of managers is very suitable for explaining effective management work, and it also shows that Emotional intelligence is indeed related to successful management.

Based on the Practical Perspective of Enterprise Selection of Managers Su Yonghua et al. conducted a survey and research on the ways and methods of enterprise recruiting managers and the most concerned factors in 2003 (qtd, in Zhang, 2015). Participating in the survey are middle and senior managers of 160 companies in Shanghai, Beijing, Guangzhou, Wuhan, Qingdao and other places. All the companies surveyed are Chinese-funded companies, and 20% of them are listed companies. A total of 148 valid questionnaires were collected, the results of the survey showed that in terms of the most concerned factors in the recruitment and management of enterprises, the respondents paid the most attention to the overall quality of the candidates, followed by certain abilities and specialties. Academic

qualifications ranked third, professional background and work experience ranked the last two. As shown in Table 2.

Table 1: The most concerned factors in the recruitment and management of enterprises (Zhang, 2015)

Factors	**diploma**	**personality**	**Working experience**	**Professional background**	**Abilities and capabilities**	**Overall qualities**
Frequency	102	87	81	63	104	123
Percentage (%)	68.9	58.8	54.7	42.6	70.2	83.1

When selecting talents, technology companies require the following criteria: First, have good technical level and work skills. At the same time, they must have strong learning ability and creative spirit; the second is to have a very high work enthusiasm and pioneering spirit, and they must be able to constantly challenge themselves; the third is to have good team spirit and communication skills. The criteria for selecting talents by Software Co., Ltd. are: first, moral character; second, attitude; third, getting along with people, communication, and team spirit. The criteria for selecting talents of garment companies are: first, psychological quality, values, professionalism, and enterprising spirit; second, cultural quality and intelligence: learning ability, comprehensive analysis ability, initiative, self-confidence and pioneering, education, professional knowledge; third, work Skills personality: work experience, interpersonal skills, leadership and management skills, scientific decision-making skills.

According to the data of the “Special Survey Report on the Growth and Development of Chinese Enterprise Managers” by the Chinese entrepreneur survey system (2015), the most required qualities of Chinese enterprise managers can be obtained as shown in Table 2. It can be concluded that Chinese managers firstly pay attention to

managers' decision-making ability, innovation ability and leadership ability (items 1 to 4 in the table), followed by self-efficacy and communication ability (items 5 to 8 in the table), and finally personal conduct, knowledge and technology application level, etc. (Items 9 to 16 in the table). The Chinese Entrepreneur Survey System found that the educational background and professional skills of Chinese enterprise managers have gradually improved.

Table 2: Ranking of Qualities or Skills Most Needed by Chinese Managers

Qualities or Skills	Ranking
decision making	1
Able to accept new ideas	2
Co-ordination Ability	3
very smart	4
Ability to understand others	5
respect others	6
language skills	7
Willingness to seek advice from others	8
Strictly follow rule	9
Willingness to admit mistakes	10
Technical Capability	11
good image	12
Ability to participate in employee discussions	13
Have a sense of humor	14
Ability to do the work the employee performs	15
Willingness to spread information	16

Based on the literature review, the comparative analysis of typical domestic and foreign competency models, the analysis of the latest theoretical research perspective, the analysis of the practical perspective of enterprise selection of talents, and the analysis of the perspective of Chinese entrepreneurs' survey reports, this research infers that Chinese professional managers basic competency components. That is, the basic model of Chinese professional

manager competency is composed of 4 dimensions and 8 elements. Among them, the four dimensions are: performance behavior competency, knowledge-skill competency, ability aptitude competency and personality trait competency; and the eight components are: communication ability; leadership ability; innovation consciousness; knowledge application level; decision-making ability; emotional intelligence; self-efficacy; achievement motivation. At the same time, it is concluded from the literature review that different main components of the competency models will construct different behavior index systems. Therefore, it is very important to define the connotation of the constituent elements of the basic model of Chinese professional manager competency.

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09

Current Status and Outlook of Higher Education Digital Transformation in China

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Abstract

The requirements of technological advancement, trends in the development of higher education, including the epidemic and other features of the times have prompted the digital transformation of education to become inevitable. Digital transformation can help higher education to create new types of governance capacity and provide quality higher education resources to more students and the public. This article points out that the digital transformation of China's higher education is characterized by multi-dimensional, multi-level, and multi-regional development, as well as the lack of top-level design and overall planning, and a low level of digital application. Digital governance, digital information platform building and institutional research are key components of the digital transformation. Cooperation between educational administrations, professional societies and universities can accelerate the construction of digital platforms for higher education and enhance the sharing of digital resources. Also, strengthening the research function of institutions to achieve digital strategic goals can help to enhance the practical value of digital transformation in the transformation of higher education.

Keywords: digital transformation, higher education, China.

Introduction

The digital transformation of higher education is not a completely new topic; the topic has been accompanied by the advancement and development of digital technologies based on the Internet. Universities were pioneers in the use of digital technology, promoting digital operation and management in the 1990s in terms of administrative systems, examination systems, human resources, and finance. Systematic educational solutions, such as learning management systems (LMS), mooc, course websites and library systems, began to be implemented gradually after 2000. Among them, MOOCs have even made a breakthrough since 2012(Kaplan & Haenlein, 2016).

The digital transformation of higher education is a disruption in the information age that entails changing mindsets and rebuilding digital activities integrated in learning, teaching and organisation with the use of information technology (Brooks & McCormack, 2020). Digital transformation as a new element of society will therefore fundamentally change entire industries, organisations and individuals.

The state of digital transformation in universities worldwide

The post-2020 epidemic has led to a rapid shift from physical to digital teaching and learning in the vast majority of universities worldwide in a very short space of time. This has made a huge difference to school administrators, teachers and students alike. The jury is still out on its long-term impact, but many researchers believe they will be far-reaching and amount to a digital transformation of higher education (Dick et al., 2020). The first is the intensification of the trend towards ‘counter-globalisation’ and the forced reversal of the willingness to study and educate across borders; the second is the shift to online education, which has to some extent reduced the original scale of higher education; and the third is the reshuffling of the internationalisation of higher education(Yang, 2021).

