Family Businesses and Their Transition to Industry 4.0: Human Resource Perspectives From Bangladesh

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ABSTRACT

Industry 4.0 (I4.0) is the new paradigm shift impacting businesses today. This study explores the state of Bangladeshi family businesses in adapting to I4.0 using a qualitative research methodology. Top management personnel were interviewed to capture their insights on transitioning to I4.0. The thematic analysis revealed four themes, current state of the businesses, challenges faced, pandemic impact on human resources, and future plans. Findings indicate high awareness and greater adoption of digital practices with COVID-19 acting as a catalyst. Although training is emphasized, there is a lack of focus on both career and general counselling, which may prove to be detrimental in the future. The study takes a resource-based view to find the bundle of resources acting as conditions for the family firms to evolve into the I4.0, thereby making a practical contribution to understanding the role of family businesses in implementing I4.0 policies to enrich their human resource competencies and leverage the benefits of I4.0.

KEYWORDS
Bangladesh, COVID-19, Digitization, Family Business, Human Resources, Industry 4.0, Technology

INTRODUCTION

In today’s fast-moving markets, harnessing new technologies for competitiveness is imperative (Mezghani & Ayadi, 2016). Major paradigm shifts in industry are called “industrial revolutions” and the current shift to the fourth industrial revolution (I4.0) calls for a vertical, horizontal and end to end digital integration (Telukdarie et al., 2018). In other words, I4.0 is the movement and digitalization is the process through which the shift is achieved. Adapting to these shifts requires precise knowledge, financial resources, up-gradation of skills, and a flexible organizational culture (Bag & Pretorius, 2020). I4.0 not only changes industrial work processes but impacts employees at all levels (Harteis, 2018). The rapid rate of technological disruptions caused by I4.0 has created a significant gap between current skills of employees and the evolving requirements of their roles, and this forms the basis of paying more attention to effective approaches for talent development (Whysall et al., 2019; Bag, et al., 2021a).
Bangladesh is one of the fastest-growing economies in Asia-Pacific. With a GDP ranging from 6% to 8% during the last two decades, it is projected to be the twenty-eighth largest economy in the world by 2030 (Rumi et al., 2020). The integration of I4.0 will facilitate prompt management decisions to seize new opportunities. As a developing country, adapting to I4.0 through digitization is beneficial not just for production acceleration but also economic growth (Islam et al., 2018). Experts predict that businesses will be able to increase their productivity by about 30% using digitalization. Though the immediate impact might not be discernable, it will gradually bring about shifts that will transform the present production, jobs, businesses, and livelihoods (Bhuiyan et al., 2020).

However, to maximize benefits from I4.0, the government and decision-makers of private organizations need to act collaboratively so that I4.0 can be adapted and implemented in diverse industries (Bhuiyan et al., 2020). The Government of Bangladesh has already taken the Five-Year plan to implement Sustainable Development Goals (SDGs) by promoting favorable trade policies along with industrialization, digitization, and inclusive development (Rumi et al., 2021). Nevertheless, this goal also requires the active participation of educational institutions to raise awareness and train human resources with the new competencies. Additionally, companies in the private sector will have to develop the needed skills through specialized training (Rao et al., 2020).

The private business sector of Bangladesh is largely dominated by family businesses, representing 73.6% of large firms. These businesses have shown great resilience over the years and survived the previous paradigm shifts. Hence, it can be reasonably argued that, in facing up to the challenges of I4.0, family-owned businesses will be at the forefront.

As an interface responsible for all employees, Human Resources (HR) is particularly challenged by the imminent changes (Sorko et al., 2016). Of the eight priority areas for action outlined in the final report of the I4.0 working group, two of them are i) to implement a socio-technical approach for work organization which offers workers the opportunity to enjoy greater responsibility and enhance personal development (work organisation and design) and ii) to adopt strategies to foster learning, enabling long-life learning and workplace-based professional development (training and continuing professional development) (Matt et al., 2020). For companies, it is going to be crucial to develop an adequate HR management strategy as part of their corporate strategy. I4.0 presents the challenge of unemployment, although it has the potential to open new doors. It is therefore imperative that HR professionals remain relevant in the industry to keep their organizations up to date with the transition, as the implementation is unavoidable (Dhanpat et al., 2020).

Considering its importance, research on the topic of I4.0 and HR “lacks a managerial perspective” (Schneider, 2018; Shamim et al., 2016). Most of the previous studies on this topic are based in developed countries like Russia (Fedorova et al., 2019; Ivanova et al., 2019), Germany (Becker & Stern, 2016; Bonekamp & Sure, 2016; Hecklau et al., 2016; Schneider, 2018; Whysall et al., 2019), Austria (Sorko et al., 2016), mainland Europe (Bouwman et al., 2018; Harteis, 2018), South Africa (Dhanpat et al., 2020; Bag et al., 2021a; Bag et al., 2021b) and Poland (Piwowar-Sulej, 2020). Additionally, there is a lack of empirical research relating to I4.0 (Shamim et al., 2016) in the developing countries of South Asia, especially Bangladesh (Islam et al., 2018), and none focusing on I4.0 and family businesses.

