

Exogenous shocks, Covid 19 and firms' ability to learn, adapt and evolve

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Abstract

In the context of the exponential growth of data, the Covid 19 pandemic and the need for quick adaptation faced by companies, as well as by society at large, the concept of organisational learning is flourishing and becoming an even more critical component of organisational survival and growth. This study applies a socio-technical lens to shed light on the organisational learning processes taking place in 40 various sizes and kinds of UK businesses during the critical, volatile, and unprecedented period - February-May 2021. Our study identifies organisational learning antecedents and key organisational context enabling and/or impeding learning processes and follow up evolution within companies. The findings suggest that even if employees have capability, not all are able to capture and transform intelligence into learning and apply it at a strategic level, reconfiguring purposefully future operational capabilities to respond to environmental changes, as they are not empowered and supported by the organisational management.

Keywords

Exogenous shocks, Covid-19, Dynamic capability, Organizational learning

1. Introduction

The accumulated through various digital technologies market intelligence enables today's businesses with unprecedented opportunities for organisational learning and evolution, as long as companies possess abilities to create, transfer and transform data into actionable insights, leading to desirable, positive returns for the company. Knowledge and continuous organisational learning are considered core resources also in the creation of dynamic capabilities (DCs) and are known in DCs literature as "absorptive capacity" [44; 63]. These learning practices are fuelled by context-specific, real-time market information, and as a result, enable the organisational evolution through competencies and/or routines of acquiring, distributing internally, interpreting, and storing external knowledge [29; 68]. Teece et al., [63, pp. 516] define dynamic capability as "the firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments". The routine of regularly sharing information inside the firm is found to be a prerequisite for reacting flexibly and quickly to exogenous shocks [34]. As Davenport & Prusak [23, p. 88] have suggested the most effective way for firms to remain competitive is to "hire smart people and let them talk to one another". Firms that are able to learn from customers, competitors, constantly question routines and quickly adapt their business practices, are more likely to minimize core rigidities, uncertainty and risk, and create superior value and performance through constantly evolving capabilities and strategies [29; 63]. As also added by De Geus [25] the ability of organisational employees to learn and adapt to a changing volatile environment faster than their competitors'

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employees, and by intelligent mobilization of cognitive capacities, is the only sustainable competitive advantage at the disposal of contemporary organisations.

It is key to make a difference between first order and second order or operating and dynamic capabilities. Although the DCs view accepts the importance of capabilities like product design and manufacturing (operating capability), it argues that success in volatile industries and rapidly changing environments requires something more than baseline capabilities: namely, adaptive processes and structures that enable companies to change their baseline capabilities, anticipate shifts in market demand, develop and integrate new technologies, learn from market events, and foresee and capture new market opportunities (dynamic capability) [33]. Thus, a key factor for organisational excellence is the possession of organisational real-time learning and adaptation mechanisms and capabilities, seen as unique, heterogeneous resources, due to their valuable, rare, inimitable, non-substitutable (VRIN) qualities and imperfect distribution [9; 29; 68]. Organisational learning is grounded in tacit knowledge and is unique, heterogenous and not easily transferred, documented, or imitated – the concept of VRIN.

However, desirable individual learning does not necessarily lead to desirable organisational learning, the learning organisation must integrate individual learning into organisational learning by facilitating dialogue, questioning current practices, and developing employees' cognitive capacities [11; 40]. A criticism of the DCs concept is that it does not provide an exact framework for organisational learning [40] and that there is a missing link between micro (individual) and macro learning (organizational level) as a foundation of DCs processes development [31]. Eisenhardt, Furr and Bingham [28, p.1263] define such microfoundations as: “the underlying individual-level and group actions that shape strategy, organisation, and, more broadly, dynamic capabilities”. Barney and Felin [10, p.145] add that “individuals and their interactions are central for understanding organisations and social systems”.

Moreover, of crucial importance is the ability to learn from mistakes and unlearn and destroy rigid routines to prevent strategic paralysis [60] and adapt to exogenous shocks, increasing complexity and high-speed change [13; 49]. Helfat et al. [70] highlight that: “Sometimes erected on their own, and sometimes accumulated from yesterday's scar tissue, there are barriers protecting a company's core made up of history, culture, bureaucracy, and organisational routines that are every bit as daunting to break through as the strongest of physical or strategic entry barriers.”

Thus, to lead to desirable outcome, learning has to be actively encouraged and enabled within organisations by the development of information detection, creation and transfer routines across organisational boundaries, flourishing culture of encouraging questioning of existing practices and beliefs, encouraging and incentivising employees to engage in a dialogue and thus seeing links and implications of one's actions [4]. If the latter conditions are not met organisations risk becoming obsolete and bound in “functional stupidity”, which is defined as an organisationally supported lack of reflexivity, substantive reasoning, and justification. It implies a denial to use intellectual resources outside of a “safe”, “accepted” and already “established” behaviour and thus, supports avoidance of the discomfort, related to doubt and reflection [4]. Thus, our study aims to address this gap by identifying the processes of learning triggered by the Covid pandemic and the key organisational conditions supporting or blocking such learning at individual level and practices changes/evolution at organizational level (micro to macro level) in 40 UK companies of various sizes and pertaining to different industries. Our study adds up to the scarce research on the micro foundations and shading light on the neglect of employees' role in DC theory as well as in business practice [28; 31; 32].

2. External shocks, Organisational learning and the MIATSM model

We take a micro foundational approach towards DC by studying the individual and organizational learning mechanisms and the respective context leading to practices adaptation and evolution in response to external shocks. As noted by Donnelly and Proctor-Thomson [26, pp. 48] “Disasters disrupt the nature of work, creating a culture of ambiguity with shifting priorities for individuals, organisations, and their wider communities. Operating within subsequent uncertain environments promotes a reassessment of the spatial configuration of work and the adoption of new ways of working”. Exogenous shocks such as the coronavirus outbreak could have a devastating effect on companies, and thus they often trigger immediate action in terms of learning, anticipating what's next and reacting in real-time

through reconfiguration and evolution of practices to achieve intended positive outcome [43]. As the DCs concept founded on the principles of knowledge accumulation, assimilation, and exploitation as a prerequisite of organizational excellence and growth do not provide an exact framework for such organisational learning [69] starting at individual and unfolding to organizational strategic level, this study adopts the MIATSM model of Atanassova & Clark [8] which conceptualises the processes and factors enabling/impeding organisational learning and practices reconfiguration/evolution. The interconnection of context and learning processes taking place in an organisation is crucial in understanding the transformation and evolution of organisational practices. This study and the MIATSM model adopt a socio-technical lens in studying organisations as complex, changing, co-created and re-created by its engaged actors dynamic system of interacting people, affected by aspirations, behaviour values and context [12; 47]. The MIATSM model recognises that organizational learning starts with individual learning and is stimulated both by environmental changes, exogenous shocks, such as the Covid pandemic, and internal context in a complex and iterative manner, and synthesises impacting internal and external factors in explaining the organisational learning and evolution processes and their tangible or intangible positive outcomes [8]. The model is used as a lens to guide the understanding of the learning processes, their antecedents and the context enabling or impeding desirable organisational returns through practices transformation.