The digitalisation process of higher education started before the New Coronavirus epidemic, but there are significant differences between developed and developing countries in facing the digital transformation of higher education. The European and American countries have accumulated a deep industrial economic base and a first-mover advantage in the information field after the industrial revolution, and new forms of higher education organisation have emerged. In 2016, the European Commission proposed the Digitising European Industry Strategy (European Union, 2017) as a way to promote the development of Europe's digital economy and the development of digital talent. It has also issued a number of successive documents highlighting the urgent need for digital transformation, including Shaping Europe's Digital Future and Digital Education Action Plan 2021-2027 (European Commission, 2020).

The Council of Europe has identified four main objectives of the competence model for higher education: acquisition of skills for the labour market, preparation for life as an active citizen in a democratic society, personal development, and maintenance of an advanced knowledge base (European Union, 2018). The key competencies for students to learn in higher education are innovation skills, interpersonal skills, knowledge management skills, communication skills, organizational skills, professional development skills and ICT skills in use (Conchado et al., 2015).

The pandemic of New Coronavirus has forced millions of students to take online courses in an unprecedented global learning experiment (Zimmerman, 2020). The widespread disruption of online teaching or education brought a palpable sense of fragmentation and alienation from space. With the strong push of the epidemic, the original offline teaching schedule was completely disrupted and suddenly turned online (Tesar, 2020). It is difficult for students to enter a sensory immersion environment when faced with a computer or other communication tool; and studying online alone for long periods of time makes it difficult for students to acquire the social and

communication skills acquired in an offline learning environment (Zhong et al., 2014).

For most developing countries, in addition to dealing with public health crises, they are also faced with the dual challenges posed by the epidemic and the technological revolution. These common challenges have, to a certain extent, slowed down or hindered the transformation of digital higher education in the following three ways.

Firstly, the global higher education market will undergo a new round of survival of the fittest. For low- and middle-income developing countries, where educational resources are already inadequate, this round of reshuffling will put underfunded and less influential institutions of higher education in a very precarious position, and will further exacerbate the "wealth gap" in the global higher education sector. In the new pneumonia epidemic and post-epidemic era, the resources required for the digital transformation of higher education include hardware facilities, infrastructure, financial investment and faculty manpower.

Secondly, the sudden test of the epidemic added additional costs to the education of schools and the education of students. During this period, weak infrastructure, confusion in the market for online education platforms, lack of planning of online materials and textbooks, and ineffective teaching rules were evident in many universities(B. Zhong et al., 2020). From the supply side of the school, the investment and upgrading of basic hardware facilities requires a large amount of capital investment; from the receiving side of the students, it requires personal expenses for computers, mobile phones, internet, etc.

Thirdly, before the New Coronavirus epidemic, the idea of global digital literacy and digital teaching was in its early stages of exploration and rarely received sufficient attention from curriculum authorities and lecturers. After the epidemic, many teachers were forced to engage with online teaching and learning by doing, gradually improving their information and communication technology

(ICT) skills. Here is the summary different levels of ICT skills that educators in university need to learn in Table 1(UNESCO, 2018).

Table 1: Dimensions and objectives of ICT competence development for university teachers by UNESCO

Training Goals			
	Junior level	**Medium Level**	**High level**
Hybrid teaching ability	To develop teachers' awareness of ICT competencies and improve understanding of new pedaggies	To traine teachers in the use of ICT-based teaching models	To guide teachers to Use ICT to explore new teaching models touse ICT to explore new teaching models
ICT Management	To change traditional thinking about education management and encourage the use of ICT tools	To master ICT tools to empower education management	To Innovate management systems in conjunction with ICT industry frontiers
ICT knowledge and ability	To recognize scenarios for the use of ICT technology in teaching and learning	To acquire subjectknowledge in the field of ICT and develop teachers' skills in the application of relevant tools	To use ICT knowledge for innovative research

The current situation and problems of digital transformation in Chinese universities

The digital transformation of higher education needs reasonable planning and layout from a strategic point of view. At present, the majority of universities lack overall planning and top-level design for their informatization construction, and do not view the school's informatization construction from a strategic height, and do not take informatization construction as an important work of the school. Few universities include the digitalization construction of the school in the medium and long-term development plan of the school. There are many levels, departments and specialties in universities, and each department, division and speciality builds its own information system according to its own business needs, resulting in the duplication of information system construction and serious waste of resources.

The digital transformation of higher education is broadly divided into three different stages of development: digital conversion, digital upgrade and digital transformation. The first stage of digital transformation focuses on the conversion of physical information to digital information, which mainly corresponds to the construction of hardware and software platforms. The second phase of digital upgrading focuses on the management of digital information and the operation of the system, mainly corresponding to the construction of a shared network platform. The third stage of digital transformation is to explore new and effective operating models, and to explore various development models based on their own circumstances and strengths. Developing countries at different stages of development should adopt measures that are in line with their current situation and patterns of development. Improving the information and communication technology (ICT) competencies of higher education teachers is a priority that needs to be addressed at every stage of the digital transformation of higher education. This process does not happen overnight.

Conclusion

Digital technology, as a means, a tool and even a mindset, is subtly influencing the development of higher education, and while it opens up opportunities for higher education governance, it also poses some challenges. At present, as the use of digitalisation in education is still in its developmental stage, there are still issues such as a lack of digital literacy for higher education governance actors. Although higher education has a lagging nature compared to other sectors, governance in higher education must keep up with the times. While digitalisation has been widely used in business, finance and healthcare sectors, its application in higher education is still in its early time, and the lack of digital information access, analysis, application and forecasting capabilities of higher education governance staff hinders the effective promotion of higher education governance.