The findings from a recent survey of family businesses by PriceWaterhouseCoopers reveal that one of the crucial challenges for companies today is accessing the right skills and capabilities due to the lack of relevant qualified professionals. The challenge is acute because 94% of the respondents agree that attracting and retaining the best talent is key to growth (PricewaterhouseCoopers Bangladesh, 2019). Since the private sector in Bangladesh represents a major part of the economy, it contributes to wealth creation, employment generation, and foreign investment. Given the significance of the right kind of people needed to take the country forward, it is therefore critical that HR management has a vision for the required skills, appropriate training programs to hone the needed skills, a proper career path for the people to be industry-relevant and ensuring their psychological well-being so they adapt themselves with the rapidly changing environment.
This study intends to address the family businesses in Bangladesh (at least in their second generation of operation) using a resource-based theory to better analyze their current state and future plans regarding HR management in the age of digitalization for being able to shift to I4.0. Based on the gaps mentioned above, this research will answer the following research questions:

**RQ1:** To what extent Bangladeshi family businesses are adopting digitalization and automation, while preparing for I4.0?

**RQ2:** What challenges are the HR managers and top management facing in order to adopt these practices (automation and digitalization)?

**RQ3:** What plans do the family businesses have for overcoming the challenges and transition into I4.0?

The research questions are addressed using a qualitative approach. Key informants from Bangladeshi family businesses were interviewed using semi-structured questions. The in-depth interviews provide insights, and a thematic analysis was done in order to address the research questions. The remaining sections are organized as follows: The second section provides a literature review on I4.0 and human resource management and family businesses in Bangladesh. The third section explains the methodology of the paper. The fourth section explains the data collection process, followed by the fifth section which analyses and discusses the findings. The final section concludes with possible research potential for the future.

**LITERATURE REVIEW**

**Industry 4.0 and Human Resource Management**

Since I4.0 impacts all workers, combining all areas of personnel management by using digital technologies for transparency and consistency is required (Fedorova et al., 2019). Due to the digital revolution, e-HR emerged as a new way of practicing HRM activities with the latest web-based and computer-based tools and applications. These applications made it possible for HR professionals to focus on their core work. This is important because, although the role of HR is strategic and key to organizational growth, most of the HR departments are often seen to be playing an operational role (Sivathanu & Pillai, 2018).

With e-HR adoption, human resources staff are enabled to focus on strategic functions of their jobs (Fedorova et al., 2019; Baykal, 2020). Although I4.0 poses various challenges regarding employee qualification, it also provides new technological possibilities, enabling more efficient and secure training and learning processes (Schneider, 2018). Many of the most popular roles in I4.0 (like app developers and data scientists) were non-existent 10 years ago. Hence, the skills required to undertake these roles are either missing or limited within the education or talent system. In an environment of rapid technological and organizational change, there is increased responsibility on organizations to look ahead and forecast required future skills (Sorko et al., 2016; Whysall et al., 2019). Organizations in I4.0 need to design their training programs in a way that can enhance innovative capability and learning (Shamim et al., 2016; Bag et al., 2020). Future human work areas will be different but not fully replaced by automation. The number of jobs will decrease but new jobs will be created around machines/cyber-physical systems and new tasks will be intensely connected to computational devices (Becker & Stern, 2016).

Employees of the future will need to be more digitally competent and skilled at interacting with machines. Management will have to look for employees who show more openness to experience and also are willing to unlearn (Shamim et al., 2016), since current predictions state that a redistribution of the workforce and a redesign of job profiles may be required (Sorko et al., 2016).

**Family Business in Bangladesh**

Family businesses are a significant component of the global economy, contributing to more than 75% of the Gross Domestic Product (GDP) of most countries and employing more than 85% of the working
population around the world. Though they do not have a formal definition, they are generally defined as businesses that are owned and managed by families, passed down from generation to generation. The survival and the persistence of family ownership is associated with the ability of families to select the most capable managers both from inside and outside the family (Pérez & Raposo, 2007).

In Bangladesh, families own and control most of the firms in Bangladesh (Imam & Malik, 2007; Muttakin et al., 2012). Over the years, these firms have performed with great resilience, contributing to economic development despite operating under conditions of scarce resources. According to a report by PwC, 91% of them plan to pass on management and/or leadership to the next generation. This is significantly higher compared to the global average of 57% (PricewaterhouseCoopers Bangladesh, 2019).

The businesses that emerged during the colonial period and survived the 1971 liberation war were highly entrepreneurial in nature. They identified opportunities for survival and growth, operating under resource limitations, high volatility, and state incapacities. With a firm focus on innovation, they developed capable successors by grooming them with education and training, who could then lead the businesses with managerial skills.