However, to suit the current study scope, the model focus has been widened to account for the processes of scanning, information capture and transformation into learning and the consequent changes in operating capabilities, and not solely for the social media market intelligence use for marketing practices changes, as originally designed. The model is built on the foundation of the absorptive capacity and DCs theory and no theoretical changes have been made to this foundation, nor to the contextual factors, solely the scope of the model has been widened to account for a wider array of information sources than social media, and also to capture the consequent effects of the developed or hindered learning on broader organisational context and not solely in the organizational marketing context. The research aim has been broken down into three objectives, in accordance with the three learning processes or absorptive capacity processes leading to DCs development. Also, as per the MIATSM model learning starts within an individual, then group and/or firm-level learning as long as the organisational context - culture, structure and systems and leadership, of course, provide the essential internal learning facilitating conditions.

To draw inferences about the interactions between operating and dynamic capabilities and how the latter affect organisational desirable evolution/excellence through the application of the developed learning, this research consisted of three phases, depicted in the MIATSM model:

- The organisational background was developed using the MIATSM model in order to better understand context, market dynamism, triggers of organizational learning, and prior knowledge.
- An understanding of how absorptive capacity/learning processes took place at the operating capability level was developed by focusing on the ability to recognise the value and absorb new external information proactively through scanning and alertness and the organisational enabling/hampering conditions/context.
- Following on from the latter, assimilation / sense-making and transferring learning to relevant actors or storage of the learned was studied. Learning processes were explored by again considering the organisational enabling/inhibiting conditions.
- Lastly, the process of capturing value by exploiting the learned was studied, which encompassed the transfer of the learning to a higher-order dynamic level, and its exploitation in terms of how the learning affected subsequent organisational choices, seen as operational practices alterations for desirable change / capabilities and / or VRIN resources development / acquisition or reconfiguration.

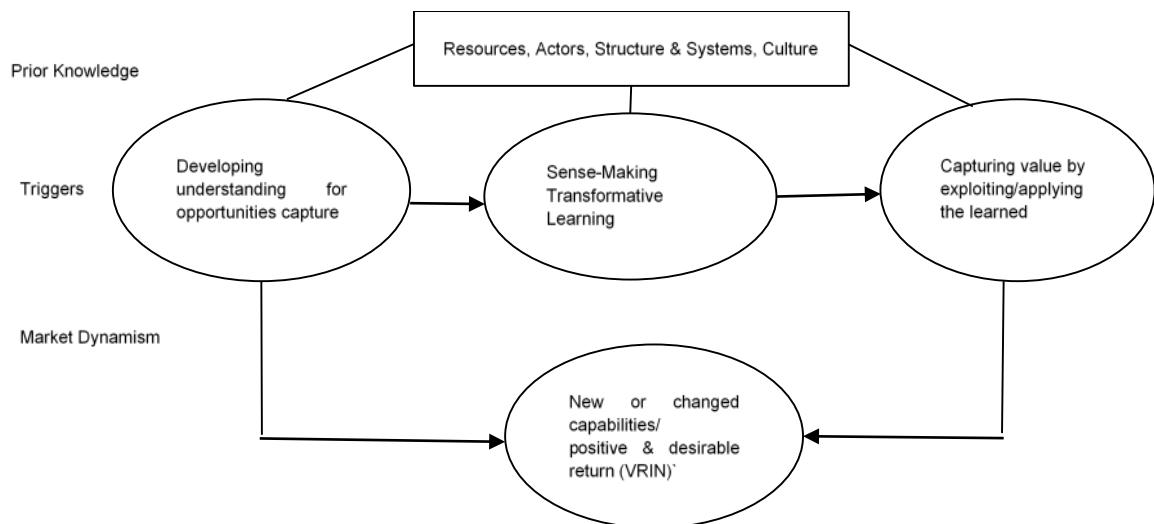


Figure 1: Modified MIATSM model of the processes of market intelligence accumulation, assimilation, and application [8], permission obtained by the copyright holder

As shown in Figure 1 Modified MIATSM Model, the key conditions that enable and facilitate interactive learning processes are the exogenous conditions, on which a company usually does not have control but instead have to sense and react to:

- market dynamism,
 - exogenous triggers,
- and the endogenous conditions, on which a company has greater control and influence:
- endogenous trigger,
 - background / prior knowledge,
 - resources,
 - actors,
 - structure & systems,
 - internal culture.

The latter factors and conditions have been investigated at the operating capability level of daily operational business activities, to achieve an in-depth understanding of how companies detect, absorb, transform, and use external market information to learn and evolve their operations, and how is the organisational context impeding or facilitating the learning processes formation [8]. A discussion of these key conditions follows.

2.1. Market dynamism and Prior history

As a result of their unique histories, resources/assets and strategic paths, and their specific processes of coordinating resources, organisational employees and teams develop heterogeneous capabilities [44]. The already developed absorptive capacity affects and shapes the expectations and abilities to predict future changes [19], and the “ability” to develop new understanding for opportunities capture. Caiazza et. al., [15] claim that employees and teams with greater absorptive capacity will regard the crisis as an opportunity to get ahead of the competition. The rapid changes in the market in high-technology sectors or highly disrupted industries make individual and organisational learning particularly evident [58].

2.2. Organisational structure, culture, and actors

The organisational internal environment, leadership and management, climate, and culture are important facilitators and / or inhibitors of the process of DCs formation [59]. As claimed by Argyris & Schon [6, p.23] “...organizational learning occurs when members of the organization act as learning

agents for the organization, responding to changes in the internal and external environment of the organization by detecting and correcting errors in the organizational theory in use, and embedding the results of their inquiry in the private images and shared maps of organization” [6].

The importance of a firm’s values, such as commitment, open-mindedness, and a shared vision for the process of knowledge creation and exploitation are acknowledged in existing research [59]. The importance of the so-called “open-minded inquiry” or companies’ actions of active scanning of the environment and openness to new opportunities is substantial for companies’ ability to learn [24]. Organisational leaders are seen as key actors and knowledge facilitators, responsible for the coordination of networking, and knowledge accumulation activities, enabling a flourishing organisational climate and structures, leading by example, encouraging, empowering and incentivising employees to work autonomously, generate and share ideas, take calculated risks and take ownership of their work [55; 60].

Organisational mission and vision, on the other hand, need to also be clear and well communicated internally [60]. This shared knowledge and these values contribute toward establishment of a sense of community and innovative culture by enabling trust and collaboration [37; 54]. Moreover, change does not simply involve technical advances, it disrupts a socio-economic ecology of work and thus, engaged actors require support to own and control the process of transformation, revising and recreating their understandings and interactions for the positive benefit of all concerned [12]. Thus, the role of supportive management is crucial in communicating a clear vision, and cultivating a flourishing climate and culture, devising flat organisational structure, and encouraging internal information sharing. For a more detailed explanation of the MIATSM model and the importance of organisational contextual factors, please see [8].

3. Context, Method, and Data Analysis

Due to the nascent nature of COVID-19, a qualitative research methodology is adopted to generate a detailed contextual description of the impact of the phenomenon on firms [45]. The methodology will not be unstructured, as it accommodates the MIATSM model in order to help structure and explain the studied phenomenon by enhancing validity, reliability, and also providing structure for the entire research. The study employed purposive sample selection in order to produce an in-depth understanding of the studied learning and evolution processes and highlight impeding and facilitating organizational context. Due to the heterogeneity of the studied population, the researchers conducted 40 semi-structured interviews until saturation was reached, lasting 40-50 minutes each. The interviews were conducted in English by experienced academic researchers. Given the COVID-19 pandemic, interviews were conducted both remotely using Skype and Zoom and face-to-face. Due to seeking a contextual explanation, an inductive approach was utilized during our data analysis. An inductive, interpretivist approach, qualitative methods and thematic analysis could reveal in-depth insight into complex phenomena by answering “how” and “why” questions as well as by accounting for the organisational context [67].

