Challenges Faced with Creating an Enabling Environment for Digital Transformation at the Enterprise Level-Case Study: ABC Logistics, Sri Lanka

[1]Keya Saha and [2]Prasanna Liyanage
[1]No. 5/4, 43, Peterson Lane, Colombo 06, Sri Lanka
[2]345/19, Kuruppu Lane, Cotta Road, Colombo 08, Sri Lanka

Corresponding Author:
Keya Saha
No. 5/4, 43, Peterson Lane, Colombo 06, Sri Lanka

Abstract: The onset of the COVID-19 pandemic has forced all industries to work remotely and move into a digital space. In this light, a case study on ABC Logistics was picked in the landscape of Sri Lanka to investigate their journey in Digital Transformation and the challenges they faced, especially due to the complex nature of logistics and the industry itself being a legacy industry as compared to its peers. The purpose of the study was to understand the digital maturity of the large enterprise and identify the challenges and barriers it faced in creating the enabling environment for the digital transformation to be a success. Impact of employee alignment and the effect it has on the digital goals of the organization was explored in the study. The study was conducted in 2 stages, stage 1 being literature from past research being reviewed and combing it with the findings of stage 2 which was a qualitative approach with thematic analysis of 6 interviews that were conducted with the core digital team at ABC spearheading the digital transformation process in the organization. The enterprise in the case study was found to be in the "Beginner' quadrant of the digital maturity matrix and the challenges that it faced were different to that of "Digiratis", "Fashionistas" or "Conservatives" when compared to past research in the logistics industry and other industries undergoing digital transformation. There was a new challenges that was identified in this study namely "Work From Home' (WFH) which is remote working due to the COVID-19 pandemic that brought in a plethora of challenges in terms of communication challenges, loss in productivity and loss in motivation. It was also identified that digital transformation is not only about technology but a business transformation where leadership and change management are the drivers for success in an organization. The importance of innovation and clear digital goals that is

driven top down was highlighted as a factor that cannot be overlooked in an organization striving to standardize and centralize processes to drive growth and improve customer experience as part of the objectives to be achieved through digital transformation of the organization.

INTRODUCTION

Background of the study: Digital Transformation (DT) is a necessity to sustainable growth and development, especially in the post-pandemic era where the "new normal" has pushed the technological advancement to multiply by several folds globally intensifying competition among enterprises. Information Technology (IT) plays a vital role in differentiation[1, 2] as DT is progressing from "Internet+" to "AI+" increasing reliance on the "AI+ Industry"[3]. The accelerated reliance on digital platforms has made it essential to companies to pivot how employees work and collaborate in remote working environments and it has become critical to understand not only these platforms but also, change management capabilities [4]. A recent supply chain and 3rd Party Logistics (3PL) survey by Berman reports 47% of respondents equated innovation to digital transformation and were willing to stretch their budgets to >20%."" study shows that DT in an organization influences four dimensions namely technology use, creation of value, change in organizational structure and change in financial aspects with new business models being used in new marketplaces[5]. Predictive and adaptive analytics, Robotic Process Automation (RPA), automation and emerging solutions leveraging big data and Machine Learning (ML) and Artificial Intelligence (AI) was ranked high priority to optimize efficiency, speed, flexibility and safety. ABC the largest logistics service provider in Sri Lanka a $USD 1.2 billion revenue giant, operating in 31 countries with 64 offices and employing over 2900 employees has ambitious digitization goals of becoming a fully digital freight forwarder by 2025. Digital transformation is at the helm of making this transition possible by integrations on several fronts using AI, ML and RPA on increasing operational efficiency and reducing costs on several fronts such as forecasting and planning, procurement, operations, sales and marketing. Outdated client interfaces[6] are being replaced by Application Programming Interface (API) to ensure back integration into client production systems to make advance booking of vessels for enhanced customer service[7], faster, smarter and more sustainable logistics[8].

Research problem identification: In logistics, the key to success is the match of steady flow of information with the flow of goods, information exchange is a critical part of up and downstream activities[9]. Without a centralized system this is practically impossible to achieve. Despite having a digital vision, building a team and allocating budgets, there are hinderances in creating an enabling environment for DT in the organization. In this light it is important to identify the underlying fundamental clarity in digital vision and goals of the organization, strategy alignment with the above and investigate the critical challenging factors that impact in creating the enabling environment for DT in this case study.

Research questions: The following research questions are investigated keeping in mind the problem statement as mentioned above:

- RQ1: Why is digital transformation a necessity and what is the digital maturity level of the enterprise?
- RQ2: What are the main challenges faced while creating an enabling environment for digital transformation in a large organization?
- RQ3: How does alignment of employees across all departments, with the digital vision and goals of the organization impact digital transformation?

Objectives of the study: A two-stage approach was adopted with literature review in stage 1 and investigation of a case study of a large enterprise freight forwarder on challenges faced with the implementation of DT from different perspectives to investigate the barriers that impact the digital transformation journey in organizations. The different perspectives that were investigated were digital maturity level of the organization, leadership in the organization, processes, change management and culture in the organization, impact of alignment of employees across all departments with the digital vision and goals of the organizations and/or any other challenges faced during the DT journey was conducted in stage 2.

Significance of the study: To identify factors that lead to success or cause bottlenecks in implementation of digital transformation in large enterprises, logistics-case study through prior research findings, methodology used in the research paper, analyse and report the findings. The final section covers study's contribution, recommendations and future research directions.

Limitations of the study: Perspective of a few leadership positions and employees in a single organization and may not be applicable to other organizations in the same industry or field of work.

Critical review of literature

Digital transformation: DT lacks consensus by scholars with respect to definition; it is a process[10-13]; it is strategy[14, 15] and Fitzgerald *et al*.[16] mentions it as use of new digital technologies to enable or enhance business improvements such as streamlining operations, creating new business models and improving customer experience. Organizational digital transformation is also, viewed as an area of interest[17] as DT is not only about technology but a business transformation at the organizational level. Organization resistance is found to be a considerable hindering factor in the DT process in large and mid-size enterprises even though DT has been found to successfully transform management functions[18].

The digital disruption is changing landscapes across all industries and evidently there is a change is workforce management that is associated but studies show there is a lack of information about the impact DT has on workforce and workforce transformation and is open to future research as human resource management will play a vital role as an agent of change in the DT process[19].

Challenges and success factors for digital transformation of an organization: The complexity of the logistics sector makes identifying the challenges and success factors for DT vital in order to be able to counteract them. While success factors are the ones that enhance the probability of success[20], it is important to note that absence of any critical success factors does not ascertain it to be a critical failure factor. With regards to information systems[21, 22], change management[23, 24] and innovation[25] challenges and critical success factors have been researched by several scholars, however with respect to DT more investigation is required[26]. This paper refers to extend investigation on barriers and success factors in logistics indicated by Cichosz *et al*.[27] as 8 major success factors namely (1) Leadership (2) Customer centric organizational culture open to change (3) employee and partner engagement (4) Business and IT strategy alignment (5) Process standardization and data integration (6) Employee skill development and training (7) Agile transformation (8) leveraging internal and external technological knowledge and 5 major barriers (1) underlying processes and complexity of logistics systems (2) lack of resources skilled and unskilled (3) adapting to technology (4) resistance to change and (5) data protection in past research done. According to Weill and Woerner[28], Kane *et al*.[29] and Davenport and Westerman[30] leadership styles that would enable DT is an important area of investigation, leaders having a certain mindset would be required in the forefront,

emphasizing on the practices that would govern the complexities that the organization would face during the transformation journey.

Some studies mention the inability of managers and executives to address the issues associated with DT in organizations[31-33] while others blame the organizational culture, management practices, governance and execution ability as the challenge[34]. Research study by Hartley and Sawaya[35] suggests for organizational DT in supply chain and logistics in order of priority, a digital leader must be appointed to lead through changing digital landscapes, develop a road map for digital technology and update foundational information systems.

Logistic industry, logistic service providers and digital transformation: Comprehensive digital transformation plays a key role in reducing cost and increasing efficiency of the logistics industry as the most fundamental problem to solve remains matching supply to demand. AI applications include supply demand prediction, supply demand evaluation and path optimization[3].