Based on these attributes, it can be said that an entrepreneur is one who identifies opportunities and makes decisions about the coordination of scarce resources with an economic aim and under conditions of uncertainty (Shane, 2003). This means that the entrepreneur is not a capitalist or an inventor, but rather someone who ‘gets things done’ with an economic aim. Making decisions about scarce resources and surviving under uncertainty led the family firms to adopt innovation, risk-taking, adaptability, and successor development. Given the transition to I4.0 is the next big step for most firms, this study aims to observe the readiness of the family firms in this context.

**Resource Based View**

The Resource-Based View (RBV) posits that in order for organizations to develop superior competitive advantages, there needs to be managerial attention on the firm’s valuable, rare, imperfectly imitable, and not substitutable internal resources (Barney, 1991). In fact, this view suggests that organizations must develop unique, firm-specific core competencies that will allow them to outperform competitors by doing things differently (Prahalad & Hamel, 1990; Yang, 2013). Not all resources are of equal importance, nor do they possess the potential to become a source of sustainable competitive advantage. That is why, a great deal of managerial effort must be invested in identifying, understanding, and classifying core competencies and then invest in organizational learning to develop, nurture and maintain key resources and competencies (Barney, 2001).

According to resource-based theorists (Barney, 1991; Grant, 1991; Peteraf, 1993), a firm is viewed as a unique bundle of resources that accounts for competitive advantage. Just having resources and capabilities is not sufficient to guarantee success. Sustainable competitive advantage comes from distinctive resources or capabilities that firms possess or something they do particularly well compared to their competitors (Peteraf, 1993).

Family businesses possess certain strategic resources and capabilities that may bring about a competitive advantage. One unique feature of a family firm is the high degree of members’ commitment and dedication compared to that of a non-family firm (Ward, 2011). Habbershon and Williams (1999) described this unique feature as the “familiness” of the firm.

For family firms, it is the tacit knowledge that is embedded in the firm’s routines to integrate, coordinate, and mobilize resources and capabilities successfully (Grant, 1991). In that sense, the firm’s specific knowledge, as well as the ability to create and transfer it, are considered a key strategic asset that may be positively associated with higher levels of performance because they are difficult to trade and imitate, scarce, appropriable, and specialized (Nonaka & Takeuchi, 1995; Spender, 1996). Thus, commitment, shared values, culture, trust, reputation are considered as the family business’s
unique features that can give it certain strategic resources and capabilities to achieve long-term success (Habbershon & Williams, 1999) and these attributes are also critical for a smoother transition during a paradigm shift like I4.0. In this study, RBV is used to discuss the findings that emerged from thematic analysis.

**Methodology**

This study employed a qualitative research methodology to gain useful insights into how Bangladeshi family businesses assess their stand on I4.0, and how they establish the competencies needed by HR professionals to operate within I4.0. The dearth of I4.0 and HR based literature in context to Bangladesh let the researchers adopt a qualitative approach in order to investigate its usefulness, practice and planning (Braun & Clarke, 2006) among Bangladeshi businesses.

**Population, Sample and Research Instrument**

The sample was chosen through a convenience sampling method. The sample comprised of 18 professionals (owners, CEOs, or HR managers) from 18 well-known Bangladeshi family-owned firms. According to Gupta et al. (2019), if the respondents for a study are chosen based on their knowledge and experience the sample number can be limited. Hence 18 family firms representing diverse industries like textile, media, transportation, IT, food & beverage and conglomerates were approached for the study. A non-probability purposive sampling method was used to select the interviewees. Non-probability or purposive sampling in qualitative research enables researchers to extract a significant amount of data from purposely chosen respondents who are selected based on specific criteria that is conducive to the attainment of the objective of the study (Campbell et al., 2020). Each chosen respondent from these firms belonged to the higher echelons of the organizational hierarchy with significant decision-making power with a broader vision of the organizational goals. As suggested by Barratt et al. (2010) and Wilhelm et al. (2015), all 18 participants are educated, experienced, and knowledgeable, key position holders and actively engaged in firm policy decisions and therefore capable of providing insights into the firm and industry-level issues regarding the adoption of I4.0 practices. The sample comprised 11 men and 7 women. The mean age was 45 years. Table 1 shows the participant profile.

**Data Collection and Analysis**

The triangulation method was used for data collection, through triangulation techniques of semi-structured interviews, secondary reports like company reports and websites & archival resources (Pagell & Wu, 2009; Moon, 2019). This is a preferred technique by researchers for enhancing reliability and validity (Cope, 2013) since it helps in reducing biases and strengthens the validity, reliability, and legitimation.

Participants were approached through emails and phone calls and upon their consent, an appropriate time for the interview was scheduled according to mutual convenience. On average, the interviews lasted between 30 minutes and 45 minutes and were conducted via the zoom platform. Interviews were recorded and thereafter transcribed. Some participants sent detailed answers to the questions in written form, due to time constraints.