The in-depth qualitative research took the form of learning by reporting back to the researcher so the researcher can revise propositions and eliminate bias, through iteration between the theoretical framework, the MIATSM model and data. Data was coded under key constructs of the MIATSM and thematically analysed. The MIATSM model helped to identify patterns in the studied employees’ learning and transformation practices, and the resulting choices and actions. The MIATSM model helped to understand and explain the learning processes taking place in different companies by accounting both for the external and the internal dynamics, their unique leadership, and operating practices, and thus produce coherent findings. The coding was performed with the aim of identifying the themes, and patterns, underlying the phenomenon and its constructs, as depicted in the MIATSM model. In such way, the reliability and validity of the study were ensured by providing categories to look for when analysing the collected data, and thus prevented misunderstanding, oversimplification or incomplete understanding. The analysis examined each construct of the model separately – organizational background and prior knowledge, market dynamism and triggers of the processes of learning, then individual learning at operating level, sense-making and transfer to dynamic/strategic capability levels and the contributing context, and lastly how the three routines developed over time

and enabled operational evolution, organizational excellence (micro to macro level) and/or VRIN resources development. Something was considered dynamic capability if it changes, creates, or extends organisational operating capabilities by creating or extending VRIN resources and abilities. Credibility of data was ensured by applying simultaneous data collection and analysis, prolonged engagement and in-depth understanding of the studied organisational context. Member checks and respondents' validation were performed where uncertainties or more information was needed in order to ensure that their views and behaviour are correctly understood and described [47]. The collected data, the theoretical framework, organisational context, and findings were reviewed multiple times to ensure reflexivity, transparency, dependability and thick description. The MIATSM model helped to eliminate any subjective judgement through the specific constructs and changes that were studied.

3.1. Participants Selection

Participants from knowledge-intensive companies have been interviewed as such companies “Gain their competitive advantage by converting the skills and knowledge of their people (human capital) to intellectual capital (e.g. software solutions, business advice and patents) in a way that has value to their clients and is not easily copied.” [61]. They are companies “where most work can be said to be of an intellectual nature and where well-educated, qualified employees form the major part of the workforce” [3]. The creation, survival and development of knowledge-intensive enterprises highly depend on knowledge development, management, and application [66]. As discussed in the prior knowledge section, the greater the prior knowledge / already developed absorptive capacity, the greater the ability to identify and exploit new unmet needs and opportunities or threats. Participants from traditional companies have been interviewed also in order to ensure comparability of the results, as traditional larger companies are often accused of over-reliance on already established and successful routines and are often criticised for being unable to adapt due to their complex organisational structure, bureaucracy and hierarchy [4,5].

Also, included in the sample are entrepreneurial, small companies as they are claimed as better than the larger companies in learning by doing approaches, flexibility and quick learning/unlearning and adaptation [16; 20; 21]. Their experiential learning or “learning by doing” approach to business is acknowledged as the most significant core competency concept for small companies [16; 20; 21; 38; 39] and is by nature ‘accidental’, experimental, and largely depends on informal communication with customers and stakeholders [48]. Through such informal learning SMEs recognise opportunities, adjust strategies, and take decisions [22]. It is believed that studying SMEs/cases where change intensively occurs through learning and adaptation, and companies where changes do not occur or at least not so intensely and intentionally will be both beneficial.

Also, the process of organisational learning development and its effect on enhanced capabilities and strategic benefits may need a long time to occur and to be realized, after the experience itself [21]. Consequently, the majority of companies are executing a process of incremental evolution through gradual learning, which takes time to develop and impact company activities [52]. Thus, the focus of the study is also on participants from established companies from traditional vs knowledge-intensive and dynamic industries and large versus medium and small size. It was highly important to select diverse pool of participants to be able to see how the micro and macro processes of learning unfold, if they do, by developing “information-rich cases” “from which one can learn a great deal about issues of central importance to the purpose of the study” [53]. Interpretive research does not aim to validate findings in a positivistic sense but to provide a better understanding of a social phenomenon [41].

4. Findings

Findings are presented in tables, 1, 2, 3 and discussed below. The findings in the tables are structured following the three learning processes and contextual conditions of the MIATSM model (information recognition, assimilation, and exploitation) and companies are grouped by size, and industry dynamics.

Findings revealed that all the interviewed participants have been effective at recognising, creating or acquiring new information but notably less successful in making sense/transforming and applying that information to their own activities and/or organizational level. While employees in young, dynamic

organisations and organisations from dynamic knowledge-intensive industries, such as education, consulting, science, finance, insurance, information technology, health service, and communications naturally combine networking, experimentation with flexibility, agile project management techniques, and willingness to accommodate and respond to changing economic, competitive and pandemic landscape, consumer demand and behaviour; employees in older, more mature companies from traditional industries found coping with the unprecedented change created by the Covid outbreak and the implementation of scanning, sense-making, learning and adaptation/transformation initiatives particularly challenging due to scarce understanding of the strategic importance of external information, leadership short-sightedness/ignorance and lack of underlying organizational conditions-information sharing routines.

4.1. Macro businesses

The studied macro businesses (>250employees) [51] were twenty in total. As part of the initial background gathering stage of the research it was identified that the main driver of change reported by the participants was the Covid pandemic, and the urgent and unintended need to restructure departments, streamline processes, constantly monitor the environment, adapt, and apply government regulations while undergoing digitalisation of operations. The main drawbacks and disruptions reported were staff cuts, expansion plans cancellation, and rapidly emerging new competition. Among the most desired new skills were ICT and digital skills, new ways of working in a more agile, ad-hoc, flexible way, and scalable online presence/e-commerce, data analysis skills, taking ownership and working autonomously, and a pressing priority to implement new technologies/software for collaborative working, business operations streamlining and customer relations management.

4.1.1. Macro traditional/stable industries

The interviewees from macro traditional businesses, who were fifteen in total, reported as their main competitive advantage, their size, age, leading market position, industry experience, reputation, trust. Despite the seniority level in their workplace, in terms of prior knowledge participants were focused on already established operations/routines, then on understanding, adapting to and navigating through the fast-past market environment. The studied macro enterprises were hit hardly by the pandemic and had to adapt to government regulations, as well as to changing consumer behaviour and market volatility.