In order to achieve this and streamline the right set of tools like Application Program Interface (API), Transportation Management Software (TMS), Enterprise Resource Planning (ERP), Supplier Relationship Management (SRM), Customer Relationship Management (CRM), Manufacturing Execution System (MES), Warehouse Management System (WMS)[36] along with ML and AI need to be a part of the processes. For efficient flow of goods information flow has to be seamless[37] and will require greater integration within the firm and across the supply chain. Not only having this information but executing it will be key to success in logistic enterprises. Nekrasov and Sinitsyna[13] state that the main driver in transformation global transportation systems for highly efficient supply will be digital technologies and logistic engineering. Not only having this information but executing it will be key to success in logistic enterprises.

The high complexity of the supply chain network and the VUCA environments that enterprises face need real time data processing with ML and AI that can flexibly synchronize supply and demand which traditional planning tools lack. Self-regulation of logistics based on automation and communication between machines, downstream integration into manufacturing and upstream integration into customer deliveries, would result in sustained productivity growth and increase in return on assets[38].

Research by Gunasekaran *et al*.[2] reports literature review on how IT systems help in achieving competitive advantage in logistic networks using

Table 1: Success factors and challenges for digital transformation in organization

Objective of the study	Success factors	Challenges/Barriers	Topic	Author
Discover barriers and identify organizational elements and associated leading practices for DT success at logistic service providers	1. Leadership 2. Supportive organizational culture 3. Employee and partner engagement 4. Aligning business and IT strategies 5. Process standardization and data integration 6. Employee training and skills development 7. Agile transformation management 8. Leveraging internal and external (technological) knowledge	1. Complexity of the logistics network and underlying processes 2. Lack of resources 3. Technology adoption 4. People's resistance to change 5. Data protection and security breach	Digital transformation at logistics service providers: barriers, success factors and leading practices	Cichosz *et al.*[27]
Identify the key internal factors of successful organizational DT and confirm whether there is as has been suggested, a difference between the way IT managers and non-IT managers perceive these factors	1. Customer centricity 2. Governance 3. Innovation 4. Resource Attainment		The underlying factors of a successful organisational digital transformation	Mhlungu *et al.*[17]
Based on the IS success model of DeLone and McLean, to derive success factors that can trigger DT success	1. Dynamic and flexible organization-A cultural change is necessary to enable an agile working environment as well as more interdisciplinary activities 2. Environment of the company companies to collaborate with customers, suppliers and also, other firms from the branch 3. Technology & technological innovations	1. Missing skills- education, skills, worker, employee, career, job growth, human resource 2. Technical barriers-interdependency, security, safety, interface, integration 3. Individual barriers acceptance, TAM, adoption, transparency, fears, job loss 4. Organizational and cultural barriers-organization, strategy, change resistance, inertia, culture, mistakes, barriers, risk, investment 5. Environmental barriers standards, laws	Success factors for fostering a digital transformation in manufacturing companies Barriers to Digital Transformation in Manufacturing: Development of a research agenda	Vogelsang *et al.*[39] Vogelsang *et al.*[40]
Annual study of digital business on global survey of 4,300 managers, executives, analysts and 17 interviews to show digital business environment is different from the traditional one	1. Pace of business 2. Culture and mindset of the organization 3. Flexible distributed workplace 4. Experiment to compete in the future maintaining core business-more exploration and experimentation, then scale up 5. Innovation 6. Balance experimentation (explore new competencies) and exploitation (existing capabilities) 7. Continuous learning for individuals 8. Developing digital leaders providing vision and purpose, creating conditions to experiment, empowering people to think differently, getting people to collaborate across boundaries	1. Competency trap- assuming past failures will lead to future failure 2. Need to experiment and take risk 3. Ambiguity and constant change 4. Buying and implementing the right technology 5. Distributed decision making 6. Organization support on skill development	Coming of age digitally	Kane *et al.*[29]

alignment, adaption and agility. Exploratory study of application of digital transformation technologies by Junge[41] indicate usage of cloud technology and auto identification improves efficiency, logistics resources and optimizes distribution distances in networks.

Summary of literature review on past research on success factors and challenges faced by enterprises during digital transformation (Table 1):

MATERIALS AND METHODS

Conceptual framework of the research: This was a two stage research in which the literature review was conducted in the first stage to identify the potential challenges and success factors faced by organizations during the process of digital transformation to. The Literature Review was also, used as a framework to conduct the semi structured interview for the qualitative analysis, to generate code and conduct the investigation to

find similarities or differences in the current case study. In stage 2 a set of semi structured interviews were conducted with the digital team in the case study organization of which 2 were from the management and 4 were employees reporting to the managers interviewed. A methodological fit approach[42] where fit means the internal consistency of the project elements at hand with prior work, research questions, research design along with theoretical contributions.

Case selection and research design: The case selection was an under-researched topic and research philosophy used is interpretivism[43] using the logic of inductive approach collecting primary data strategically through interview method with the aid of an interview guide (Appendix 1). A qualitative analysis is conducted considering unit of analysis as individuals and the findings are combined with the literature review and reported in the discussions and conclusions chapter. As Yin[44], defines case study as an empirical research activity that examines a present event or action in a bounded environment and must have a sampling logic. The case study objective was to do an intensive research on a specific case[45] and in this case the purposive sampling criteria was interviews with digital team at ABC, to identify essential factors, processes and challenges faced in creating an enabling environment for digital transformation in the organization. To begin with a large enterprise which is a global player with 64 offices in 31 countries with over 2900 employees was selected, secondly the organization had begun its journey in digital transformation with a vision as it had already appointed a CDO two years ago to form a team. Thirdly, the team leading the digital transformation process in the organization was interviewed as they would have the right knowledge and insights into the challenges faced in creating the enabling environment in the organization. In order to gain insights from different layers and dimensions of the organization, 2 C-Suite executives namely the CDO who is heads the entire 40 member digital team and CTO who is the head of the technology team was interviewed. The remaining 4 respondents were intentionally picked as the Program Manager in charge of process set up in DT, the data science consultant that does the business analysis and translation between the product owners and data scientists, the data evangelist in charge of standardizing the global process of storing and analysing data and the data scientist who works with the data to build models incorporating machine learning methods to improve efficiency or reduce cost for the organization depending on the project that is being worked on.

Data collection methods and techniques used for research analysis: A semi-structured interview was developed on the framework of the literature review that help navigate through the interviews[46] with the subject matter experts. The interview was organised into 5 main parts: (A) Introduction, clarity of concept of DT as individual and organizational roadmap awareness, (B) Challenges faced while creating an enabling environment for DT, (C) Understanding of emerging technologies, (D) Process standardization and knowledge transfer in the organization and (E) Communication and Collaboration in the organization (see Appendix 1).

The 6 interviewees were all directly related to the topic of research and the interviews were conducted virtually on Zoom due to the pandemic restrictions not allowing physical meetings and hence, diminishing the opportunity to report nonverbal data for thicker descriptions or interpretations[47] of the qualitative research. Virtual interviews between 30-40 min were conducted for each of the interviewees, sessions recorded and transcribed. Permission was taken to record the interviews and ethical considerations have been adhered to maintaining anonymity, confidentiality and informed consent from my end and voluntary, faithful and honest participation from the respondent's end[48].

In the exploration stage, a thematic analysis was conducted by coding each of the interview transcripts to identify cross-case patterns and conclude if any of the factors present in the case study were the same as previous research done or were there new factors that also, emerged as pressing factors for challenges or success factors in the research conducted to enable digital transformation in the organization (Table 2).

Data presentation and analysis: The common consensus that was derived from the investigation is that all the respondents C1-C6 believed that digital transformation was high priority and the need of the hour due to the quick changing environment in the logistics landscape and that logistics by itself has been a legacy industry slow to change due to the sheer complexity involved in its processes and operations and different touch points involved in the entire operation process. ABC has some digital transformation work in progress and has been able to currently centralise their ERP system globally and C1 mentions in that perspective, "we want to get to a 1% data inaccuracy and a <1% process deviation and we are there now." C2 says that investments are being made in systems and applications such as data lake (C5) and cloud before setting up ML studios and also, that some ML projects are ongoing such a lead generation to increase revenue (C2, C3, C6) and air freight rate prediction (C1, C2, C3, C4) to reduce cost by negotiating better with the airliners.