The digital transformation of global higher education is an irreversible and inevitable trend in the post-epidemic era. While the rapid reshuffling of the digital revolution is taking place, global inequality in educational resources is increasing, with developing countries facing challenges such as increased funding, higher hardware and software requirements, and higher teacher capacity requirements. However, government departments, higher education institutions, social organisations and businesses around the world are all seeking effective ways to transform. However, in the face of the digital transformation dilemma facing developing countries, including China, it will take the combined efforts of higher education institutions, international organisations, businesses and higher education managers and practitioners around the world to drive a comprehensive digital transformation of the world's universities.

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10

Use of Multi-axis Automated Setup for Magnetorheological Finishing of FDM Fabricated External Polymer Cylindrical Workpiece

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Abstract

Industry 4.0 has introduced high-end technologies and machines to R&D organizations, industries, and individuals to minimize to efforts and maximize the rate of production in the industry. Also, the involvement of automation in industries has increased the expectations of customers regarding the quality of products. Therefore, in this study, a multi-degree automation setup has been utilized to perform advanced finishing i.e., magnetorheological finishing process FDM fabricated external polymer cylindrical workpiece. Fused deposition modeling (FDM) is a common and cost-effective additive manufacturing technique for making cylindrical components such as printer rollers and winding drums. The fine finishing tends to enhance the dimensional accuracy and efficacy of FDM-fabricated cylindrical components. However, the FDM process still falls short to meet high industrial requirements in terms of surface roughness. Hence, in the present study, a novel hexagonal tool tip-based magnetorheological finishing

(MRF) process is proposed to attain finishing over FDM fabricated external cylindrical surface. The study describes the analytical and experimental work performed to finish FDM workpieces. The best process parameters are further utilized for the surface improvement of FDM workpieces. After experimentation on 18,840 mm2 cylindrical surface area, the % ΔRa obtained is 86.44 % in 140 min of finishing. To analyze the present MRF process efficacy, the study of surface morphology test is done. All of these findings suggest that novel hexagonal tool tip-based MRF procs may be used to fine-finish the FDM-fabricated workpieces.

Keywords: Additive manufacturing, magneto rheological finishing, surface roughness, hexagonal tool tip, morphology.

Introduction

The industry 4.0 has introduced high-end technologies and machines to the R&D organizations, industries, and individuals to minimize to efforts and maximize the rate of production in the industry. Also, the involvement of automation in industries has increased the expectations of customers regarding the quality of products. Therefore, in this study multi-degree automation setup has been utilized to perform and advanced finishing i.e., magnetorheological finishing process FDM fabricated external polymer cylindrical workpiece. Further, additive manufacturing (AM) is a key technology that play an important role in the third industrial revolution. AM is also highly demanded within the industry 4.0 framework owing to its superior technology for manufacturing polymer components [1]. In the manufacturing of difficult-to-manufacture and cost-effective components, the evolution of unique AM technologies has played a critical role. Nowadays, the AM process is most significantly used in industries such as medical, aerospace, textile, automobile, etc. for manufacturing the various complex shapes polymer components in minimum time [2,3]. Further, notably in the electronic industries,

there is an increase in the adoption rate of AM processes [4]. The main advantage of AM over traditional manufacturing is that it gives designers and engineers more freedom in designing as only a single tool is used in AM to design an infinite number of polymer components with different shapes. Also, no specific die or tool is required for manufacturing in AM making it more suitable in different industries [4]. For mass production, the most commonly used traditional manufacturing process is injection molding. However, the complex polymer shape components are difficult to obtain from injection molding process as it requires complex dies. This affects the dimensional accuracy of the component which may lead to catastrophic failure. Hence, AM needs for the manufacturing industries in today's world to manufacture complex polymeric components with ease in minimum time.

In the AM process, initially, the CAD model is made, and a STL file is generated which is further used for printing the physical prototype. The STL format is a straightforward way for converting a CAD model to a geometry-based format [5]. The reverse engineering approach may also be used to obtain a virtual model of a component [6]. Furthermore, various AM methods are used to manufacture components or prototypes layer by layer. Fused Deposition Modelling (FDM), on the other hand, is the most prevalent, commercial, and low-cost option. FDM is a filament-based AM process that is used to manufacture complex shape polymer components. FDM is the most commonly used AM process for making various thermoplastics functional prototypes because of its capacity to manufacture complicated geometrical components cleanly and safely in a pleasant environment. As a filler material, a thermoplastic filament is heated in the nozzle head in the FDM process. The heater's temperature is regulated based on the thermoplastic material's melting point [7,8]. There are numerous advantages offered by the FDM such as easy implementation, easy support removal, and minimum usage of the product material [9,10]. However, because of the rough geometrical texture (poor surface quality) and low dimension precision of the final

produced components, the use of FDM parts in many applications is still debatable. FDM fabricated component surface finish is poor because of residual stress and uneven shrinkage [9]. Also, in the FDM process, layer-by-layer deposition causes a staircase effect on the workpart's surface, which is one of the reasons for the poor surface quality [11]. The functional efficacy and service life of FDM-produced components tend to decline due to poor surface quality and low dimensional precision, which might impair machine efficiency. Hence, to upsurge the efficacy of the FDM manufactured components in various industries, fine finishing plays an important role.

Various pre-and post-processing methods have recently been introduced to produce such fine finishing of additive manufacturing components. Adaptive slicing is one of the pre-processing methods [12]. The adaptive slicing technique finds a balance between the surface quality of the component and the time it takes to make it. Tessellated CAD model and direct slicing adopt this methodology. Optimizing the layer thickness is the most productive way of enhancing the surface finish. However, decreasing the layer thickness too much results in a longer building time, which is not desirable [13].