There was a mixture of junior and senior employees interviewed. In terms of information recognition and gathering practices, as per the MITASM model, junior participants expected information and directions for adaptation to the changing pandemic environment from the leadership and management, along with training and detailed guidance for implementation. These enterprises had a traditional, hierarchical top-down structure and interviewed employees were inclined toward following management prescriptions, “sticking to the plan” and/or applying gradual adaptations and changes in case prescribed by the top management. Employees primarily reported interest in internal company information and their own performance, without valuing and recognising the need to stay alert to external arising market knowledge in order to develop quickly working scalable solutions to the emerging Covid disruptions and restrictions. Moreover, they had no understanding of their organizational goals, mission, and vision and of the importance of acquiring and transforming new market knowledge to build up and evolve business operations as a coping mechanism against the devastating effects of the Covid pandemic. Information about future aims and goals was not communicated by key actors, the leadership, and employee’s curiosity and open-mindedness weren’t encouraged, and thus employees did not perceive the emerging external and internal intelligence as a relevant and important strategic resource. Instead, they were focused solely on performing well their own daily tasks. The internal context studied, in terms of size (larger), the structure (hierarchical and top-down leadership), the industry (traditional) and the participant role seniority (lower in hierarchy/junior employees) have been identified as key factors characterizing studied cases that were struggling to recognise and transform new information into learning and take respective adaptation actions in the face of devastating crisis. No resources and time were dedicated to information sharing and sense-making. The interviewed employees from these companies were used to and expecting

directions from the leadership, and the leadership themselves were authoritative, treating employees as passive recipients of top-down guidance and instructions, without involving them into the decision-making, nor sense-making processes.

As acknowledged in the literature, managers, and employees from established, larger firms often fail to execute and leverage their organizational learning into distinctive capabilities due to their focus on already established and successful operating routines, top-down, hierarchical structure, authorities' leadership broken communication flow [4,18]. For example, a security officer at one of the largest UK airports stated that despite the restrictions on flying due to the pandemic "there is no new competencies and skills required to adjust to these changes in the environment apart from being patient and waiting for things to get back to normal." The interviewee didn't really realise the extent of changes and disruption caused by the pandemic.

The grocery stores, among the rest of the traditional macro businesses, experienced the most drastic changes. They had to quickly expand the online presence, recruit more people and train staff to adapt to government regulations. They faced increased new online competition. Their physical stores had to be restructured and there was an unprecedented demand for adaptation, new IT skills, and implementation of new systems and software. Their businesses have been impacted at their core, and they shifted business models to meet the urgent need for a stronger and scalable e-commerce presence. They reported that they found particularly challenging performing their daily tasks while navigating through the uncertainty by adapting to the new online communication and e-commerce platforms. The exogenous shock of Covid crises created opportunities for new entrants unrestricted by existing resource commitments and organisational structures resistant to change, and thus, established players faced a pressing need for change: "currently due to the pandemic, the business model has shifted from sales through stores to online sales and deliveries. This has been challenging because the business has had to fundamentally upscale its online presence and delivery capabilities to meet the online demand for its goods and services. Changes have been detected by monitoring how busy websites are, which have had to be scaled up to meet demand. The internal environment has changed as there has been the need to recruit more employees to meet this change in business circumstances." (Data Analyst at Grocery Business).

4.1.2. Macro knowledge-intensive industries

The macro knowledge-intensive businesses, pharma, banking, construction, demonstrated a structured knowledge accumulation, assimilation, and application processes. They had already established analytics, R&D teams pre-pandemic, and were focused on responding to new market knowledge, although processes reported were slow and bureaucratic due to the importance of compliance with legislation and regulations in their respective industry. As part of their background, it was found that they have already established teams, systems and structures, as well as dedicated resources in place for producing business insights and these insights were distributed within the company through the leadership and shared and saved in databases, intranet and/or specialist software. All participants from traditional knowledge-intensive companies exhibited also understanding of the importance of agile working, adaptation, working as a team. They had already established and working internal processes for evaluation, knowledge sharing and storage. Very well realised was the importance of constant review and analysis, prior knowledge and awareness of overall organisational goal, quick correction of misconceptions and removal of internal departmental information barriers. The respondents were mid-senior employees and the external environment and customer knowledge have been recognised as a key competitive advantage. A bidding engineer from a construction and engineering company stated: "Constant changes - restructured departments, streamline how processes work. Adapt to customers' needs, certain customers are hard to please and have very specific requirements."

Participants from big pharma companies reported, however, concerns about their organizations' slow processes and overall inability to respond quickly enough to external changes, due to the highly regulated, bureaucratic, and hierarchical structure of their companies and industry, slowing and even preventing adaptation and reconfiguration of practices in response to opportunities or industry shocks.

They reported that they had to do multiple quick trainings and operations adaptation due to the Covid and the government directions, and restrictions.

A pharmacy technician stated that they had to train quickly to do Covid tests: “the new processes are understood by demonstrations by pharmacists given to us. For example, covid testing”. Big pharma HR trainee added: “The main change is the way the company works especially in this pandemic, learning how to work remotely as well as changing and adapting to digitisation and exploring ways and mean around it especially in the pandemic, virtual working is something that is adopted and will also be adopted in the future too.”

All respondents from traditional industry companies agree, however, that understanding their customers is key as well as developing further their online presence and IT skills. However, they expect their managers to lead and pave the path to the required changes. They exhibited an overall preference to “stick to the plan” and an interest in their own performance evaluation and in top-down information coming from the leadership, such cost control, efficiencies.

4.1.3. Macro dynamic businesses

The interviewed employees from the five dynamic, tech, consultancy, ICT macro businesses were much better prepared for the need for adaptation, quick information processing. Particularly interviewed participants from the ICT, software and cloud services, business and finance consultancy services, had already established agile working principles and practices, and company-wide drive/surge to be vigilant and adaptive to dynamically changing consumer, industry and technology trends, as well as resolving issues as soon as possible. The interviewed employees from dynamic businesses reported as their main competitive advantage their specialist knowledge, technological know-how and in-depth market knowledge, their ability to remain flexible and to make complex decisions quickly by keeping their focus on goals, mission, vision while exploring new insights and undertaking their daily operations. They had already developed absorptive capacity routines which helped them sense and react quickly to Covid-evoked changes. In terms of information detection and assimilation, they reported a keen interest in both top-down and external information and made sense of the information through applying human understanding as well as by using technology. In terms of prior knowledge and practices, they were used to and eager to adapt, unlearn and remove practices if needed, and thus, daily operating practices were assessed and corrected in two to four three weeks sprints/time frames. They believed that new market information is at the core of their decision making and that the more informed they are, the better decisions they can take. Interviewed employees reported, however, that they had also experienced new competition, and had to scale their online presence and digital services, and adopt new communication, information sharing and remote working structure and systems/software. A big change was the need for additional and ongoing training, upskilling, and retention of employees. IT skills, willingness to take responsibility for one's own pace of work and being more autonomous, flexible and responsive to change were some of the highlighted changes that took place in macro dynamic businesses. “In great extent, more knowledge you build, the more competitive advanced you are.” (Consulting Associate).

Development of new work styles, adoption of new software and virtual working culture and conscientiousness were other claimed changes caused by the pandemic: “Employee gets the skill to be more aware and be more conscious and adapting to these new changes and environment especially working remotely. For the organisation is making sure that the network is adapting and ensuring that the virtual network is good and good IT infrastructure, structure and systems has been put in place, in order to keep working in synergy remotely from various locations, so there is no setback” (Business Development Manager in ICT firm). Continuous changes to software used were made, along with software integration and increase in security. Leading goal for understanding and correctly assessing the importance of new information was if it was helping them to do their daily job quicker and faster. Reflection on past practices, iterations of practices, new tactics based on an in-depth understanding of customers and partners behaviour, motivations and culture were the main sense-making and adaptation practices outlined. And results of the ongoing information sensing and sense-making was summed up by “Deeper understanding of the partners’ needs and communication styles, which results in launching campaigns quickly and efficiently, as well as efficiency” (Business Development Manager in ICT firm).