Need for digital transformation and business and IT strategy alignment: The COVID-19 pandemic has changed market dynamics leading to rapid

Table 2: Interview participants and their experience in the digital and IT sphere

Code	Designation	Experience
C1	Chief Digital Officer	23+experience in digital and IT
C2	Chief Technology Officer	20+experience in digital and IT
C3	Program Manager	6+in strategic planning and process development
C4	Data consultant	6+years in analytics and digital
C5	Data Evangelist	6+years in business applications and analytics
C6	Data scientist	23+years in analytics and technology

Table 3: Thematic analysis

Research question	Themes (Sub themes) identified
RQ1: Why is digital transformation a necessity and what is the digital maturity level of the enterprise?	Leadership (Confidence in leadership, confidence in team), customer centric, Business and IT strategy alignment (Roadmap, budget, clear digital goals), process standardization, adapting to technology (quick changing environment) leveraging tech knowledge (clarity of DT concept, skilled tech leadership), organization seriousness for DT (clarity of future plan, AI & ML progress, team size)
RQ2: What are the main challenges faced while creating an enabling environment for digital transformation in a large organization	Leadership (Expectation management), data integration and data governance (Data capture, standardization, governance), Agile transformation, complexity of logistics, lack of skill/resource, resistance to change (Change management), communication (Collaboration & communication with external & internal teams, translation gap), Work From Home
RQ3: How does alignment of employees across all departments with the digital vision and goals of the organization impact digital transformation	Leadership (Leadership perception), adapting to technology (nascent stage), resistance to change (Organizational culture), communication (Knowledge transfer), uncertainty and ambiguity (Loss in productivity), organization seriousness for DT (Improvement)

transformations for the positive and negative even in the complex logistics industry due to the quick changing environment (C1,C2,C3, C6) where C1 says, "it's an unprecedented level of change. Everything that, we used to do, the way, we do, it has got to change" and C2 mentions "looking at our competition, looking at the market changes because of this COVID the dynamics have really changed", while C5 calls the way forward for most companies, C3 emphasizes that digital transformation a survival issue and digital needs to be considered as high priority stating that, " for us to be competitive, there's no option other than being in a transparent in terms of data and having integrations capabilities" and C6 is paranoid that. "If we don't do it, all the other logistics and freight forwarders are doing it, we are going to miss the bus!"

What digital transformation meant to the team that was spear heading the process in the organisation was essentially that there is value addition to the various stakeholders (i.e., customers, use case owners and employees) through innovation and evolution in processes, methods and technologies used. The concept of digital transformation meant (Table 3).

Constant evolution (C1,C3) as there are so, many technologies that are being introduced every day, the process, methodologies and people need to keep evolving and organizations need to walk the talk and not merely be digital fashionistas (C3); technology must be an enabler to the business and play a supporting role not a driving role (C1, C2), moreover it must be looked from a perspective of business transformation not just digital transformation (C1), every time there is a process improvement there is more work and it is never done.

It is about moving a manually driven process to a digitally supported process (C4) but not everything can be automated (C4). So, a balance between automation and human intervention is important (C1, C4) and automation through digitization should be considered an opportunity and not a threat, reducing repetitive tasks opening up to employees opportunities to do other efficient and productive activities in the organization (C1, C4, C5, C6).

Clarity about the value that is created through technology and strategic initiatives that are taken before investment in digital (C1, C2) and how they can be made better and sustainable; building capabilities within the organization was equally important as technology and capabilities together lead to good digital assets (C3).

Value creation in the form of improving efficiency (C1, C3, C5, C6), revenue acceleration (C1, C2), cost reduction (C2, C3), faster time to market (C2, C3), improving customer satisfaction (C1, C2, C3), informed and data backed decision making (C1, C4, C5, C6), security and risk reduction (C2), employee satisfaction or talent retention (C2) or reducing waste (C5).

Currently, it is noticed in the investigation that there is an ambiguity in the understanding of the business and IT strategy alignment in the organization as there was a mixed response from the team. C3 quotes "right now it's embedded to a business strategy as well but there's a lot of work that needs to go in" and C2 mentions that currently they are focussed on fire fighting issues. According to C6 there is a digital vision and mission but the technical team is not aware whether strategies are aligned or not as they are not responsible for analysing that. According to C4, the statement made was, "it's not

aligned as of yet. But that's what they're heading at, what are they looking at is trying to get themselves aligned with the main strategy of the company", C5 had a different response which was "ABC I don't think is at a level where they have implemented a vision or mission but there is certain objectives". C1 however, justified that expectations have been set broadly at a program level as to what skills, capabilities and attributes are required for digital transformation and the organization has done that, "at a project level is where we break it down into features, milestones that can keep changing, reported and monitored; you know, we deviate a lot" and also, clarified "the future of logistics is about how the flow of information runs parallel to the flow of products, I think powerful narrative to kind of lock down on in terms what's our goal and what's our vision."

On questioning further about a tentative roadmap or budget allocations for digital transformation it was evident that 4 respondents were aware that there was a separate budget allocated for digital transformation in the organization (C1, C2, C3, C4), "we have to continue to invest in our people, invest in new skills, invest in capability and we are investing in getting all the fundamentals right" (C1), "we do have a digital transformation budget" says C3. Only 3 respondents were aware of the roadmap, where C1 stated that due to the pandemic certain milestones were achieved a year in advance. So, "outcomes that we wanted from that roadmap are fundamentally different from where we started to what we are doing now" and that a plan is there only to give direction to prioritize investments and set resources. C1 mentions the roadmap is reviewed every quarter and course corrections are made basis the external environment conditions and past learning. C2 and C3 are in consensus that they are slowly creating a roadmap beyond 12 months for a long term plan but they aren't there yet and in C3's opinion it is not only important to create a roadmap but also, "foster an environment where you always check and adjust." However, despite un-clarity about the business and IT strategy alignment and C2 stating, "they have an objective for this digital transformation that is happening right now in ABC? The answer to that question is yes and no" , it would be safe to infer that there were a few digital goals and specific future plans that the respondents were aware of that consisted of the following:

C1 stated "our plan basically is looking at defining what a digital freight forwarder is and how we get there by 2025 what transformation needs to take place, what technology needs to come in, what therefore what needs to get digitized, what skills do we bring in and what business models-it is to be a digital freight forwarder".

The goal to have all 60+ offices using the same ERP system for all departments and products, launched in 2018 by 2022 was achieved by June 2020 due to the pandemic (C1) and a separate team was set up dedicated to this.

By 2024, they intend to have a proper digital infrastructure (C4, C5) and current working on standardizing data that can be used across the globe (C5). Setting up a Centre of Excellence in Sri Lanka which will be the single point of contact globally (C1, C5), C5 mentions "we are trying to, democratize the data that we have to each station. So, they can, the stations can do their own reports and if they are smart enough, they can do the data standards work as well. So, at the moment, we are still at ground zero."

From an unbiased point of view, the investigation showed that ABC is setting up their own digital team which depicts seriousness towards digital transformation and they are not mere "Fashionistas" as C1 confirmed that it is currently the team size is 40 for digital, that consisted of the enterprise management, DevOps and data science teams (C1, C2, C3) which is not a big number (C1, C4) and work is outsourced due to project demand and "the data science team is currently in the supporting role at the moment as opposed to coming up with initiatives and value driven solutions to the top management", said C2. ABC, is investing in people and skilled leadership to build capability (C1), quoting what C2 mentioned, "from AI in terms of even deep learning applications to products, we've implemented bots to algorithms. So, I would say that we have a good grasp on AI and machine learning". There is strong confidence in the leadership and the team with, C1 strongly mentioning "our organization is a little special, it was founded by someone with extreme entrepreneurial spirit, that still runs in him and all of us.", C2 believed that one of the main things that helped was the C suite support , "we see a lot of potential for a lot of development areas in this line of work, when it comes to the C suite or the top level, that sponsorship, their belief and their support, we've got the C suite support, they are investing on tech and digital. They believe in tech and digital!", C3 says, "I think the organisation is in the right way. So, we'll get there. So, that's my belief."

In getting the fundamentals right (C1), customer centric mindset of employees for any service oriented company builds strong foundation for the future. In this light, C1 has clarity that,"for us, digital transformation is around, how do we continue to create value drive growth, not just for ourselves but our partners.", C2 addresses, "There are Some customers whom are not happy at the moment. How do we align that?" and C3 points out, "if you're in the service industry, it's about serving the customer. So, digital or not, you have to serve the customer first. The development team is working where the customer can get real time information about the shipments." "Process was going to be the bedrock of any transformation" says C1 and that the organization is spending time and effort to standardize processes as part of getting the fundamentals right. Respondents C1, C2, C3 and C6 were in all in agreement that for any new

digital project, the standard template was set (C3), they clearly knew who the stakeholder was (C3), the business user had to be made the product owner (C1, C2) and had to be involved from the beginning till the end-RACI matrix (C2) and was give the responsibility of signing off on any project on the specification and scope before it went into development stage (C1, C3).