Based on the responses, thematic analysis was conducted. The thematic analysis involves finding repeated meanings across a data set, and this was used to analyze the data (Gupta et al., 2019; Bag et al., 2021c). The findings were classified and arranged according to themes so that their given information could be related to the objective of this study, as recommended by Xu and Zammit (2020). A theme refers to a specific pattern in the data findings in relation to the research questions (Braun et al., 2019).
Findings

Through thematic analysis, four themes were identified that were perceived by the key decision-makers to be important for making the workforce ready for I4.0. Table 2 below shows the four themes and their respective sub-themes.

Theme 1: Industry 4.0 in Organizations

The findings related to I4.0 in organizations included three subthemes, generational change, industry impact and the adoption of technology.

Generation

Since our study focused on family businesses which are currently being monitored by the second generation or later, it is evident that the new generation would be bringing about changes and be more aligned with technology. Participants mentioned that they were instrumental in bringing about notable changes pertaining to technology citing examples of how things were done previously like:
My father started this business, and they did everything manually. However, we have moved a lot forward from then and have been integrating technology into our business to cope with the ever-changing business world. (P9)

My father never understood the need of technology in the business. Only recently I have started to incorporate some technology platforms to manage the company better. (P14)

Industry Impact

It is known that I4.0 will be impacting different industries in different ways. Hence some of the practices or impacts of the change will be dependent on the industry in which the company operates. Participant 6, representing a print media company, clearly mentions this industry-specific impact when she says “Our website, fashion portfolio, among others, have a demand for both offline and online copies. They are complementary to one another and not alternatives to each other.

Mentioning technology as a source of competitive advantage in the timber industry, participant 14 mentions “Use of technology is no longer a luxury. It is a need. Technology sophistication may even lead to competitive advantage in the future in our wood industry.”

Participants representing tech-based companies clearly mentioned that, given the nature of their business, it was imperative for them to be technologically aligned:

As it is a tech-based company, tech-based competition is crucial here to survive. The company is managing a team name ‘Tech Exploration’ to find new technologies to be a more updated and efficient technology. (P 13)

Adoption of Technology

Table 3 shows some of the technology and software adopted by the companies in order to be more efficient and digitized.

Theme 2: HR Strategies

The HR strategies encompass the domains of HR which are impacted due to the I4.0 and it has three subthemes, recruitment and hiring, training, and career counseling.
Recruitment and Selection

Participants mentioned several changes in their recruitment practices to cater to the needs of changing times, starting from the qualifications sought to the process of recruitment. Describing a change in the recruitment process, participant 5 mentioned that:

Hiring at the beginning was monotonous, via different job portals and media, however, after I joined the company, I started circulating recruitment posts through our social media and LinkedIn. I also promoted attending job fairs, something that wasn’t practiced by our HR team previously. (P5)

Some participants also mentioned that, although they do not have any specific criteria regarding the level of tech-savviness expected from an applicant, it is expected that they would have the basic technological inclination:

We do not have any specific specialized policies for future recruitment of technologically savvy people; however, our recruitment process includes computer-based assessment system for fresher/ mid-level candidates which ultimately facilitates technologically savvy people. (P3)

Participant 17 highlighted the fact that recruitment of younger people/ fresh graduates ensures that the upcoming workforce is more tech-savvy:

Most of the workforce that is being recruited now is from the younger generation and they are pretty technologically educated. We have a basic requirement while recruiting these people like knowing how to navigate through a computer and operating the required software. (P17)

Some participants clearly stated their emphasis on the knowledge of certain technologies which is required for the job:

There are a few specific skills we are in need of now such as: graphics designer, web developer, marketing minds who know about SEO, Keywords, traction, etc., especially digital marketing experts. These updated skills are factors that we consider while recruiting. (P6)
Training

Overall, training emerged as a strong subtheme, since most of the participants mentioned the importance of training. Some of the participants mentioned about getting their employees trained from external organizations for specialized training:

*We get resources from Bus BD for all the technical support including technological training and performance evaluation for adapting digitalization.* (P12)

*We have given them training with the help of SHE Trades Commonwealth. We also got training from REN Marketing on digital marketing for social media.* (P8)

New recruits are trained as part of their orientation so that they have a smooth transition into the organization:

*In order to accustom our staffs with the different software and management systems that we use on a daily basis, we organize intensive courses spanning 3-4 days at the beginning of their employment and it has been effective and working well for us.* (P2)

Emphasizing on the fact that training is a continuous process and not a one-off phenomenon, several participants also described their ongoing training plans:

*We have extensive training programs. Via assistance from SMART software, we make sure to train our employees on a monthly basis. With every new upgrade that comes along, during the month-end our employees go through 3-4 days of training sessions and are trained in batches, since the training recruitments are different.* (P4)

Career Counselling

Since the current graduates are launching their careers amid I4.0, driven by digitalization, and a constantly evolving world of work, it is also the role of the companies to provide them the appropriate counselling and guidance, so that the employees are equipped with the relevant and contemporary expertise. Although the participants strongly endorsed training, which is to enhance the current skills of the employees, the researchers were interested to find out if the companies had any plans for guiding employees regarding demands of emerging skills.