They were able to gradually develop and evolve their capability to react and respond to change. Last but not least, the learning and adaptation had to happen along with carrying their daily tasks, and this was claimed as difficult and time consuming due to the increased amount of information and workload.

Macro companies' participants reported both tangible and intangible skills and advantages development based on incoming information in daily work, such as trust, reputation, know-how, relationships, effective communication, multitasking, teamwork, maturity in prioritisation, leadership, a deeper and better understanding of partners and customers and co-workers needs, ability to work independently and by being responsible for your own work. Please, refer to table 1 below to see how the three learning processes unfold in the studied macro enterprises.

Table 1 Learning and adaptation processes unfolding in Macro businesses

Type of Company/Industry/Size	Info flow & actors involved, structures & systems, culture, resources	Recognition / Seize	Assimilation & Sense-making	Exploitation / Shape	
20 in total/250 or more employees				Improved customer experience, products & services; Improved future practices, adaptable strategies (disruptive vs gradual), unlearning & link to competitive advantage/company practices evolution	Intangible Assets VRIN
Traditional – transportation, retail, hospitality	Top-down from management Top-down hierarchical structure and rigid routines and culture; broadly unaware of mission, vision, values (depends on seniority); focus on established operating routines.	Interested in product updates, own performance evaluation, cost control, efficiencies, trends in the wider sector; own area of expertise; Overall, unawareness of company's mission and goals.	Not alert to new market information, do not take decisions about information. Information is generally gathered and analysed by analytics team and/or leadership and it's then passed to employees along with a demonstration, explanation of what to do next/ following head office; the lower in hierarchy/junior employees are treated as passive recipients of information/instructions; Overall preference to stick to the plan (banking, hospitality, transportation, construction); Hierarchy and rigid structure, routines & culture. Information is shared via e-mails, intranet, newsletters, company guidelines & social media, webinars, calls and stored in wikis and databases.	Driven by overall aim to deliver better customer experience, improve productivity and accuracy, believe this has been achieved through following management guidance; Leaders provide updates, instructions and clear misunderstandings if they arise	Relationships, trust
Traditional Knowledge-Intensive (KI) pharma, banking, construction - information	Top-down from management and/or through analytics team, bureaucratic and slow to respond to changes, aware of mission, vision, values (depends on seniority), focus on established operating routines.	Interested in own performance, evaluation and info coming top-down from leadership; developments in the area, scientific knowledge, industry news, company trainings (pharma) R&D; different teams responsible for making sense and distributing relevant knowledge - legislations (legislations department), clinical trials (clinical department); weekly meetings, stand-ups, dashboards, retrospectives to share and discuss; Unawareness of junior employees of company's mission and goals.	Regulatory, quality, legislation departments analyse and summarise; employees are trained in new processes; leadership distribute information put on an intranet and discusses through webinars, calls; Overall, preference to stick to the plan (pharma, construction, banking) highly regulated industry; banking keen to adapt to serve customers better; leadership evaluate and/or hire external consultants. Goals are set and evaluated; knowledge & evaluations and goals are saved in database/system; Systems used for knowledge sharing & storage - Teams, Google spreadsheets, Zoom; Yama, Pubmed (pharma); Webex, Power BI database.	Understand how customers are unhappy and services are not up to standard. It's important to know broad strategy and objectives to be able to understand new information and evaluate progress; However, follow strict regulations; big challenges are false information and the lack of time to make-sense and implement new practices/re-configure; Change is a must, analyse and apply, adapt; However, drastic changes can not happen, too regulated, rigid routines, hierarchy, bureaucracy (Pharma, PM); Gradual improvements through applying new learning and better understanding (Oil & Gas); However, agile teamwork continuous improvement and adaptation are recognized as essential	Communicate effectively, built trust; external & internal relationship with employees, empower the team; multitask, learn fast, deliver value, efficiency
Dynamic KIBS - tech & consultancy business, IC tech business; IT services & cloud software business	Top-down & bottom up (internal & external information); overall openness and alertness to changes in the industry and customers preferences, agile working practices, aware to an extent of mission, vision, values	Interested in tech, innovations, new IT skills, different courses, online resources; on a basis doing better, faster, smarter daily job and develop areas of interest and specialism (VoIP messaging platform, senior manager); All dynamic KIBS participants are aware of organisational guiding values and/or global policies, also exhibit a willingness to change and improve - new ways of doing the work, new philosophies for efficiency and knowing these help them to evaluate and assess practices and new incoming information; Information about the client/market research/internal processes	Carefully analyse, discuss and apply both technology and human understanding, apply to own work practice; cross-functionality, colleagues are a trustful source of knowledge, Clear vision is an essential part of the evolution; Participants believe that the more knowledge they have the better understanding of the market landscape; technology drives new understanding; Sharing information during meetings, evaluation, approaching colleagues, self-education are key; constantly looking for improvements the knowledge is shared and saved in SharePoint, OneDrive, Intranet, Google; Teams, Espace, QQ, Wechat, P6, Asana, Espace; Azure DevOps - ADO	Built and sustained customer trust, better software and services that solve problems; Participants claim that they need to know broad strategy and objectives to be able to achieve and evaluate progress; customer experience is key; keen to adapt through learning and changing; challenging process due to too much information, too messy, cleaning and sorting the data is difficult/time consuming; A deeper understanding of partners and customers is at the heart of their strategy and empowers quicker and efficient campaigns (VoIP messaging platform, senior manager); Unlearning is ok: "Yes, set up new practices or remove existing practices as they don't work correctly for the business"; More informed, more accurate decisions (Software company);	Know-how, relationships, improved culture, reputation, trust, professional confidence; maturity; prioritisation; open mindset and empowering the team, conscientiousness, efficiency and effectiveness

4.2. Medium enterprises

The interviewed participants from medium enterprises (50-250 employees) [51] were seven in total, three from traditional stable industries and four from traditional knowledge-intensive (KI) businesses. The main changes faced by medium enterprises were again Covid, sustainability, diversity, remote working, flexibility, growing risk; too much and too messy information, need to change business practices too often and too quickly. The main organisational competitive advantage reported was their organisational expertise, reputation and established network relationships, experienced and knowledgeable staff, customer relationships and high-quality products. Junior employees from traditional/stable industries, however, exhibited disconnect from and unawareness of mission and goals, and lack of alertness to new information. They were only interested in their own performance and management/leadership directions.

The participants from the four medium traditional businesses interviewed had a broad idea of mission, vision, strategy. Associate Director of Insurance Company reported facing growing risk and uncertainty due to Covid, an urgent need to change insurers partners and reconfigure practices accordingly. They exhibited a stronger will than the rest to learn and adapt in the hope to change business models and stay in business.

All interviewed participants from medium companies tended to put a priority, however, on top-down information distributed through management, such as government guidance on Covid, sustainability, diversity, professional development, and scientific publications. Speed and adaptation emerged as important skills to all. Multiple trainings on innovation and new skills took place. Information and directions have been passed by management, but employees seem alert and willing to adapt. Awareness of goals and strategy was pointed out as a key and discussions with teams and management are highlighted as important and key mechanisms to make sense and move to action. However, strong concerns about the amount of information and the unprecedented speed of change have been shared by most interviewees. They found it particularly challenging to implement new practices while managing daily routines. As indicated in the DC literature, dynamic capabilities are related to this balance between present operational routines, both on a strategic and a tactical level, and the ability to sense market opportunities, and therefore, shape business processes [65]. These essential processes firstly emerged in the work of Duncan [27] under the term “organisational ambidexterity”. Ambidexterity means that firms must be both efficient and flexible, which requires managers to balance between structures suited to routine, repetitive tasks and those more suited to non-routine, innovative tasks [1] to survive. Ambidexterity has also been referred to as “managing paradox” [64] or managing “dual structures” or managing “conflicting demands” [27], as the skills required for exploitation of existing successful and established operational routines are completely different from those required for exploration of new opportunities [13; 35].