Challenges faced while creating an enabling environment for digital transformation: There were eight main challenges that were identified in the investigation that was a barrier to creating an enabling environment in digital transformation in this case study: Complexity of logistics, leadership, data integration and data governance, agile transformation, lack of skilled resource, communication work from home (WFH) due to the pandemic and change management.

The 5 out of 6 respondents (C1-C5) mentioned logistics being a legacy industry was slow to digitize and one of the late bloomers (C2) as compared to other industries such as retail, FMCG, telecom, etc. due to its sheer size and complexity of having several partners, to change something was always a big task item (C2). The C4 commented that in the freight forwarding business they do not own any main asset, "we just are centrally coordinating with everyone, it's a bit complicated" and C5 mentioned that due to this factor while setting digital goals external factors need to be considered. Within the organization there were different battles to fight with outdated technologies, "the systems and the applications, we have are from legacy applications, it's not easy to make a change in an SDI application because it's implemented" and has customer dependencies and different architecture says C2. They have just begun implementing API architecture for the future to overcome this.

Under leadership, despite having the belief and support, expectation management is a huge challenge. C1 aptly mentions, "at the end of the day, you have to manage expectations because you're doing something people don't really understand, you're working on something invisible and there are too many nay sayers". C3 and C4 everything is result oriented and as much as quick wins are important to satisfy the management, one has to aim far to stay ahead of the competition. C1 is diplomatic when he says that internal and external customers have undue expectations for uncontrollable reasons but it is important to understand where to draw the line in the current landscape. The data is fundamentally different every week (C1, C4) whatever the strategy, product or solution and AI/ML cannot replace the mind of a manager or human intervention in the near future.

All 6 respondents address the challenge of data integration and governance from different perspectives depending on their personal encounters based on scope of work. C1 agrees that standardizing data on all fronts across the organization was and will be a difficult task. C2, says, "a lot of loopholes and gaps that we have from our data perspectives, to do any of the analytics work, we can see that a lot of errors and mismatches", C4, C5 agree data entry from different locations tends to differ and it is a massive issue, C4 states " we have both of these rates, are then in one single column, that's a problem just because you enter that we don't know what that number means" with regards to airline quotation breakdowns and feels that drop downs should be customized in the front interface to resolve these problems else it is "garbage in, garbage out". C3 feels that there is lot of work to be done in terms of data capture, integration and standardization, "How we integrate into customers and partners with our carriers and how we integrate ourselves into our ERP system. And also, from that we also, push information from our own systems to the customer". C4 and C5 reiterate that there isn't sufficient data being captured or centralized (C6) to experiment on AI yet and data capture is being prioritized based on project requirements after renegotiation with stakeholders which leads me back to the expectation management mentioned as a challenge. C6 strongly emphasized on the urgent requirement of data governance, "is a big problem, there is no data governance involved. So, like each department have their data in a silo." that digital assets are not being updated centrally across the organization. This leads to reports varying for the same period when data is used from different departments and it is coming up in all the projects. C6 suggests the urgent requirement of data governance committee or data stewards that constantly check on the quality of data else with siloed data "different departments will have a conflict is going forward" and it is a major issue working with incorrect data sets.

Though agile transformation is considered a success factor in digital transformation in logistics there was a mixed response. C2 said, "So, the mindset of Agile the mindset of projects are new to the organisation when you when you look at the entire team", C3 mentioned that they are in the pursuit of an agile transformation idea, "I'm a huge believer in Agile delivery" and C6 feels from the data science point of view there should be another method as agile is to be used for large projects and there is no point is wasting time on every day calls, "If they asked for an ad hoc analysis or small analyses, no point in like a daily using agile and trying to create a backlog."

C1 states the closest competitor in terms of revenue that they have has a 280 member team compared to the 40 member team at ABC. Finding the right talent is the third biggest challenge that C2 faces, "it's very difficult to attract good resources, to join in non tech company, even though they are joining a tech role, we might sometimes

do about 80 interviews." C3 highlights the same issue of lack of skill and resource in house holistically, "we don't have project managers who are also, strong on their business or so, ft skills, programme management capabilities, problem solving skills at a business level, I've always suggested something like an agile transformation journey but I don't think we have the capacity or the knowledge", C3 suggested involving an external consultant to structure the team in the future to resolve this issue.

Communication was one of the main challenges that was identified at ABC and at different levels and across departments. Just plain communication challenges, translation gaps, collaboration and communication with internal and external teams formed the different sub themes under this main theme.

Under communication challenge C1-C4 agreed that communication was a big challenge and there were errors (C4), spills or barriers that lead to misinterpretations (C3). C1 and C2 said there was a lot of documentation in place, chat groups and structured communication channels (C2) and good daily, weekly and monthly reviews but, "I'm talking about if people are on the same wavelength, they're talking the same language and the quality of what you do", said C1. C1, C2, C3, C5 and C6 emphasized on translation gaps in the requirement interpretation (C3) between the customer to the business team and finally tech understanding of the same. C2 mentioned one reason could be baton changes due to global presence and working with different time zones where the technical team is not directly interacting with the customer, C6 bearing the brunt of it says, "whoever has a big idea but they don't know how to put that into a word or documents or anything like that. They have that idea but they don't know how to convey that to us." C1 feels a lot goes unsaid as there is a bias that the business assumes that the tech team understands a problem the way the business team articulates it, they are trying to pair up data scientists with good business analysts. C5 is of the opinion that if the business team has proper knowledge they will be able to create the requirements themselves without this translation gap.

Collaboration and communication with internal and external teams was an equally big challenge to C1, C2, C3, C5 and C6. C1 says it's a weakness they have as C3 rightly pointed out, "you can't work in silos, you can't work in siloed teams, let alone siloed personalities." But right now they have silos (C1, C3) which is a struggle when it comes to execution. Internally, getting 3 cross functional teams in digital, i.e. Enterprise, DevOps and data science has been a challenge and like bringing many worlds together (C1), C2 shares, "the current team will try to translate what the customers meant into a tech system and give the tech team a requirements document, tech team's customer is an internal customer which is the

enterprise systems team, once the system is slowly getting into an implementation drive, the enterprise system team would say, 'No, I don't think this is what they wanted!'" C6 has faced similar situations where after the completion of a project the final stakeholder would say they had got it all wrong and C5 talking about external teams says, "they don't see seem to have an idea about the need of the information for the data teams as well."

WFH, a barrier attributed purely to the pandemic was a new finding in the list of challenges in digital transformation. C2 said that there were challenges in terms of ironing things out as 60-70% of the team had not met each other or the business users in the physical space (C4) yet as they were working from home since March 2020 and that a lot of them were hired in the digital space during the pandemic. C3 mentioned, "distance communication has been a big barrier, we are operating in 31 countries" but the internal team being decentralized in terms of seating is a problem they are currently facing. C4 feels that course corrections can be made easily in the same physical space as he says, "after a meeting, we sent those meeting minutes, we will sometimes do slightly different things. And at the end of the day, it's different from what we discussed at first!". Being in the early stages of digital transformation C4 feels that one has a lot of questions, especially when the set-up is still not completely process driven and WFH is a big challenge and people need to be in the same physical space for the digital transformation to be a success.

C1 is again diplomatic here stating, "our biggest strength is we're entrepreneurial but not really a weakness but we are still a legacy organization" and the organization has set ways (C1, C5) whereas transformation is about new systems, processes, break old habits, new skills, people with existing skills to take on new skills. Opening up C1 says, "the biggest challenge to us across all of this is the change management. So, across all people, process, strategy, for us it's the change management that's the biggest challenge from a legacy to a more transformative approach", C2 faces challenges as the tech staff are not used to facing or controlling customers. Resistance to change is a subset of the above where C3 mentions his plight by saying, "I've tried and I failed, we include processes, methods, tools and platforms to just to manage the project, right now we have project management tools in place but we also have excels in place, if the management wants an excel, we would report out project statuses project reporting in Excel but the tech team usually manages projects, the backlog of requirements in a project management tool". C4 complains about the enterprise team using the ERP only for transactions and states, "they don't use it for your investigations, diagnosis, they'll do whatever changes that they need to do as long as it runs today. So, the issue with that is the data generated by that is going to be a mess!".