The overall feedback shows that none of these companies have a formal career counselling program at the moment, but the participants shared how they are trying to mitigate this issue:

*Specifically, we do not provide any form of career counselling, but career path programs exist, where supervisors have bi-annual (quarterly for sales team) performance reviews, which provide scopes for rising up the hierarchy.* (P7)

*HR department pays attention on employees’ career issues from day one. Besides, through training and mentoring we always try to show the carrier path among the incumbents. Moreover, we follow an open-door policy through which anyone can take advice from their superiors regarding how to be successful in the workforce.* (P3)

Participant 2 mentions that, in their line of work, even in the future the key skill required would be “communications” and that is the skill they keep on honing:
As a company, we try to motivate and prepare them for the future. We focus more on our sales staff because, as a retail business, our main revenue comes from the showrooms and keeping them mentally boosted is very important. Their communication skills need proper brushing. (P2)

Two other participants mentioned that, since their old employees are valuable to them and they would like to retain them, they plan to outsource special services which may not be performed by the employees, or, they would shift the employees to their sister concerns:

In relation to the technological training, we told them that in case they were not at all able to adapt, we would transfer them to our sister concerns, where the use of technology wasn’t as important. Till now, we only had to transfer 3 employees. (P4)

However, the participants did agree that career counselling is important, and going forward, they intend to formalize this service for the employees:

Personally, this is something I have been trying very hard to put together, but we cannot do it for several reasons. It’s a work in progress though. (P5)

**Theme 3: Covid 19 and Impact on HR**

**Work From Home (WFH)**

Work from home (WFH) has been prevalent in many countries of the world even prior to the pandemic. For Bangladesh, it was a totally novel concept that was pushed due to the pandemic (Karmaker, 2020). All the participants agreed that they had to take specific decisions and device strategies to manage WFH. Given the novelty of the concept, some participants mentioned the challenges associated with working from home:

We have been working from home and as a result, it impacted our training sessions, motivation sessions, sales, accounting department, liaison with customer and suppliers. It is difficult to monitor the performances of employees if you can’t see them in person, so it has been quite hard to calculate the salaries. (P9)

We did rotation and gave WFH facilities. We ensured that people who are working from home are aware of the know-how of running the functions. We exchanged their desktop computers with laptops, since more people are to work from home now. (P1)

For some of the organizations, it was impossible to work from home, given the nature of work:

It’s absolutely impossible for the manufacturing industry. Everything done in manufacturing has to be done physically. The middle-level managers are pivotal for monitoring the work process and the workers. They have to physically be present at the site to touch, feel and see the product in order to ensure the quality. (P17)

Participant 4 also mentioned that WFH increased their efficiency:

Something we noticed is that they are working faster in the WFH setting, given the flexibility, they are more comfortable and have less pressure, they get the work done in their preferred time, and it gets done more efficiently. The productivity has increased. (P4)
Participants also mentioned some strategies used to monitor WFH:

We have had a scrum or stand-up meeting policy, one at the beginning and the other at the end of the day. Pre-Covid we couldn’t realize this idea of scrum or stand-up meetings for whatever reason but now they take it seriously because this is the only way to ensure that the deadlines are being met and the deliverables are being received. (P18)

**Hybrid Mode of Work**

Given the advent of the WFH option due to the pandemic, many organizations are now planning for hybrid modes even if things move back to normal. The participants had a varied take on the adoption of the hybrid model although there was unanimous agreement that the pandemic has made it a possibility:

Home office during the initial lockdown period was very new to all but now it is more familiar, and all levels of managers are equally acquainted with this, so we can have a hybrid design. (P18)

We would continue this hybrid mode of work; at least for my marketing & sales department, I would do it for sure. Maybe 2 days a week can be done from office but not every day. (P5)

Some participants also mentioned that although hybrid may be applicable for certain sectors/departments, for others it is imperative to be at the office:

For some employees, we could still keep them home (hybrid) but for the majority, they need to be in the office. We have a lot of physical visits to government organizations for various permits. Unless the government activities aren’t online or digitized, they can never work from home. (P4)

**Impact on Recruitment**

Most of the participants agreed that they faced challenges regarding recruitment as well as laying off employees due to the economic crisis.

When it came to the process of hiring, participants mentioned some changes made during the pandemic:

During the pandemic, we took time-bound pre-recorded video submissions from our applicants. (P18)

Due to Covid-19, we allow them to take exams online and ask them to write a paragraph or two to assess their writing abilities, and then put those up in plagiarism tools which allows us to filter some more candidates. Alongside, the video interviews are for marketing and sales. (P5)

Some participants also mentioned that they were struggling to find the right kind of people due to the lockdowns:

We need more skilled and educated people in this and we are facing that problem to find people at this time. And we need to hire them to make this company bigger. (P11)

Meanwhile other participants mentioned that they are clearly looking for more tech-savvy people in the future, given the pandemic has made them more dependent on technology:

We might get someone for IT and technological specialist in future. (P12)
Participant 2 also mentioned that they had to lay-off a few employees:

*Given the ongoing Covid-19 pandemic, we had to lay-off a few employees for cost-cutting and in order to balance off our sales with our revenue. Even with few employees gone, our works are not being hampered.* (P2)

**Adoption of Technology**

Although the companies were adopting technology with the advent of time and change of leadership in terms of generation, there are some specific adoptions that took place during the pandemic:

*During Covid-19, even the most anti-tech people were forced to adapt to technology in a positive way.* (P5)

We have been using WhatsApp, Zoom, Viber, Gboard within our internal team. The top and middle management used these apps way before the pandemic, but it is more frequently used now. (P14)

**Theme 4: Challenges**

Since the effects of digitalization have a direct influence on work tasks and processes, it is expected that some work processes will change, some will become obsolete, and some new will be established (Harteis, 2018). These changes automatically bring about a set of challenges represented by the subthemes, older employees, fear of automation, and general counselling.

**Older/Elderly Employees**

Most family businesses have few employees who have been with the company since its inception. With the passage of time, they form an emotional bond with the organization and employer, although at times, they are unable to keep up with the fast-paced work environment. This is one common challenge faced by many organizations, who are now seeing second generation leadership:

*It takes a lot of grooming, hard bargaining, and patience to convince the older employees to adapt to new technology. If it takes 6 months for a young employee to learn some new tech, it takes the older employee almost two years.* (P10)

The older employees are getting harder to train with new technologies because they hardly have any proper educational background. They tried very hard and rather than understanding it, they started to memorize everything and get confused in data input of travel routes of different coaches. (P12)

Some strategies taken by the companies to tackle this challenge includes tagging them with younger employees, repeated trainings, and motivation:

*There are people, who are not technologically sound, especially aged employees and for whom we make sure to tag younger employees with them to facilitate and support them.* (P1)

Other participants mentioned that they consciously avoid giving tech-based roles to the older employees:

*We give them jobs that don’t require tech.* (P14)
Fear of Automation

Transformation to 4.0 is likely to create both positive and negative impacts in different sectors (Rumi et al., 2020). Although the adoption of new technologies is an important issue (Mezghani & Ayadi, 2016), fear of automation is one such negative factor. A US based research also shows that, 20% to 33% of employees in an organization might be technophobes (Khasawneh, 2020):

When we introduced the concept of digitization to our employees and that we do not need all these folders; we can go paperless and report everything digitally, the first thing the employees had was fear. They thought we will replace them with technology. (P4)

There surely was a fear, in case we use an accounting software or human resources software then we won’t need to have employees. (P5)

Participants also mentioned that this fear of “not being” ready for tech adoption has also resulted in companies laying off their employees, or employees leaving themselves:

Definitely, the hardest thing we had to do; a portion of our employee base has been screened out since we were focusing on automation and digitalization, and they had less or no educational background. (P11)

Two of our employees quit because of the fear of automation. (P12)

General Counselling

General counselling refers to counselling via not focusing on the career path of the employee, but rather helping them deal with fear. Some ways to mitigate this fear include:

In order to eliminate this fear factor and provide them with confidence, we had to tell them that we need to make things easier for all of us, hence, the technology. (P18)

When we used to have training, people from every level of the organization attended those trainings so that nobody felt inferior and so that they knew we are all in this together. (P4)

Additionally, participant 9 mentioned about bringing external speakers to motivate employees:

Our company invited over motivational speakers like Mr. Saifur (Saifur’s Coaching Centre), Mr. Don Samdany and it has helped a lot so far. (P9)

Given family business carry their legacy forward, participant 14 expressed his wish to carry his father’s legacy forward:

My father informally helps the families of our workers with financial support and consultancy to instill confidence in them. I intend to carry this forward. (P14)

Although participants agreed that fear factor was prevalent when it came to adoption of technology; few participants also mentioned that they do not have any such counselling plan at the moment:

We don’t have these things locked right now but we will have it in our future plan. (P10)
DISCUSSION

Theme 1: Industry 4.0 in Organizations

Family firms in Bangladesh have always been on the forefront of taking up challenges in adverse circumstances and have stood the test of time. With the current advent of I4.0, family firms are also impacted. Findings suggested three subthemes to I4.0 in organizations, generation, industry impact and adoption of technology. It is seen that, the current leadership understands the changing times and are bringing about changes in the business, shifting from manual to automation of processes. Since the companies represented a diverse set of industries, each one was being impacted by the transition in different ways. Companies who are more tech-based (software, IT) are transitioning faster, whereas companies in the print business must strike a balance between traditional and digital. The key informants also described the different types of software that were introduced in their firms, as a step towards digitalization. This is in line with previous research which shows that, although Bangladesh has lots of challenges such as lack of awareness, insufficient funding, and lack of digital infrastructure, in recent years, private authorities are taking initiatives in the development of infrastructure and human, technical, and financial capacity to reap the benefits from I4.0 (Bhuiyan et al., 2020).

Theme 2: HR Strategies and Industry 4.0

For the family business, the subthemes which emerged for HR strategies include recruitment and selection, training and career counselling.