Multiple innovations took place in the education sector and online education experienced a complete explosion during the pandemic. A multitude of education technology solutions emerged, and schools and teachers had to adapt quickly and test various platforms and technologies to identify the most suitable ones. They had to develop team working skills and collaborative culture while adapting their teaching methods to the new online environment and the new communication means/platforms, while also experimenting with various tech solutions/platforms in search of the best platform for teaching and interaction with pupils. They had constant meetings and multiple iterations of practices “Feedback is given and meetings can be held to discuss what the next logical step to take is.” They were guided by the values of educating pupils: “The work environment must be a priority and be maintained to a high level because educating young children is very important.” The changing teaching model to remote and the urgent need for adaptation resulted also in a cultural shift and trust: “There is a lot of respect between colleagues, and everyone is going out of their way to help everyone due to the struggle that everyone has been going through.” “Being adaptable and flexible to fix new problems which are being introduced and using the knowledge to help others. Being friendly and approachable is important because it means staff, parents and children will feel comfortable around you.” As a result, the respondent highlighted that “The school is a much safer and cleaner place to be in. People trust and appreciate the school and it shows by how many people are affected by everything it does to support people.” They also developed

a collaborative culture: “Split up the work between colleagues and work together; The work environment must be a priority and be maintained to a high level because educating young children is very important.” Schools and the education sector adapted and transformed their education delivery model: “Yes, there is always a priority to implement new operations such as following COVID-19 regulations as well as preparing and supporting children for the work in English.” Forced by the pandemic they had to complete their daily teaching duties while adopting new digital technologies and ways of working as a team. Unlearning old ways of working, removing rigid routines quickly and motivating employees/teams/pupils, adaptation and working smarter emerged as key priorities for the educational sector.

Senior Project Manager in the construction industry also confirmed: “The implications are if we don't adapt and take these new innovations on our competitors will replace us.”

Less experienced employees, however, once again expected top-down information, instructions, and directions from the management, rather than being alerted and open-minded themselves, although they were front-line employees and in direct constant contact with customers, suppliers and/or competitors. Multiple intangible skills of trust, support, communication and IT skills, respect, as well as competence; increased efficiency have been developed, “everyone is going out of their way to support struggling teachers and pupils.” (Teaching Assistant at Primary School).

Please, see details about the three learning processes and how these unfold in the studied medium enterprises in table 2.

Table 2 Learning and adaptation processes unfolding in Medium businesses

Type of Company / Industry /Size	info flow & actors involved, structure & systems, culture, resources	Recognition / Seize	Assimilation & Sense-making	Exploitation / Shape	
7 in total / 50-250 employees				Improved customer experience, products, and services; Improved future practices, adaptable strategies, unlearning & link to competitive advantage	Intangible Assets VRIN
Traditional - PM for construction business railway infrastructure; Council accountancy business change manager; kitchen staff in a fast-food chain	Leadership analyses and distribute internally (top-down) and ensure implementation; drop notices, invitations for training; developments in their area of expertise; concerns about the unprecedented level of change junior employees disconnected from mission, vision, goals	Government guidance on Covid; information about sustainability, environment, diversity; remote working; professional development & scientific publications	Reading and speaking with other colleagues (council accountant); through a superior manager who overlooks reports & speed and adjusts to the environment (fast-food chain); information is shared in meetings; e-mails, conference calls; intranet; zoom; training on innovations and new skills; experience and knowledge of company and industry guide understanding (PM railway); store targets/customer satisfaction / knowing goals, such as sales- profit targets/ speed of serving customers guides understanding (Fast food chain)	Well realised importance to adapt to changing customer behaviour and evolve quickly; New ways of doing work, smarter and efficient; unlearning is key; change is a must, otherwise competitors will overtake them; senior employees or PMs are ok to undertake change initiatives; however, less experienced employees expect and receive direction from the management	The constant evaluation and learning lead to responsiveness to change, and a desire to adapt and implement changes quickly
Traditional KI x 4 - teaching assistant, a primary school; insurance broker; manufacture sterile items/parts for medical industry (Engineer); clinical trials associate	Top-down along with market information; through analytics team; and external about market changes & Covid; headteacher analyses, IT skills, flexibility and adaptability become key	Government regulations; scientific publications; having the right network of connections (insurance broker); Internet, connections; industry conferences	Keen to adapt through learning and there is a growing risk (insurance broker); It's passed by leadership along with directions on what to do: different employees are told what to do and how to proceed and how they can help (teaching assistant); discuss information with directors to understand how it affects the school	Creating motivating pupils experience is a key; Change is possible, but it requires careful planning; Change insurers partners and adapt practices; learning new skills and adapting fast, change is approved by the council and matches the overall goal; online and blended teaching; School is safer and cleaner	People appreciate everything that the teachers are doing; trust, support, improved communication, and IT skills; respect, <i>"everyone is going out of their way to support struggling teachers and pupils"</i> ; increased efficiency;

4.3. Micro and small businesses

4.3.1. Traditional SMEs

The interviewed participants from micro and small companies (1-50 employees) [51] were ten in total, five employees from traditional stable and five employees from dynamic industries. The main changes reported by the small and micro companies interviewed were again Covid, remote working, growing risk and uncertainty, higher prices of supplies. The new skills needed were again IT skills, data analysis skills and e-commerce/scaling online presence.

The interviewed participants from small traditional companies reported no formal, planned strategy, but all strived to provide the best quality services to their customers through constant networking with customers and competitors. Nonaka [50] characterized knowledge-creating companies as places where “inventing new knowledge is not a specialized activity...it is a way of behaving, indeed, a way of being, in which everyone is a knowledge worker.” They did not have a mission and vision, nor a formal strategy, but they were absolutely focused on their customers and learned and interacted/networked closely with them, suppliers and constantly monitored competition. The participants exhibited, however, a strong drive to remain viable and thrive, to sell the best quality products and to maintain, and enhance customer satisfaction through constant adaptation to changing consumer needs and the dynamic environment. An Indian Restaurant Manager says: “Not really if I am honest, we as a business just strive to do better every day and keep the business afloat.”

However, traditionally SMEs do not use automated systems or sophisticated software to collect or store information [17]: “When we get useful information and actually implement it into the organization, we do not store it into a database.” (Indian Restaurant Owner). We actually do not have any sort of online database; everything is handwritten and any new information that we gather is all stored in either memory from the employees and me or we write it down on paper as a note form.” In terms of making sense and taking a decision based on the new understanding developed, he added: “We make sense of new information by everyone coming together and discussing what would be best for the business. All employees are involved in this process as everyone has a close relationship with each other and everyone can input something that can be helpful.”