C5 is more direct and comments about a few employees that are with the company for many years "but they are used to a certain way of doing things, when you when put a digital platform in front of them, they feel redundant in some cases. So, the idea is resistance to change".

Alignment of employees across all departments with digital goals of the organization: It is not just the digital team but the entire organization needs to be aligned for a digital transformation to be a success as C1 pointed out it is a business transformation and C2 said that technology was only an enabler of the process.

Leadership plays an important role through the entire digital journey and perception of the leadership effects the confidence and motivation levels of all employees. As C3 mentions, "first step starts from understanding what do want, where do we stand, have the management to be ready to be transformed" reflects perception of leadership at the higher levels. C3 also, emphasizes by saying, "there's a definite goal, the gap is between certain individuals, as a global organisation, we need that all these external personalities to come together, it should be driven by the top management, whereas everyone is involved, not just the CEO and the CDO, it cascades down to the lowest employee. So, we need to be transformation ready".

C4 considers the management to be outsiders, "So, even the management you see are outside. Even people who are appointed as industry expert or area experts, we would consider as outside the team", C5 compares the present experience with prior experience where he mentions "When it comes to digital and adoption and also, the culture there was, very fast, you can implement something quick." C6 reiterated several times in the interview regarding an issue, "I can say that is the biggest problem we are going to face in even in the future projects like that will be there, I think it will persist in the future also, if we didn't fix it now, you're going to face more consequences. I'm being honest here." I found Ambiguity also, as an important factor that is highlighted in several ways during the investigation. According to C3 there is a big gap between management and tech team understanding, C4 states " there is a gap between what the management wants to do and what the data can support ", C6 says the following about ad hoc analysis requests, "the detail he gives us, we try to understand, ok this is what he is expecting we try to add so, me something he might need and we will show a POC".

All the respondents C1-C6 were aligned on a common topic and that was digital transformation and adapting to technology at ABC was at a nascent stage and had a long way to go and there was a lot of work to do before change management that was mentioned in the section above. C1 mentioned that they are getting there slowly, C2 says, "tech or digital at the ABC is maximum two years old", C3 during the interview mentions, "we will look into stage change management once we get the fundamentals sorted which is understanding what projects are allocated, how many resources do we have". Change management and resistance to change are factors that deter meeting digital goals of the organization as the employees across all divisions are not aligned.

Change management and resistance to change are factors that deter meeting digital goals of the organization as the employees across all divisions are not aligned. Organization culture goes hand in hand with it, C3 and C5 believe that ABC is a growing organization but with technology and processes, people need to evolve too, initiatives need to be taken to change organizational culture to succeed with digital transformation. C5 shares an incident of a job requirement that needed Some data to be recorded and C5 quotes, "if we ask them to record them, what they will see, they will take out of it is, is just creating our job harder. The main issue is changing the culture, building up the culture."

Knowledge transfer was a factor that was investigated with regards to employee alignment as the digital team would require inputs across all departments in order to work towards the digital goals of the organization. Knowledge transfer and lack in productivity leading to demotivation was what was found. C1,C4 and C5 mentioned that there was a lack of alignment on the knowledge transfer front. C4 quoted, "we've had that problem as well, getting that knowledge transfer", when the management gave a requirement it was high level without any details, despite processes in place with interviews, meetings and presentations, there were budget and time overruns (C2, C3). C2 says not getting the requirement directly from the customer creates a lot issues. C6 says they are circling in the same place many times as after all the documentation in place everyone is not on the same page, sometimes after working on a project for a few months when the presentation is made either the requirement is changed or the output is wrong and wasn't required (C3, C6), "Okay, this is not needed, then we'll go back to the first solution. So, it's like we lose time (C5), resource, everything like money", says C6. C1 says they are still learning from the tacit knowledge transfer and looking for a hybrid to marry tacit knowledge around business making the knowledge transfer efficient. It is not a perfect process according to C1but they try to plug it right from the beginning of a project. The high level requirement business users, C1 points do not understand that a lot of things are not obvious and the quality of how well people are articulating versus how well people are listening needs improvement to overcome this issue. C1 says, "So, multiply that into every task, every project!". C5 rightly points out the need to document tacit knowledge for operations, "we don't have any anything to capture as of

now. The Suez Canal incident, happened. We don't have any record of how the operation teams managed an event like that'.

Internally, the digital team is seeking alignment and improvement and there are positive outcomes (C1, C3, C6) that were found to improve their internal team motivational levels. C1 optimistically said 90% of the time things were not as planned but they know where they are headed and make constant course corrections to stay on track, they run inconsistency programs globally in the organization with the support of the top management and now something that would take 6 months has improved to be completed in 2 weeks and continuous cycles of improvements are run and every department is forced to incorporate it. Adding business analysts to teams is helping bridge the translation gap to some extent and team communication is improving (C1, C6) and C3 beamed with confidence when he stated, "compare to where we were and where we are right now, I think a massive, massive improvement and that is reflected in our finances and how we are performing right now!"

RESULTS AND DISCUSSION

Summary of the study: To the best of our knowledge there are no studies or literature on logistic providers on creating an enabling environment for digital transformation[49]. Addressing this gap, we reviewed business literature in general on digital transformation and in the logistics industry and combined it with my findings in this case study investigation. The main findings of the investigation showed that the enterprise in the case study is found to be "Beginners" in the digital maturity matrix and keeping this in mind the challenges that it faced was different from the more mature logistic service providers found in literature which

forms the basis of our contribution to the study of challenges faced creating an enabling environment for digital transformation at enterprise level.

The exploratory analysis demonstrates that for this case study, at the beginner level the success factors in digital transformation like business and IT strategy alignment is not very clear, it is somewhat present but not fundamental, leadership is supportive but is not aligned throughout the organization across departments to drive the transformation, process standardization is taken very seriously but data centralization and standardization, data governance is a big challenge. Agile transformation is an alien idea that is unheard of and change management with resistance to change forms a strong barrier. Innovation is missing as digital usage for firefighting takes front stage with ad hoc requests and inconsistent data backed by high level instructions is expected to give exceptional results with lack of potential skill and resource (Fig. 1).

It is very fascinating however to note that the complexity of logistics network along with its underlying process being a challenge is in line with findings that this factor exists irrespective of the digital maturity of the logistic service provider[27] whether they are conservatives with mature digital capabilities, Fashionistas with advanced digital features or Digiratis with revenue generating digital initiatives, the complexity of the logistics systems somewhat justifies the legacy nature of the industry and the reason for being late bloomers in the digital transformation curve as compared to other industries. It is also, captivating to note that the complexity of the underlying processes is dependent on the size of the firm[27] as larger firms require more standardization of its processes and operations. ABC being a global firm emphasizing on forcing process standardization first leads to support the narrative (Fig. 2 and 3).
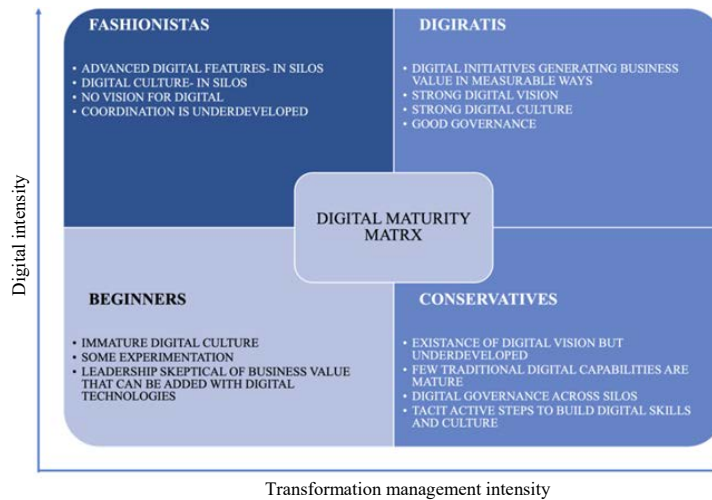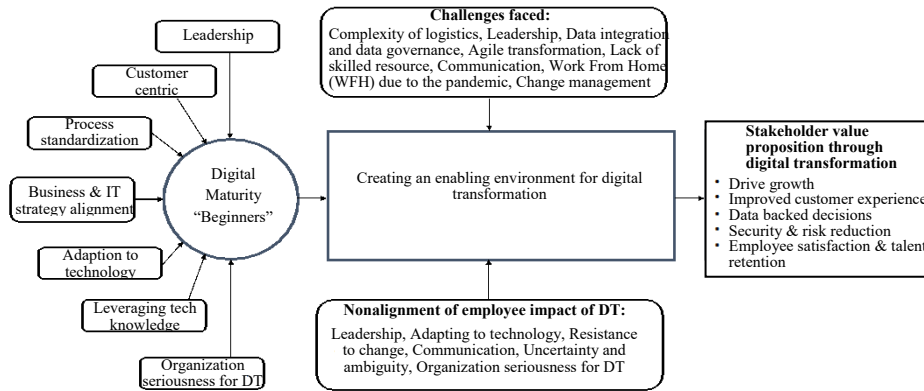