Findings show that the process of recruitment has become more digital, including greater use of digital media for circulating job posts. This is in line with global findings since the use of websites and other forms of online media to recruit potential employees has been increasing in recent years (Eveleth et al., 2018; Sivathanu & Pillai, 2018) and such sites offer benefits to both the organization and the applicants. Additionally, in certain companies, candidates need to sit for computer-based exams, which automatically screens out applicants without basic digital skills. In terms of selection, there is more focus on technologically savvy candidates. Although basic fluency with technology is expected from the new recruits (who happen to be fresh graduates), some companies also select candidates based on specific technological knowledge, aligned to their field of work.

To prepare for I4.0, companies need to design training programs in a way which will enhance the innovative capability and learning (Shamim et al., 2016) of employees. Since the transition into I4.0 is going to bring about changes, there is a strong need for workplace learning, or vocational education and training (Harteis, 2018). The findings indicate that training is a strong subtheme for the HR Strategies and most of the companies emphasized on the importance of training their workforce. Types of training ranged from training directed towards new recruits, professional training for specialized learning and periodic training on contemporary topics as refresher training.

HR professionals are responsible for guiding employees’ personal career objectives with the vision of developing them for future needs of the organization (Dhanpat et al., 2020). Career counselling emerged as the third subtheme under HR Strategies. Findings reveal that, most of the organizations do not have a formal pathway or career counselling services but are using other methods to address this issue. Performance appraisals, open door policy (ability to communicate openly with superiors) and on the job grooming are some ways to show the path to the employees and keep them relevant. Additionally, when it came to valuable older employees, firms decided to shift them to other departments or sister concerns, just to accommodate them in the workforce. However, formal career counselling paths is a critical factor for the coming days because, in order to attract talent and be branded as an employer, it is important to include individual development plans for every employee, along with supporting working conditions (Sorko et al., 2016). Two of the most critical factors that determine an organization’s fate in I4.0 are the quality of its human capital and the way it manages its talent pipeline (Whysall et al., 2019), and this calls for developing the talent pool for the coming future.
Theme 3: Covid 19 and Impact on HR

The effectiveness of HR practices measures organizations’ capabilities to respond to emerging HR issues (Zhong et al., 2021). Due to this pandemic, four subthemes emerged for HR, namely work from home (WFH), hybrid mode of work, impact on recruitment and adoption of technology.

Since work from home was a new concept for Bangladesh, the participants mentioned that it was a challenge. Common challenges included lack of access to internet and the inability to monitor employees directly. Some companies provided employees with portable smart devices to enable them to complete their work.

Participants mentioned about changes in the way of day-to-day operations during WFH, including options for online attendance, scrum meetings at the beginning and end of day and focusing more on deliverables rather than number of hours worked. Although in some cases, WFH ended up improving employee productivity (they could do things in their own time and no time was wasted in traffic jam), some companies also mentioned that in their line of work, it was impossible to adopt WFH as an ongoing option.

The second subtheme is hybrid mode of work. As mentioned before, for some organizations WFH is not a feasible option at all, however for others it did prove to be productive and efficient. Hence, when things will go back to normal, some companies will opt for a hybrid mode, for the departments or sectors capable of working remotely.

The third subtheme was the impact on recruitment. As with the global trend, the pandemic had significant impact in the recruitment in Bangladeshi firms as well. Firstly, the process of recruitment saw a great deal of automation, from online interviews, recorded interviews, computer-based assessment exams and mobile hiring apps customized for companies. Some participants also mentioned that given the lockdown and the overall uncertainty, they were finding it hard to recruit suitable people as there was limited option for face-to-face interactions. There is now more focus and emphasis on tech-savviness due to the push in digitalization caused by the pandemic. Unfortunately, some participants also mentioned that they had to make some layoffs, in order to sustain their business.

The fourth subtheme is the adoption of technology specifically due to the pandemic, which forced people to adapt to working with remote connectivity. Participants mentioned that most people adapted to technology and salaries were also being disbursed online. Not only is there a huge surge of using digital platforms like Zoom and Google Meet, but overall business focus has also shifted to digital mode, including digital payments, portals and media. Hence, to cope with this change, employees also had to adopt technology much faster than they would have otherwise. Previous research described the concepts of I4.0 as relatively new (Rao et al., 2020) and posited the importance of building awareness among the authorities, policymakers, businesses and industries, academicians, employees, and consumers. This was required since adoption of technology is likely to have significant impact on work patterns (Bhuiyan et al., 2020). This study shows that, due to the Covid 19, there has been a push in digital adoption as everyone is now more aware and adept at using technology.

Theme 4: Challenges

I4.0 will optimize the future of work, to improve rather than replace employment conditions and opportunities. As stated by Whysall et al. (2019), “Attracting people isn’t difficult but attracting people with the right mindset and getting that spread of expertise and personality is becoming more challenging.” The three subthemes arising as challenges include older/elderly employees, fear of automation and general counselling.