Further, the post-processing technique is categorized into two parts naming chemical and mechanical processes. The most commonly used chemical process during post-processing of the AM parts is vapor smoothing, surface polishing, dip coating [14,15]. Chemical processes can offer surface finish up to a few microns, but they have major challenges including the in-depth material knowledge i.e., the in-depth knowledge of chemical reactivity of workpiece is required. Furthermore, vibratory grinding and ball burnishing are two mechanical processes widely used for the surface finishing of AM pieces [14,16]. In vibratory grinding, the workpieces are placed in a tank with a grinding tool. In this process, the removal of material is owned to the vibratory and centrifugal motion amid the workpiece and grinding tool having abrasives entrenched on it [17]. However, the vibratory grinding process does not improve the shapes or dimensions of the workpiece [18]. This can adversely affect the life

span of the workpiece. Next, in the ball burnishing process, the plastic deformation is obtained with the help of a highly polished ball which is exposed to the external force on the work part. However, this hardening process during the surface finishing affects the atomic structure of the workpiece, and, affects its mechanical properties adversely [19]. As a result, an attempt has been made in this study to enhance the surface finishing of FDM-produced polymer components utilizing a post-processing technique known as the magnetorheological finishing (MRF) process in order to solve these problems. The magnetically controlled MRF process is widely utilized for the precision finishing of a wide range of materials with basic to complicated forms. The magnetorheological polishing (MRP) fluid plays a critical function in the MRF process [20]. The MRP fluid comprises polishing abrasive particles, electrolytic iron particles (EIPs), and a base fluid. The MRP fluid behaves like a natural fluid in a normal state. The EIPs, on the other hand, get magnetized as the magnetic field is applied, and the MRP fluid stiffens [21] This stiffened MRP fluid containing the polishing abrasive serves as a finishing tool that operates amid the working space. The MRP fluid gets deformed during the MRF and takes shape according to the workpiece.

Further, various finishing processes have been developed previously using MRP fluid for fine finishing of the various materials with different shapes. Luo et *al*. [22] suggested a high-efficacy and fine-quality MRF method for fine finishing of the Zirconia ceramics. The proposed process consists of the permanent magnet yoke as the excitation unit with a straight air gap. The findings show that no chemical removal occurs while shear action amid the zirconia ceramics and MR ribbon, suggesting that removal of material is exclusively driven by mechanical scratching by abrasive particles. Material removal rate increases with increasing speed and workpiece rotation speed, but decreases with decreasing work spacing, according to parametric finishing experiments. Pan et *al*. [23] developed a novel MRF process for fine finishing of the Strontium titanate ceramics in

which dynamic magnetic fields are generated by rotating magnetic poles. The fine finishing of the polymer workpiece was obtained with optimized parameters at a machining gap, optimum machining times, revolutions of the magnetic pole, workpiece revolutions, oscillation distance, and rotation eccentricity of the pole are 0.8 mm, 60 min, 90 rpm, 350 rpm, 0 mm, 7 mm, and 1 respectively. For the fine finishing of a hemispherical-shaped acetabular cup, Arora and Singh [24] used a novel magnetorheological finishing. At a tool rotary speed of 300 rpm, workpiece rotary speed of 100 rpm, a 10% vol of CeO2 abrasive particles, and 30% vol of EIPs, fine finishing of the polymer workpiece was achieved. After 100 min of the MRF process, the surface roughness is decreased to 80 nm from 240 nm. Kumar et *al*. [25] utilized the ball end magnetorheological finishing (BEMRF) process and reported high-quality fine finishing of the fused deposition modeling (FDM) manufactured cuboid shape polylactic acid polymer workpiece. The polymer workpiece was finely finished using an optimized MRP fluid mixture of 25 vol % EIPs, 16.17 vol % abrasives, and 58.83 vol % distilled water. The surface roughness of the polymer was reduced from 20 µm to 500 nm using the primary finishing process. Further, using the BEMRF process, the fine finishing of 81 nm is achieved after 75 min using the optimum MRP fluid.

According to the literature review, the MRF process is highly efficient for fine finishing of different materials, with high improved results. As a result, an attempt was made in this work to fine-finish the exterior surface of FDM-fabricated cylindrical polymer components with improved dimensional accuracy. To achieve the aim, the MRF process with the novel hexagonal tip-based rotary magnetic finishing tool is utilized in this research. Since, in the MRF process, the magnetic flux density (MFD) plays an important role, therefore, it is necessary to have higher and uniform MFD over the tool surface. As a result, finite element analysis (FEA) is used to study the MFD over the new hexagonal tip-based magnetic finishing tool. Next, the detailed process mechanism during surface finishing of

the FDM fabricated cylindrical polymer workpiece due to tool rotary and reciprocatory along with the work part rotary is analyzed. Finally, for the successful finishing of polymer FDM components, the optimum process parameters of the present MRF method are predicted. The surface roughness reduction, and surface characteristics are investigated after the final MRF over the FDM work part's external surface. The present MRF process with the novel hexagonal tip-based tool tends to enhance the FDM fabricated cylindric polymer workpiece surface characteristics by providing fine finishing.

Materials and method

The FDM process is used to manufactured the cylindrical form of acrylonitrile butadiene styrene (ABS) rods in this study. The properties of ABS such as high strength, durability, low heat, and electrical conductivity, corrosion-resistant, and low cost make them beneficial for various industrial polymer cylindrical components such as printer rollers, conveyor roller, shafts, winding drums, and rapid prototyping tools, etc. [26-28]. To fabricate the FDM cylindrical workpieces, initially, a 3-D CAD model is made using Creo Parametric 5.0. Next, the primary finishing is done over the FDM fabricated cylindrical components which is beneficial for various industrial components with processes namely turning and precision external grinding process to remove the uneven marks. Before the MR finishing, the work components are also cleaned with acetone and carefully maintained.

The FDM fabricated cylindrical rod along with dimensions is shown in Fig. 1. The magnetic normal force across the exterior cylindrical FDM manufactured work part surface in the present MRF process is controlled by the magnetization of the MRP fluid. To achieve a fine finish over the polyamide workpiece surface, uniform and higher magnetic flux density (MFD) on the tool surface is important.