Fig. 1: Digital maturity matrix

Fig. 2: Model to challenges faced with creating an enabling environment for digital transformation at the enterprise level at ABC logistics
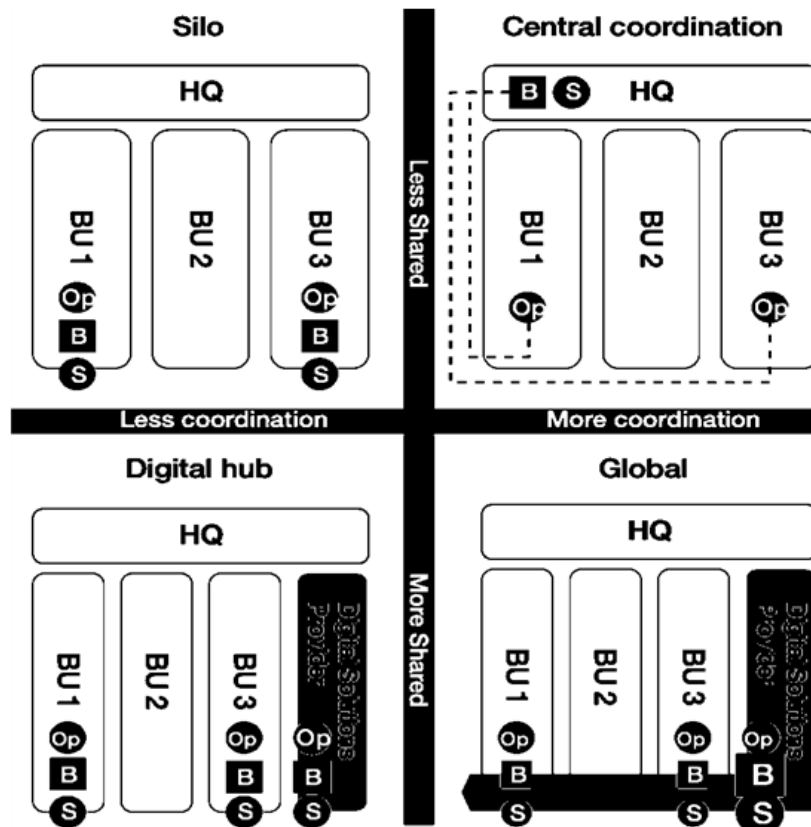
Fig. 3: Coordination model for DT[50]

CONCLUSION

The COVID-19 pandemic largely changed the business landscape and caused disruption in supply chains, customer behaviour and market balance[51]. The crisis has accelerated the necessity to adopt to digital technologies from 5 years in a period of 8 weeks[52]. Fierce competition and customer demand have made digital transformation a necessity in the legacy logistic industry where C1 mentioned that goals that were planned 2022 were achieved by June 2020 due to the pandemic. The exploratory analysis may conclude the enterprise in the case study is a 'Beginner' in the digital maturity level matrix and therefore several success factors that were studied in previous literature on Fashionistas and Digiratis and in different industries[39, 27, 17, 29] were found as part of

challenges or barriers. There were 8 main challenges that were identified in the investigation that was a barrier to creating an enabling environment in digital transformation in this case study: Complexity of logistics, leadership, data integration and data governance, Agile transformation, lack of skilled resource, communication Work From Home (WFH) due to the pandemic and change management of which complexity of logistics, lack of skilled resource and change management were similar challenges faced in the literature found, whereas leadership, data integration and governance and agile transformation was found to be success factors for enterprises that were ahead on the digital transformation curve, however this case study points out that those very same factors may be a challenge or barrier to a "Beginner" enterprise on the DT journey and is my contribution to this study. In addition two more challenges that have not been recorded and found in this case study is the Work From Home (WFH) due to the COVID-19 pandemic and the communication challenge that includes collaboration with cross-functional teams and translation gaps.

It was found that alignment of employees across all departments has a strong impact on achieving digital goals of an organization for the following reasons: communication challenge and the challenge of change management including resistance to change, the challenge of the leadership not being aligned and negative leadership perception, expectation management, was found to lead to loss of motivation and productivity in the team leading the digital transformation in the enterprise. The disinterest of external departments not being aligned with the digital goals of the organization was found to lead to poor knowledge transfer and thus wastage of resource in an environment which lack of resource is already found to be a pressing challenge. It is therefore logical to conclude that alignment of employees across all departments is critical and clear and grounded digital vision[53] and goals should be driven top down with leaders across all departments having digital leader mindset in order for a successful digital transformation.

RECOMMENDATIONS

As mentioned by Cichosz et al.[27] business and IT strategy alignment is a key factor for DT success which needs to be addressed first, research by Drnevich and Croson[54] emphasizes on the need to consider the underappreciated IT strategy as a business-level strategy as opposed to a functional-level strategy in organizations. Westerman et al.[50] from their global study on 157 executives in 50 large traditional companies adapting digital transformation, state that leadership is essential and the key to digital transformation is re-envisioning and driving change top down on how the entire organization operates, so, it is a management and people challenge and not solely a technology one. As C1 rightly pointed out it is a business transformation and not just a digital one and must be cross-functional and co-creating value in both business and technology. In this light, it is essential to find the right individuals and forming teams with them having some skills and the willingness to adapt and learn new digital technologies[55] who will engage the organization across all departments, communicating the vision, setting clear set of ambitious KPIs to drive results. A Global Organization the co-ordination model cannot be Siloed. It is important to align the top management across departments and iterate the digital goals of the company, address how digital transformation can address pain points across departments and organize regular training programs to fill fundamental gaps such as agile transformation idea and translations of requirements to avoid time and resource overruns. Research finds that organizational resistance both at employee and mid management level causes hinderances to implementation of Industry 4.0 technologies[18].

Innovation requires R&D and logistic service providers globally show marginal expenditure on that front and are "incremental adopters", says Wagner[56] however for a successful digital transformation it is imperative to make investments in R&D, therefore, it may prove beneficial to have separate R&D and execution teams. It is essential to experiment in incremental steps keeping the focus on the main business line[29] while striving to standardize the process, implement data governance[17] and implementing new procedures to document operational activities, especially the critical events that often remain as tacit knowledge in the repository of valuable information available in the organization, increasing dependence on human intervention during digital transformation.

External business consultants can be outsourced to audit and suggest changes in team structure, process management, change management, cultural barriers as third party sources that can collect feedback from various departments and submit reports to the leadership that is responsible for driving the DT top down for a successful transformation across the enterprise or organization globally.

SUGGESTIONS

Despite methodical approach taken the study may have limitations while interpretation of findings and scope of future research that must be considered. It is a case study considering the point of view of a few individuals spear heading DT in a particular large global enterprise found as Beginners in the journey of DT.

Future studies, could investigate if other early stage DT firms face similar challenges or quantification of the impact of challenges and ranking order based on weight age of each challenge and order of priority in which organizations must address them. Research could also, be done on workforce management which is an invisible yet vital factor for creating an enabling environment for DT success in an organization.

Appendix 1; Interview guide: Introduction, clarity of concept of DT as individual and organizational roadmap awareness:

- What is your idea about Digital Transformation? How important do you think Digital Transformation is?
- What is the DT goal and vision in your organization and how are you going to separate budgets for this?
- How would you align DT strategy with company vision, mission and organizational strategy?