All interviewed participants from small and medium enterprises highlighted as their competitive advantage their excellent relationships with customers and suppliers, their expert knowledge, excellent reputation, and relationship with local councils. Traditionally SMEs are building their businesses on networking and keeping their fingers on the pulse of the industry, customer, and competitors [17; 69]. “You detect these changes by staying vigilant in the industry, you will start to notice price changes when you perform your daily activities, so just making sure you have a note of every change you see is helpful.”

“Also due to the COVID-19 pandemic, the volume of customers compared to pre-COVID-19, has declined, so as a result, we've had to implement an online ordering system in order to increase the number of customers again.”

A retail store manager shares that now the most important is to develop relevant ICT and digital marketing and e-commerce skills: “Yes, more research on increasing online presence. Bettering sale technique over the web. Learn the most effective marketing strategies.” Due to their scarce resources, however, most of the interviewed participants from micro and small companies were struggling to evolve fast enough, and to embrace digital and had to make hard choices on where to focus efforts and allocate organisational resources. Particularly services SMEs were hardly disrupted by the pandemic, the government restrictions and frequent lockdowns.

Through constant monitoring of the competition and customer preferences, however, interviewed participants from SMEs coped with change and stay in business and adapted their practices: “The new understanding was that in order to run a restaurant in today's society, you need to keep up with the age.”

Traditional services SMEs were severely harmed by the pandemic as they are anyway suffering resource constraints which made them even more susceptible to failure due to the frequent closures, restrictions and lockdowns during the pandemic.

4.3.2. Dynamic SMEs

The employees from dynamic small and micro businesses knew mission, strategy, and goals well and were focused on innovating and getting employees onboard with their strategy and mission by explicitly communicating their strategy well before the Covid hit: “3 steps to a successful strategy, encourages everyone to be a leader” (Software Engineer Project Manager). They had already implemented knowledge scanning and knowledge sharing mechanisms and focused on adaptation, an agile operating model and flexibility. For example, a Software Developer in an imaging company states: “agile seeks to always be better and faster, it's ingrained in our processes. Agile needs you to be able to react to these changes in plans.” They were successfully pivoting their working models and identifying new markets based on their core capabilities and their flourishing culture and climate, size, flexibility, and lack of bureaucracy. The interviewees from dynamic SMEs reported having continued their work almost seamlessly after the initial Covid pandemic shock, without substantial setbacks. They were substantially better prepared and already have embraced customer-centricity, agile operations and also ability to relocate resources quickly in response to pressing demands/crises. They had already established cross-functional teams, hybrid working and online communication and knowledge sharing routines. They had already established policies and software for remote working, collaboration, information storage and sharing, a synergy between managers and employees regardless the working mode.

Responding to Covid changes through ongoing scanning, alertness and willingness to adapt, constantly monitoring customer behaviour and developing e-commerce, digital marketing skills were key trends among small and micro-companies.

The interviewees reported that changes were detected and evaluated based on their prior experience and insider knowledge of their business. The latter is well acknowledged as the effect of already developed prior knowledge. Information has been evaluated by keeping in sight mission, vision, objectives. Speed of changes implementation was highlighted as the key element of success.

Please, see table 3 indicating the learning processes and its context and implications in small and micro businesses

Table 3 Learning and adaptation processes unfolding in Small and Micro Businesses

Type of Company / Industry /Size	info flow & actors involved, structures & systems, culture, resources	Recognition / Seize	Assimilation & Sense-making	Exploitation / Shape	
12 in total/1-50 employees				Improved/ Changed/New customer experience products and services future practices, adaptable strategies, unlearning & link to competitive advantage	Intangible Assets VRIN
Food services/ Indian restaurant (manager); sport/training for kids (coach); Catering and hospitality services in education; Furniture store (manager); Housing services; Seafood shops and restaurant (director);	Top-down & bottom-up/ external & internal; All employees are alert to market information; extensive internal discussions are taking place; constantly seizing new changes and information from a network of contacts and quickly adapt	Understanding customers and innovating is most important; Customers buy online now and are interested in sustainable furniture, where are the products sourced from (Store manager); moving business online, creating and implementing click and collect service (fish restaurant director); Employees require higher salaries, increasing prices of food produce, the risk is higher, should stay vigilant; networking, understanding changing customer behaviour and innovating as well as IT skills are a must (Indian restaurant Manager)	Discuss as a team and act on the go; no KPIs and physical resources have been dedicated to information assimilation; detect changes due to experience and by keeping at sight mission, vision, goals; usually management analyses, this process would involve relevant company employees as well. Information is shared and stored using: WOM, phone, calls; outlook, teams, e-mails, intranet; smaller restaurant - do not store information/only stored in employee's memories; Some challenges are: hectic, sometimes difficult to work in a team (Sports coach); to have a clear understanding of what is required, the manager does not engage sufficiently with the team (Manufacturing, Finance manager);	Increased profit, updated the menu, focus on online delivery (Indian restaurant); yes, able and willing to implement while operating normally (online selling system, fish restaurant); on a base of the information and new understanding allows promotions, special offers and management of demand (online retailer); Online retailer set up social media accounts to drive traffic to the website; Reconfigure and create new practices, systems are adaptable, scalable; <i>"Through practice, when I come across new ideas which give value to my activities I seek to implement them quickly to ensure efficiency"</i> (online retailer); speed the selling process and streamline (sea food restaurant ordering system); <i>"To the fullest extent, I am able to use and develop my skills to set my business apart from the usual retailers in the market."</i> (Online retailer)	Gaining the trust of the parents and created safer environment (sports coach); incorporating skills, know-how, country culture into our business and are able to trade with a good reputation, every employee has to adapt our value, culture ensuring competitive advantage. (Finance, Manufacturing); Trust, communication, team working, problem-solving skills (dinner lady, catering company); trust customer services, motivation (community housing services); strive to do better every day and keep the business afloat (Indian restaurant manager);
Software company (PM, Software engineer); Online retailer (self-employed); Engineering design and manufacturing company (Finance director) Software development company; Education, primary (learning support assistant)	Alert to all kinds of information, top-down; bottom-up internal & external information; flexibility and adaptation to change is key	Uses prior knowledge to analyse and find needed info (software engineer, learning support assistant); agile scrum processes require constant review and adaptation (software developer)	Figure it out yourself then double-check with other team members. Databases; Need more information (Software developer)	Constant change and adaptation of processes and products portfolio (software developer); <i>"agile seeks to always be better and faster, it's ingrained in our processes"</i> (software developer); Change and adapt quickly in the dynamic environment (Manufacturing, Finance); test and spike (short experiment) software developer: <i>"on a daily basis, yes, adapting constantly"</i> (Software Engineer);	Reputation, skills, trust, loyalty

5. Discussion of Findings

The economic shock created by the Covid pandemic forced many companies to adapt or go out of business, speeded up the digital and cultural transformation of others and forced many to act entrepreneurially because of the lack of other alternatives. Our research and the application of the MIATSM model contributed to the scarce understanding of how routines and capabilities are built, maintained, re-combined, adapted, and phased out in the face of global crisis in terms of their constituent micro foundations – individual to organizational level learning. The MIATSM model proved actionable in uncovering such organisational learning practices, enablers, and blockers and showed that in times of uncertainty, employees need to be vigilant and empowered to explore new possibilities while exploiting daily operations.