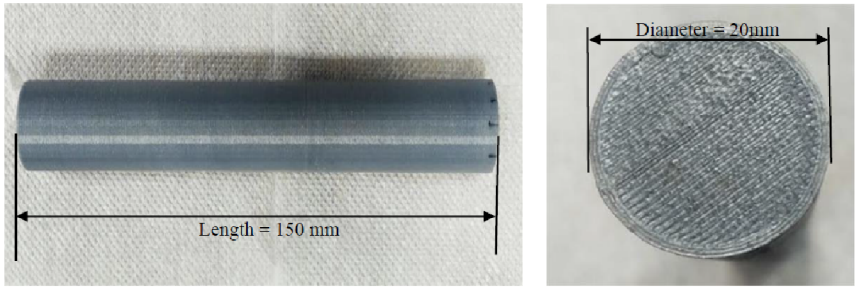


Figure 1: Fused deposition modeling (FDM) fabricated cylindrical rod with dimensions

The electromagnetic coil is mounted over C-shape bracket that is positioned above the Y-axis slide. The magnetic tool core is attached to and rotated within the electromagnetic coil. The magnetic field in the working gap is changed by the current regulated by the DC power source in the electromagnetic coil.

Further, the abrasives, EIPs, and base fluid are mixed in the mixture for preparing the magnetorheological polishing (MRP) fluid. The components are mixed homogeneously for 30 to 45 min in the mixing chamber. The MRP fluid is then applied manually to the hexagonal tip-based tool surface. The MRP fluid on the tooltip surface stiffens as the magnetic current is applied, as seen in Fig. 2. As the magnetic field is applied during the experimentations, the EIPs get allied along the magnetic field's path, which resist the fluid stream. The MRP fluid's resistance tends to increase viscosity in the presence of a magnetic field, leading the MRP fluid to become semi-solid. As a result, the yield stress of the MRP fluid is increased [24,30]. The AAPs are tightly held in the EIPs chain structure at the same time, and when these AAPs are rotated and reciprocated across the rotary FDM workpiece surface (Fig. 3), the surface asperities are chipped off. As a result, the current experimental setup improves the surface finish. Furthermore, as a result of the continuous flow of current through the tool's electromagnetic coil, the temperature rises, potentially reducing the viscosity of MRP fluid in the working zone and slowing the process performance. As a result, the transformer oil is circulated within the cooling jacket to cool the magnetic coil. MRP

fluid is used in this study to finish the exterior cylindric FDM work parts surface effectively. Various forces act on the AAPs during the MRF process, causing them to indent against over the exterior cylindric work part surface and clip off the roughness asperities.

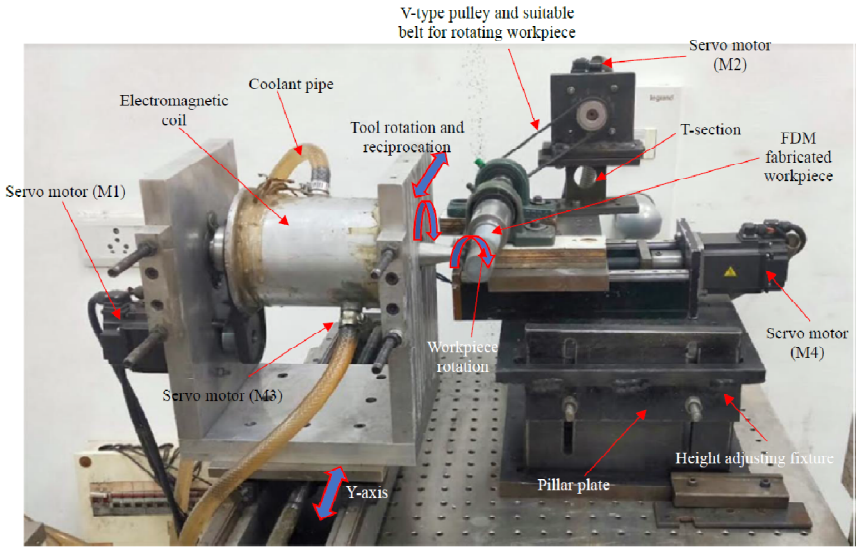
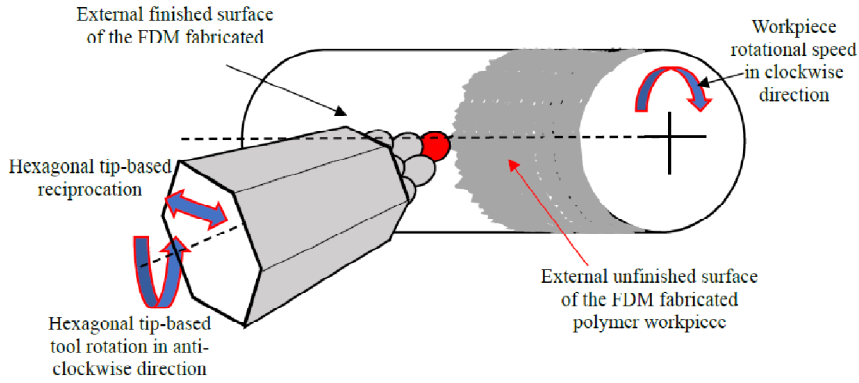


Figure 2.Multi-axis programmable logic controlled (automated) setup for surface finishing of the FDM fabricated external cylindric surface using novel hexagonal tip surface -based tool