Challenges faced while creating an enabling environment for DT:

- What according to you are the biggest challenges or barriers being faced by the company/team in creating this enabling environment for DT? Highest and least priority

Understanding of emerging technologies:

- What is your idea about artificial intelligence, machine learning and robotic process automation?

Process standardization and knowledge transfer in the organization:

- How do you ensure the processes are standardized end to end?
- How does tacit knowledge transfer happen in the organization?

Communication and collaboration in the organization:

- Are there small cross functional or large teams in the organization and how is the communication flow managed?
- How is the front office customer interface integrated with back office internal support activities and systems?

Appendix 2; Interview transcripts
C1 interview transcript:

Keya Saha 0:04
Hello.

Keya Saha 0:08
So, Mr.C1 you are the Chief Digital Officer of ABC, right, So, thank you So, much for organizing all those interviews for me. I mean, I think it's the right set of people that have been interviewed. And I have got a lot of relevant output from them. This is what I had asked for. So, I just wanted to understand your point of view on the same things and understand from, the management side how are things in terms of, the research questions that I had in mind. So, I'll start with the basic of What's your idea about digital transformation and how important do you think it is?

C1 0:55
But I think Firstly, thanks Keya for the, you know, picking ABC to do this exercise with, the team also, enjoyed talking to Someone who was coming from a very unbiased point of view. So, firstly, thanks. So, to respond to your question, how do I view digital transformation? it's an imperative, it's a given. I think I'd like to break it down to me, firstly, it's not digital transformation. It's Firstly, you know, a business transformation. You know, we all we all live in a day and time where business as usual, is not good enough. And that's only because, you know, it's an unprecedented level of change. Everything that we used to do, the way we do, it has got to change. And it's just that technology is only accelerating or enabling it. So, you know, for us, it's about therefore how do we use the change that technology is driving today to transform your business but how we view digital transformation, it's, firstly, it's an opportunity, it's not a threat, as the as the foremost certainly, firstly, how the business needs to transform. So, you know, at the end of the day, what is the value you're creating? And then how can you create that better and make it more sustainable? And then thirdly, how does digital only become an enabler? I think that order of importance is critical, because generally what you tend to do is invest in a lot of technology in the name of digital transformation and then find out you're stuck halfway through because you're not clear about the value you want to create. So, it's, that's our view on digital transformation.

Keya Saha 2:49
That's great. So, does the organization have a goal and a vision as to how you would like do you have separate budgets for digital transformation? Do you have a vision or mission for digital transformation yet at ABC?

C1 3:08
Yeah, I think we do. So, we do we do. I think our organization is a little special. It is approaching its 40th year of business. It, it was founded by Someone with extreme entrepreneurial spirit and that entrepreneurism still runs in him and all of us. So, I think that's important.

As you know, what we forget is through time, businesses have kept transforming, it's just that it's a lot more visible and transparent today. So, starting from our founder's belief that to transform, you must continue to keep growing. That's the belief, first. So, based on that belief for us, digital transformation is around, how do, we continue to create value drive growth, not just for ourselves but our partners. We are fundamentally in the logistics business which means they're moving products. And the future of logistics is about how the flow of information runs parallel to the flow of products. So, that's a very simple but I think powerful narrative to kind of lock down on in terms what's our goal and what's our vision, based on that goal and vision. Three years ago, we designed the roadmap for digital transformation. That roadmap is reviewed every quarter, we keep looking at what's happening out there, what we're learning from where we are failing as we keep updating that roadmap. And for us, it's you're never done Keya. When we developed that roadmap, we had a target that we will achieve certain milestones by, I still remember, June 21. But those milestones were achieved on June 20 because of the pandemic, you know and the very nature of that roadmap and outcomes that we wanted from that roadmap are fundamentally different from where we started to where we are doing now. But that's the point. You know, a plan is a starting point that gives you direction. It's not the end all, be all but it helps us prioritize our investments, set resources. And we may touch on this later but I think the biggest at the end of the day, you must manage expectations, because you're doing Something people don't really understand. Yeah. So, if you have a plan, it makes sure that it's measurable, it can be governed, you know and people can see what you're working on, because that's the biggest, I will say, for someone working in digital transformation, you're working on something invisible and there are too many naysayers.

Keya Saha 5:57
So, you would say the biggest challenge that you face is meeting expectations.

C1 6:04
Yeah, I would think in every sense, I don't think meeting, if I can break that down Keya, expectation in every sense, I don't think internal customers or external customers really have undue expectations but it's just that I don't think anyone today can absolutely define where they stand and therefore what they want. It's, you know, for valid, as well as, you know, uncontrollable reasons. So, I think the thing around the current landscape and are working in transformation is that, where do you draw the line? Because even if you come up with a strategy, even if you design a product, even if you work on a data

Solution in you know, if I have a data set today in a week, that data set is fundamentally different. Yeah, it's not even a month, if I have a certain data set. Today, in one week, there will be fundamental changes in that data set. So, managing expectations is one of those. I think, if you're looking at transformation, you should set your expectations for a program level which is broadly you know, what new skills, what new capabilities, what new attributes are you looking at bringing, those expectations are easier to set which we've done, we've kind of set at a program level, okay, at a project level is where we break it down into features, milestones that can keep changing but you know, that's also, then reported and monitored, So, that we're, you know, we deviate a lot. There's nothing perfect but I don't think I think 90% of the time, they are not. But we know why we are not as per plan, that's the more important thing. And we are constantly then, you know, kind of nudging to stay on track towards what we want to do.

Keya Saha 8:04
So, in terms of other kinds of challenges, what would you What would you say that you're facing in terms of creating this enabling environment that you're trying to create?

C1 8:14
I suppose for digital transformation. I think the so, I talk about, at ABC our challenges that we are still, you know, I'd say our biggest strength is we're entrepreneurial but not really a weakness but we are still a legacy organization. logistics, per se is a legacy industry. It hasn't kept up with the times, it's now starting to see, you know, rapid transformation.

Keya Saha 8:44
Forced to rather because of the pandemic.

C1 8:48
So, ABC is also, kind of, you know, has seen tremendous organic growth, it's Somewhat set in its ways. It's largely legacy organization. And in transformation, it's about it's about new systems, new processes, breaking old habits, bringing in new skills, asking people with existing skills to take on new skills. I mean, the biggest challenge to us across all of this is the change management piece Keya. How do our people change? How do our processes change? How do our systems change? How does our strategy change? And how do we still keep everything comfortable? And mostly people? Because, yeah, right now, for example, if you take a wharf clerk 15 years ago, it would be a lot more time at the port, a lot of bundles of files, lots of paperwork. Whereas an operations person today is seated in front of a laptop, entering a lot of data, coordinating a lot of information onto one screen. Not as

not as much mobile, not in the hot sun but a different level of pressure now for the same person who did their job 15 years ago, to do it today is a mind shift. (Yeah, yeah.) So, the across all of people, process, strategy, for us it's the change management that's the biggest challenge from a legacy to a more transformative approach.

Keya Saha 10:20
So, that's what you would prioritize on top.

C1 10:24
Yeah, yeah.

Keya Saha 10:28
So, it's the digital strategy that you're talking about in the management is it going to be aligned with the vision and mission of the company are they taking it to that extent in terms of you know, considering digital transformation.

C1 10:43
So, the company has a goal you know, a certain goal to meet by 2025 and one of those goals, a part of that goal is to be a digital freight forwarder. So, our plan basically is looking at defining what a digital freight forwarder is and how we get there by 2025. So, what we've been investing and wading on since roughly 2018-2019, is if we are to be a digital freight forwarder by 2025, What transformation needs to take place? what technology needs to come in? What therefore what needs to get digitized? What skills do we bring in and what business models, do we then kind of pivot to base on all these digital capabilities So, yeah, we are working towards the 2025 outcome Keya and simply put, it is to be a digital freight forwarder

Keya Saha 11:43
That's great that's great. So, what in your idea is you know in having artificial intelligence machine learning and you know RPA as part of this whole journey.