Small companies and companies operating in dynamic industries were able to learn faster than larger, traditional business industries competitors, due to their inherent flexibility, customer focus, networking and experimental practices and through constantly accessing vital and inexpensive real-time environmental information and thus developing their competitive advantage by evolving their practices. For example, the small Indian restaurants adapting their service models to food delivery as an operational reaction due to the infection control measures, similarly as the larger food stores scaling their online presence. With changing consumer demand patterns, retailers had to make their inventory available online, they had to manage new supply chain infrastructure, delivery mechanisms, and customer experience, teachers and schools had to adopt technology, new remote ways of working, adapt learning practices, and develop an open-minded, failure accepting, experimental culture to teach pupils.

Companies pertaining to dynamic industries were less disrupted as they were having at their core already developed agile working practices, alertness to new information and willingness to experiment. The experiential learning processes were particularly notable in high-tech, ICT firms, services, educational institutions, as these companies typically play a critical role as knowledge providers. As highlighted by Bednar and Welch [12] and George, Lakhani, Puranam [34] while it is not suggested that employees spend the whole of their time in an experimental, creative endeavour, the ability to engage in reflection over context and existing operating practices and (re-)imagine future practice through learning and constant adaptation is key for creating and sustaining resilient organisations. The leadership role in empowering employees' involvement in the organizational information gathering, sense-making and decision-making through creating flexible structures, freedom and autonomy to take on calculated risks, flourishing culture and climate emerged as crucial practices for organizational evolution. Our findings show, however, that the organizational learning capability was sabotaged unwittingly due to management short sightedness, rigid routines, broken communication flow, and lack of priority to support and empower individual ability to capture and transform information into learning for organisational excellence in some of the companies, particularly large traditional macro businesses.

Traditional grocery, pharma, education, and small services businesses in the food industry were hit the hardest by the pandemic and had to adapt quickly to the volatile and disruptive Covid impact in order to stay in business. Much like stated in Schumpeter's creative destruction theory, Covid 19 accelerated innovation in those radically disrupted industries, helping them to respond to unprecedented times by implementing new technologies in order to survive the crisis. As highlighted earlier, large companies very often fail to adapt due to their complex organisational structure, bureaucracy, and hierarchy which all prevent their ability to cope with high-speed change [5]. Thus, it has been found that an urgent cultural and leadership style shift continues to be required within businesses as pointed out by Mumford [47], starting from the top, and removal of organizational information blockers, lack of reflexivity and rigid adherence to wishful thinking to allow new opportunities capture through collective sense-making, learning and new technology implementation, timely training undertaking and IT skills development. The importance of leaders/managers as the architects of flourishing context responsible for resourcing and empowering employees to experiment, generate, share and develop new ideas and collaborate has been already widely acknowledged [12; 31]. Building and growing a scalable resilient organization in the face of uncertainty, and in a post-lockdown world requires employee involvement, flourishing context, supporting and open-minded leadership, leading by example and by empowering employees and aligning organisational learning practices, context and mission. In line with

previous research, our study shows that a fundamental challenge, however, in building dynamic change capability relates to changing the collective behaviour of employees together with their associated routines, work patterns and daily activities [29]. Such change of collective behaviour on scale requires human action and endeavour on the part of both management and employees and it can only happen by aligning individual and collective phenomenon to examine their impact on organisational level outcomes [10].

Our study shows that now more than ever leaders should root their employees in their company's values and mission, and moreover, they must exemplify those values. However, it also shows that this flourishing entrepreneurial culture and climate are barely present in most of the interviewed companies and in some cases are absent in their leaders' agenda, who does not seem interested in keeping employees informed about, curious and engaged in company's transformation and operations planning by taking advantage of and developing further their unique human qualities and skills. As highlighted by Montag et al., [46] and Qi, Liu, Wei, and Hu [55] exactly such gap and underappreciation of the significance of employee behaviours leads to the broken chain links between macro and micro levels learning and DCs formation.

Moreover, managing contradictory demands emerged as a must-have skill during the pandemic, known as ambidexterity in the DC literature. All interviewed participants reported the need to reconfigure and adapt quickly while managing daily operations. A persistent theme in a variety of organizational literature is that successful firms need to be ambidextrous so they could cope and succeed in the increasingly turbulent and knowledge-based economy [7; 13]. As indicated also in Schumpeter's theory of economic development (1934), an exogenous shock may trigger creative disruption, a large enough shock destabilizing an existing equilibrium leads to means-ends reordering that creates new opportunities for entrepreneurial companies and individuals, who are willing to change, unlearn old ways of doing things and experiment with new technologies. Innovative practices emerge in such a volatile environment to fulfil quickly emerging gaps and opportunities. Thus, this research provides insights to move organizations up the learning curve faster and establishes the usability of the MIATSM model in uncovering both successful and effective, and broken knowledge/learning chains within organisations. This study shows the suitability and adaptability of the model to various organisational context. The model can be used to guide organisational transformation through development of operating learning routines leading to practices evolution and / or VRIN resources. It could be used also for analysis and diagnostics of organisational weak areas/context – facilitating/impeding organisational context.

6. Conclusions and Recommendations

The Covid outbreak does not disrupt businesses equally but forced all sizes and kinds of companies to get better (at least temporarily, while the lockdown lasted) at accepting and acting upon the need for change by transforming their business models, sales operations, training and communication systems, internal culture and operating work. Our research showed that in times of crisis, managers in all types of companies have to reject rigid mental models and engage in experimentation/learning by doing, open-mindedness and constant information scanning and sharing, and embrace new technological innovations.

Moreover, they need to realise that employees do not just need to be capable to do their job as professionals, they also need to be allowed to use their competence and knowledge of context to be able to do "their best jobs". Or to aim for professional excellence and take ownership of their job. This means professionals to be allowed (and supported) to make professional decisions. It means that professionals need to be trusted and they need to be able to trust their employer. Which requires special care and attention to the human sustainability aspect of the organized activity. The latter is well aligned with EU vision or Industry 5.0 which also recognise and point out the importance to capture the value of new technologies and provide prosperity beyond jobs and growth by placing the wellbeing of the industry worker at the centre of the production process [30]. Thus, organisational leadership and management need to create and communicate a compelling knowledge vision within the organisations and stimulate and motivate employees to act as learning agents. As forecasted by Senge [57, p.69] "Perhaps for the first time in history, humankind has the capacity to create far more information than anyone can absorb,

to foster far greater interdependency than anyone can manage, and to accelerate change far faster than anyone's ability to keep pace....organizations break down, despite individual brilliance and innovative products, because they are unable to pull their diverse functions and talents into a productive whole". Our research highlights the importance of aligning organisational context - structures and systems, and culture and people - with externally arising information, especially in highly volatile environments, to facilitate operations and transformation through constant individual and collective learning leading to organisational evolution. Our research demonstrated the importance of that aligning leadership and employees' vision and behaviour with learning processes is key for DCs development. Such "micro to macro" perspective on DCs is more inclusive and holistic perspective to understanding the microfoundations of DC's formation - flourishing climate and culture, motivational and open-minded leadership, internal information flow [32].

In terms of future research, we suggest that researchers need to examine how managers and employees in companies can develop ambidexterity capability to manage dynamic change and conflicting demands – daily operations along with new capabilities development and implementation. It's interesting to study if and how some companies were able to develop and manage already ambidexterity structures and/or routines during and post-pandemic. It is also important to study if companies will sustain some of the introduced changes/practices or they will push back to their usual operations, once the pandemic is over, like, for example, currently many managers oppose the remote/hybrid working model and require from their employees to get back to the company offices.

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