The AAPs are firstly indents over the exterior cylindric surface owning to the magnetizing current in present process. The electromagnetic hexagonal tool tip surface becomes magnetized as the magnetizing current is applied. As a result, the magnetic EIPs migrate towards the hexagonal tool tip surface, pushing the non-magnetic abrasives towards the workpiece surface with levitation force. The normal magnetic force (F_{mag}) is generated by the difference in the gradient of magnetic flux density (MFD), which operates normally on the AAP via the EIPs chain. The AAP penetrates the surface due to the F_{mag} as depicted in Fig. 4. The F_{mag} produced during the process depends on the current intensity. With the rise in current, the MFD upsurge, resulting in an increase of the magnetic force. The F_{mag} acting over the EIPs in the presence of the magnetic field towards the

external cylindrical surface as shown in Fig. 3. Furthermore, because to the tool core's simultaneous rotating and reciprocatory action, as well as the rotation of the workpiece, the indented AAPs shear off the surface asperities. As the tool rotates, the indented AAPs retained in the MRP fluid's EIPs chain structure tend to emerge outwards tangentially, clipping the material from the work part's surface asperities. Further, the relative motion amid the workpiece surface and AAPs enhances due to the rotary motion of workpiece. Owing to this relative motion, the AAPs experience the tangential shear force (F_{shear}) which leads to the upsurge in the speed of the clipping of the work part surface's roughness peak. The tool and workpiece are rotated in opposing directions to enhance the relative motion of the AAPs.

Further, owing to the reciprocatory motion of the rotating hexagonal tip-based magnetic tool, an axial force (F_{af}) is applied on the external cylindrical surface through AAP as shown in Fig. 3 The depth of indentation depends on the magnitude of the F_{mag}. Material removal from the external surface of the FDM component is caused by the axial force (F_{af}) generated by tool reciprocation and the tangential shear force (F_{shear}) generated by simultaneous tool and work part rotation.



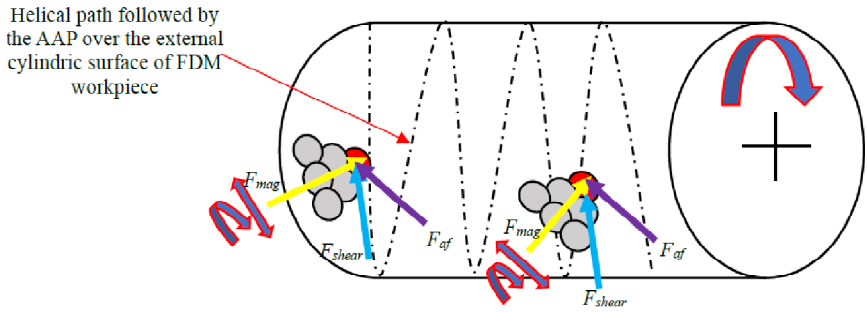


Figure 3.Material removal mechanism along with the forces acting while fine finishing of FDM fabricated external cylindric surface using novel hexagonal tip-based tool

The resulting shear force operating on the external cylindrical surface through the AAP is then the resultant of F_{shear} and F_{af}. The repetitive simultaneous action of the F_{shear} and F_{af} over the asperities contributes to the material removal from the workpiece surface, resulting the effective finishing. In the current work, a MRF process with the novel magnetic hexagonal tip-based tool is used in the detailed analysis to effectively finish the external cylindrical FDM component surface. In the current study, four parameters naming magnetic tool rotary speed (T), tool reciprocatory speed (R), workpiece rotary speed (W), and magnetizing current (I) are used. Each of the parameters has its influence on the present MRF process. The F_{shear} acting on the AAPs is governed by the hexagonal tip-based tool core and workpiece rotating simultaneously, respectively. Further, T and W also guide the relative motion that takes place amid the workpiece surface and AAPs. The R controls the axial force acting on the AAPs. It controls the abrasion between the AAPs and the asperities on the workpiece surface along the axial direction. Similarly, magnetizing current (I) controls the MFD which governs the indentation of the AAPs over the FDM external cylindrical workpiece surface. Hence, I also play a key role in the present MRF process. The output process parameter is taken as % improvement in surface finishing ($\% \ \Delta Ra$). Initial experiments were also carried out to determine the different process parameter ranges for the effective finishing of the external FDM manufactured cylindrical surface with the MRF process. The average

surface roughness (*Ra*) value of the external cylindrical FDM ground surface is measured between 590-630 nm. The *Ra* is measured on the external cylindrical workpiece surface with the Mitutoyo SJ-410 instrument with 0.25 mm cut off length. The process parameters selected range is reported in Table 1.

Table 1: Process parameters and their range

Sr. No.	Parameters	Ranges				
1	Tool rotational speed, *T* (rpm)	100	200	300	400	500
2	Workpiece rotational speed. *W* (rpm)	10	20	30	40	50
3	Tool reciprocating speed, *R* (cm/ min)	5	10	15	20	25
4	Magnetizing current, *I* (A)	1	2	3	4	5

Design of experiments (DOE) using response surface methodology (RSM) is used to analyze process parameters on the external surface of the FDM produced polymer cylindric external surface The primary aim of the present predicted model is to analyze variance in *% ΔRa* reduction and to increase the efficiency of the current MRF method using a novel hexagonal tip-based tool core to fine finish the external surface of the FDM cylindric work part. In the current research, with five levels and four parameters, central composite design (CCD) is CCD has planned 30 experiments in total, as stated in Table 3. Each sample measured 15 mm in length and 20 mm in diameter. Each experiment is conducted for 60 min and the MRP fluid is changed over the hexagonal tip-based tool surface after every 20 min of the finishing. This is done in order to keep the abrasives cutting edges fresh while finishing the exterior surface of the FDM produced polymer component. Further, the analysis of variance's (ANOVA) F-test is performed for identification of the predicted equation to strengthen the relation amid the process parameters the *% ΔRa*. The *% ΔRa* can be calculated using Eq. (1).

$$\% \Delta R_a = \frac{(R_{ai} - R_{af})}{R_{ai}} \times 100 \quad (1)$$

where is the initial avg. *Ra* and is the final avg. *Ra* of the FDM fabricated polymer workpiece surface. Further, to analyse the efficacy of the present MRF process, the study of the surface roughness and waviness using Mitutoyo SJ-410 instrument, surface characteristics using optical microscopy, and microhardness tests using Mitutoyo HM-210 model.