When it came to the older/elderly employees, most participants agreed that this group is usually most resistant to change, so adoption of technology is most difficult for them. However, for family businesses, since these older employees are valuable not just for their work but also the emotional connection over generations, participants mentioned some strategies taken to make them feel comfortable and inclusive. Common strategies include repeated trainings and demonstrations, so the
ease/benefit of technology becomes visible to them. Additionally, it is a common practice to tag them with younger employees or new recruits, so they learn in a more hands-on manner.

One of the downsides of automation is the fear of automation and it manifests in two-folds. Employees feel they will be unable to adapt to the new technology and introduction of the automation will make them lose their jobs. Unfortunately, some employees did leave organizations due to this fear whilst few had to be laid off since they could not cope with the pressure.

The companies do realize that breeding a negative emotion like fear is not conducive to productivity. Hence, they are taking some steps to assist the employees to deal with this transition. Some strategies include, repeated “pep talks” from superiors, inviting motivational speakers, repeated training and also training at all levels to show that no one is left out from the process. Considering employees’ fears about surveillance by digital systems, acceptance will essentially depend on the purposes for which technologies are utilized (Schneider, 2018). End of the day, superiors must drive down the message that technology is introduced to help and assist and not take their jobs. Few participants also mentioned that though they do not have any such formal counselling plans in place now, it is a priority in their agenda. Going forward, companies will need to have formal counselling programs because, typically, the role of HR professionals involves them addressing the current needs of employees by listening and empathizing as an employee advocate. This role should be used to reduce the negative emotions of anxiety and career doubt, which is vital in I4.0 since introduction of new technology results in job collapse, deskillling, job insecurity and increasing inequities (Dhanpat et al., 2020).

**CONCLUSION**

This study reveals the adaptive nature of the Bangladeshi family firms while recruiting, training and retaining employees and transitioning towards I4.0. Despite the challenges of lack of infrastructure, weak connectivity, adequate skilled people and resistance from older employees, the businesses are gradually incorporating digitalization. There is a clear understanding of the advantage of technology and a strong focus on training.

Covid-19 has undeniably pushed the adoption of technology, which is a positive factor. The business drivers of I4.0 pre-covid were competitive advantage, cost reduction, productivity, sustainability and innovation. Now the focus is on survival, recovery and resilience. Although the companies came up with various strategies to sustain and support the employees at that phase, the focus was more on immediate needs. There is a lack of focus on career counselling as well as general counselling, both of which are important for both the companies and the employees. Career counselling is likely to better prepare the employee for the I4.0 whereas general counselling is required for their emotional well-being, which will also make them more resilient. The government and the private sectors need to work collaboratively along with educational institutions and training centers to ensure that graduates have industry relevant skills. Government needs to open access to technology and make it inclusive to break down the traditional silos both within organizations and in the external supplier ecosystem, so it helps and motivates employees, companies and communities to continue moving forward. This study will be useful for other businesses as well, helping them better understand the impact of I4.0 on HR practices.

In this study the authors used the resource-based view to address the research gaps, aiming to contribute to a better understanding of the implementation stages and the respective resources acting as conditions for the family firms to evolve into the industry 4.0. The findings do show positive evidence of these firms’ readiness and further preparation to deploy Industry 4.0 effectively. This paper highlighted the bundle of resources available to firms including technology, incentive systems, trust and understanding, the transfer of knowledge from generation to generation, older employees, adapting to positive changes, training and counseling. All these resources can be leveraged to unleash the full potential of I4.0.
In addressing the research questions, the study shows that the family firms are aware of the benefits of digitalization and automation and the new generation is adopting digital practices. The rate of adoption varied from business to business but overall, there is a trend of digitalization and shift towards I4.0. With regards to challenges, accommodating older and elderly employees who are not very tech-savvy proved to be a challenge, along with the fear of losing job and fear of not being able to adopt new practices. The businesses are aiming to overcome these challenges through intensive training, better HR planning and placement and by incorporating career counselling and general counselling for the employees.

**Limitations of the Study**

Due to the ongoing pandemic, only a limited number of samples was deployed for this study although this sample size was adequate to answer the research questions. This is the reason why the non-probability sampling method was used. Besides, this study was done on a developing country like Bangladesh where available archive information is limited, and digital infrastructure is underdeveloped. Additionally, people by nature are not comfortable sharing business policy and strategy related information.

**Future Research Direction**

The findings of this study can be used in a comparative study where the practice and implementation of I4.0 between family and non-family businesses or between government owned organizations and private organizations. Additionally, since this study did not focus on any industry, future research can also be industry specific, since I4.0 will be impacting different industries in different ways. Future research can also focus on building frameworks and readiness assessments which reflect the other specific resources of family businesses, targeting aspects for Industry 4.0 implementation. Finally, a comparison can be done with developed countries so the difference can be used as a learning practice for other developing country business firms to fill the gap.

**CONFLICT OF INTEREST**

The authors of this publication declare there is no conflict of interest.

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