Results and discussion

A total of 30 experimentations are conducted in the present work to evaluate the effect on the outcome response *(% ΔR_a)* of the process parameters. Since the initial R_a *(R_{ai})* values of the external surface of the FDM-fabricated polymer workpiece varies from 630-590 nm, therefore the outcome is taken as *% ΔR_a* for experimentations. Following the experiments, three average R_a (R_{a1}, R_{a2}, and R_{a3}) are evaluated and presented in Table 3 at three distinct places over the FDM-fabricated exterior surface. Further, the final *Raf* value is obtained by taking the average of R_{a1}, R_{a2}, and R_{a3} which is further utilized in Eq. (2) for obtaining the *% ΔR_a*. Next, for developing the statistical model, ANOVA is used. Based on the sequential model upon performing ANOVA, the predicted model's p-value is found less than 0.05.

It verifies the present predicted model significance. Furthermore, the lack of fit's p-value is higher than 0.05 (0.9567), indicating its non-significance. The second-order mathematical regression model equation in terms of actual factors which is utilized for analyzing the effect of the process parameter on *% ΔR_a* is given by Eq. (2).

$$\%\Delta R_a = 9.75 + 3.33 \times 10^{-3}\, T + 0.508W + 1.933R + 17.08I - 3.875 \times 10^{-4} T^2 - 0.0425W^2 - 0.125R^2 - 4.375I^2 + 3.875 \times 10^{-3} TW + 4.25 \times 10^{-3} TR + 0.0225TI + 0.0425WR \quad (2)$$

where actual factors are presented as W is the workpiece rotation (rpm), T is the hexagonal tip-based tool rotation (rpm), R is the reciprocatory motion of the tool (cm/min) and I is the magnetizing current (A).

Further, the closeness amid the predicted and experimental values also gets authenticated from the model as the R-squared value is 89.91 % and Adj R-squared is 82.79 % value showing the accuracy of the model. The finishing is performed using the best process parameters over the 18,840 mm^2 external surface area (diameter 20 mm and length 150 mm) of the FDM fabricated cylindrical component until substantial enhancement is noticed. The *Ra* value is reduced from 590 nm to 80 nm on the overall polymer FDM fabricated external workpiece in 120 min of finishing cycle (FC) time as shown in Fig. 5.

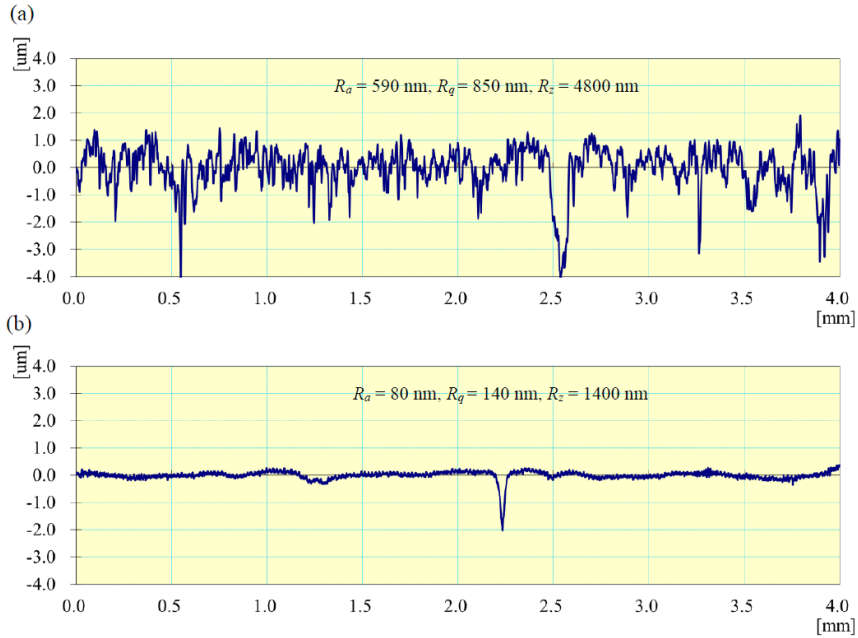


Figure 4: Surface roughness profile of the (a) initial ground surface, and (b) final finished surface using mr-finishing on the external fdm fabricated cylindric surface (diameter of 20 mm and length of 150 mm) with 120 min of finishing

The FC time is taken as 20 min for each fine finishing set over the workpiece surface. After each FC, the MRP fluid is changed over the hexagonal tip-based electromagnetic tool surface so that the workpiece surface remains in contact with the freshly cut AAPs edges throughout finishing. After the completion of each finishing cycle, the *Ra* value is measured. Furthermore, no significant improvement was observed after 120 min of MRF on the FDM fabricated cylindric external surface.

Fig. 5 shows the surface roughness (R_a) profiles for the before and after MR finished surface. Figure 5(a) depicts the initial ground R_a profile parameters as R_a = 590 nm, R_q = 850 nm, R_z = 4800 nm. Further, Fig. 5(b) depicts the final MR finished R_a after 120 min of FC with the best process parameters over the workpiece's total external surface of 18,840 mm^2. With the MRF process, the final finished SR parameters on the FDM fabricated workpiece surface is measured as R_a = 80 nm, R_q = 140 nm, R_z = 1400 nm. Thus, after 120 min of MRF on the FDM fabricated workpiece surface, the %age reduction in R_a, R_q, and R_z is achieved as 86.44 %, 83.52 %, and 70.83 % respectively using the optimum parameters. This confirms the substantial upsurge in the surface finish by the degree of variation in SR profile parameters from before to after MR-finished FDM fabricated polymer cylindrical external surface. The finishing of the FDM fabricated polymer's external surface occurs in two steps. As seen in Fig. 5, the AAPs are first indented on the workpiece surface owing to the *Fmag*. Furthermore, owing to the simultaneous tool and workpiece rotation and tool reciprocation, the indented AAPs shear off roughness asperities from the workpiece's surface until fine finishing is obtained, as illustrated in Fig. 5. Further, optical microscopy is utilized to examine surface morphology to assess surface properties. Figure 6 shows micrographs at 100x for initial ground surface and final MR finished FDM fabricated external cylindric polymer surface after 120 min.

Figure 5(a) shows the initial workpiece's exterior cylindric surface after grinding, which is unevenly finished.

There are various surface flaws on the initial surface, such as grinding lays and scratch marks. These marks on the initial surface form clusters as revealed by the material displacement. Furthermore, the non-uniform grinding lays are generated during the grinding process contribute to the buildup of worn debris.

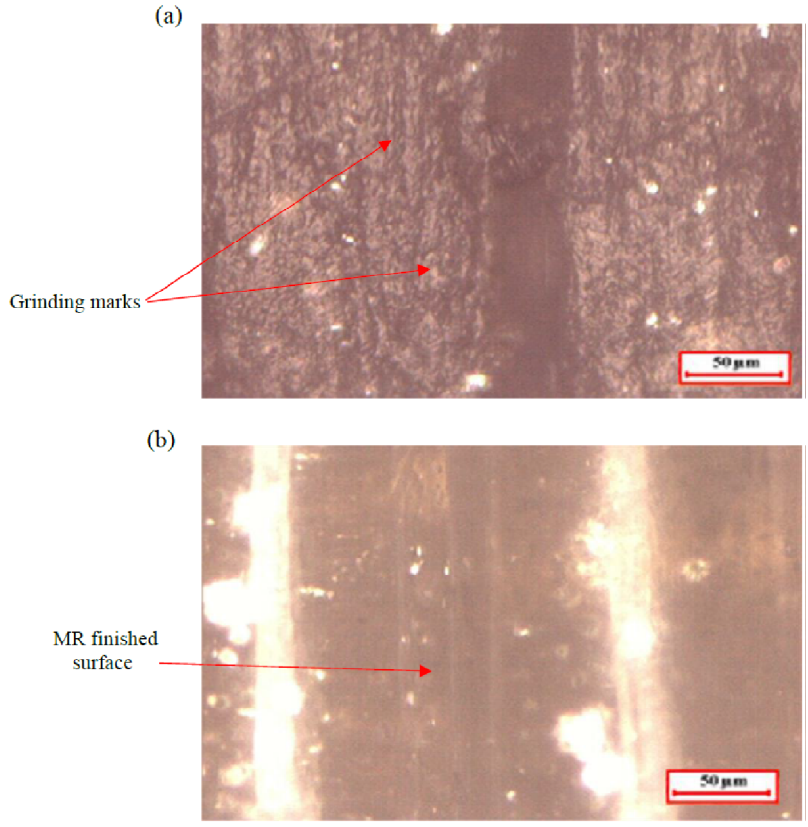


Figure 5: Optical microscopic surface images at 100x of the (a) initial ground surface, and (b) final finished surface using MR-finishing on the FDM fabricated external cylindric surface (diameter of 20 mm and length of 150 mm) with 120 min of finishing

However, the subsequent ABS material's fused performed layer has been entirely flattened, with visible scratch marks. Further, after the MRF process is done on the overall FDM cylindrical external surface

area of 18,840 mm^2 with 120 min of the finishing cycle, a substantial enhancement in the surface characteristics can be observed.

Figure 5(b) indicates that the grinding and scratch marks are substantially eliminated from the external cylindric FDM workpiece surface after the MRF. This is because the AAPs that is tightly gripped in the EIPs chain clip off the workpiece surface asperities in a controlled way under the influence of the magnetic field in the MRF process. Furthermore, the F_{mag} is relatively low, and material removal occurs due to the shear force. The significant enhancement in the surface characteristics of the FDM fabricated cylindrical external workpiece surface tends to enhance the service life of the components as compared to the ground FDM surface during working conditions.

Conclusion

The present magnetorheological finishing (MRF) process with the novel hexagonal tip-based rotary electromagnetic tool surface is capable of providing the fine finishing of the FDM-fabricated external cylindric surface. The fine finished FDM fabricated polymer cylindric workpiece components in industries. The upsurge in microhardness, dimensional accuracy, surface characteristics, and wear properties after the reduction in the FDM fabricated cylindric external surface roughness further validates the present MRF process efficacy. The MRF process of the FDM fabricated workpiece exterior surface led to the following conclusions.

- The optimum process parameters obtained from the parametric study such as tool rotary speed 300 rpm, workpiece rotary speed 30 rpm, tool reciprocatory speed 20 cm/min, and magnetizing current 3 A reveals the effective finishing of the FDM fabricated cylindric external surface for maximum reduction in surface roughness value.
- The significant %age reduction in roughness parameters *Ra, Rq,* and *Rz* as 86.44 %, 83.52 %, and 70.83 % respectively on the FDM fabricated cylindric external surface with the overall area of

18,840 mm^2 in 140 min of finishing with the predicted best process parameters shows the efficiency of the current MRF process with the novel hexagonal tip based electromagnetic tool surface.

- The enhancement in surface morphology of the MR finished FDM fabricated cylindric external surface confirms the removal of surface defects such as grinding lays and accumulation of the worn debris using present MRF process with best process parameters that further helps to enhance the service life of the components.
- The improvement in the surface characteristics achieved in this study advocates that the involvement of the multi-axis (automated) finishing setup is better for the finishing of the FDM fabricated external cylindric surface.
- The enhancement in surface characteristics upsurges the functional efficacy of the polymer cylindric components such as printer rollers, conveyor rollers, shafts, winding drums, and rapid prototyping tools, etc. in different industries.

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