C1 12:00
I think it's a constant conversation we even have at senior management level we just had a conversation with my CEO or it yesterday he is like what's the role of AI? Are we using it? Do we need it? So, I think to answer your question, I think we need it but I think we need to understand how to use it and what it can mean for us, So, my first stance at my CEO is I prefer the "I" to the AI which is the natural human intelligence to the AI any day, So, that means we have to continue to invest in our people, invest in new skills, invest in capability, you know for example, if I were to take our industry today, procurement of space, let's say because we have to book right space with (Yeah), line of procurement of space is a

challenge, as an AI team we can look at lots of data points, we can connect with carriers and we can look at their space availability, we can look at, you can build a fantastic algorithm, guaranteed it will fail! Because what AI can't do is really understand how our procurement managers mind works. How do you factor in seasonality, how do you factor in customer sentiment? How do you look at load factor? then there are operational details like how a container is stacked when you're loading cargo, I mean you can still bring AI in there but you still find replace the mind of a manager. So, for us it's that we're looking for that hybrid where we marry tacit knowledge around the business and make the tacit decision making a lot more efficient. Because AI in its fundamental sense is the ability to learn and learn and apply, So, I don't think for us, it will start with machine learning, or it has started with machine learning Keya (Yeah) We're not talking AI, yet. (okay) So, machine learning is around which areas of our processes have we standardized? Therefore which of it is repeatable and predictable. And then how do we bring machine learning in to take over repeatable and predictable tasks So, that we can use a human being for Something more worthwhile. For example, even a good RPA is machine learning. I know there are lower-level RPAs but proper RPA is good, good machine learning. So, for us, the first strategy has been how do we bring machine learning into creating efficiency? Okay and how did we bring machine Learning into Sorting data, cleaning data, slicing data, you know, prepping the data for AI. AI data then comes into tasks that we need to learn about. And you know, So, for example, if it takes a procurement manager a week to run a series of calculations, that's where, we will use AI to run those calculations and scenarios in a couple of minutes, So, that we take a decision in a few hours instead of a few weeks. So, that's how we kind of break it down and look at it. But it's always around enabling the human being is never independent of the human beings.

Keya Saha   15:38
Yeah absolutely. I agree with that, like 100%. That is true. That is true. You can't get rid of the human being you can just make his life easy like you said, you know, if it's going to take So, takes one week to calculate and AI can do that in a few seconds or minutes and you can take the decision but the decision must be taken by the human being.

C1 16:01
Yeah, So, yeah, it's more for us, it's mostly around efficiency. It's mostly about efficiency. And it gives us a lot more exploratory power. Yeah. Because on one side, things like RPA, machine learning, give us efficiency, Ai, as AI broadens our decision-making process. So, we can consider a lot more options than we normally must.

Keya Saha 16:29
That's, that's a good way to look at it. So, how, okay, now you were talking about standardization of processes. So, how do you ensure that these processes are standardized end to end because there are different people who are involved in the whole process? So, how do you ensure that, you know, the communication or the standardization is happening?

C1 16:50
So, that was one of our first projects? Because for us, it was a process that was going to be the bedrock of any transformation. Okay. So, for the last two years and we still, a lot of our time and effort is invested in our process standardization. So, right now we have almost 64 officers in about 32 countries. Yeah. In 2018, we launched one single ERP. Right. And what we've done that the goal was to have all 60 odd officers in all countries running on one ERP by 2022. But thanks to the pandemic, we finished it by June 2020. So, right now we have we have all offices, all departments, all products running on one ERP. What we did then was we built in, we mapped our workflows, we have a team dedicated to this. We started mapping our workflows and having handoff conversations between offices. Okay, So, for, let's say, product A, what's your process? What does your process look like? What does my process look like, is it aligned? So, we kept running lots of alignment gimmicks. (Okay) Once we partially did that for about six months, we launched what's called the inconsistency program which is, we measure every operator, every task they do on the ERP, whether it's for as per process or not, every office is given a quality score. And there is a report that goes up every Monday night, from the CEO downwards as to what the deviation is, So, we tolerate a less than one, we don't tolerate >1% deviation, okay? So, it's just basic bi, we built in data points, because it does two things- It standardizes our process and also, makes sure our data is complete and accurate. So, every event, every milestone, has the right data. So, we have a goal, we want to get to a 1% data inaccuracy and a <1% process deviation and we are there now.

Keya Saha 19:21
That's great. That's very good to know. I'm sure your data scientists will be very happy if they know that they're going to get the right kind of data to analyse.

C1 19:30
Yeah. Absolutely So, they haven't even touched that data yet. So, for us, it was all about you know, investing in getting all the fundamentals Right. Yeah. Because then let's say even if you're on an RPA let's say if I need to run RPA for accounts receivable, yeah, I can easily run it globally because the global accounts receivable process is

the same. Yes, it's not just to launch RPA I must do six months of change management. I'll probably need to do that for two weeks now.

Keya Saha 20:03
That's wonderful. That's good progress in that case. Yeah, started at the right point.

C1 20:11
Yeah, it was. So, it's still a lot of work in progress. Because every time we improve the process, there's more work to it's never done. But so, for example, we track it by releases. So, right now we are in release six of our process which means we, we've added new inconsistences, we bought it down to 1%, then we add a new batch of inconsistences. Again, it goes up to about 40%, that bring it down to 1%. So, it's just cycles of improvement that we do,

Keya Saha 20:41
But that's great. But that's probably the only way to, get to where you're trying to get to, because by the sheer size of the organization and So, many different kinds of you know, I heard a lot of silos that operate in the organization. So, to get all the data points and to standardize the whole process is going to be a task. Yeah.

C1 21:06
It is, it was it is it will be.

Keya Saha 21:11
So, how do you manage this whole tacit knowledge transfer? You were talking about AI and tacit knowledge, like a balance or a marriage between the two? So, how does tacit knowledge transfer happened currently in the organization with the experts that are like sort of doing this kind of exception handling, managing, you know, different things? So, how is that happening? Is that getting documented Somewhere?

C1 21:38
Yes, Keya. So, again, this is a process we are learning from. So, we I think you spoke to C3 as well, he joined us as a program manager about a year ago. Yeah, So, our program management approach is, So, we have we have a gate process. So, I mean, just like any program, every project goes through gates but especially when it comes to a data project, the project owner is the product owner or the business owner. So, it's a procurement, it'll be a procurement guy, if it's, you know, it's a finance or if it's a, So, what we do is, you know, we have what's called the gates are called level zero to level seven. So, levels zero to one up to one and two is where you work on scoping and signing off on the scoping. So and we do a lot of discovery clinics. So, essentially, what we do is the

program manager facilitates this discovery clinic where, let's say that the person who owns the problem or owns opportunity, generally, the production starts basically sketching, saying, These are the dimensions of the problem, this is what I see, this is what I think you should think about, you know, then the tech team basically comes into convert that into, okay, based on this is, this is how we, look at it. So, what we do is, for example, we start the build only in gate four. So, it's at gate zero where it's initiated, at gate one is where we do the clinic, where two is, you know, basic scope, gate three, we have a prototype, or a basic black and white wireframe of, you know, this is how it could work. And then you keep debating that. And then as, as a team, the person who owns the tacit knowledge, first signs off and then the data, the tech team signs off and they it's not a perfect process but it made sure that tacit knowledge is plugged in right at the beginning and we're working towards they're working towards a Solution that is guided by the, by the business. And because I think I firmly believe this, if you leave our data scientists alone, they're useless.

Keya Saha 23:56
Yeah, that's true. That's the reason why I had that question in the first place. So, how is that happening?

C1 24:03
Now they are used to that, they are used to just looking at data, cleaning it, you know, Sorting it that they do but the business logic, you know, if these are the events, these are the milestones, these are the conditions, this is the logic, that comes from, So, what we try to get right if that piece and So, the project owner is always a business owner, they take the decision.

Keya Saha 24:30
That's good. That's a good approach.

C1 24:34
So, we want to fine tune this.

Keya Saha 24:37
Yeah, I guess it's going to continue to be a learning process because it's always going to be evolving. There are new things that are going to keep coming and that is eternally going to be there that there's going to be like no end to it. So, are there like small cross functional teams that are working in the organization or there's like large teams working in the organization? How do you manage the whole communication flow?

C1 25:05
I think that's one of the places we are weak in here. Maybe you would ask this question later. So, for example, as a core digital transformation team, I think all we also,

have for the task at hand are very small. So, for example, our entire team is only 40 people, our closest competitor, who has the same revenue, our size has 280 people. Okay, So, we are, we are a small team, from even from a technology point of view. And we work in three areas, we have a small enterprise systems team that basically oversees the process, the ERP, basically, the business technology side, then we have a DevOps team that builds applications and a data OPS team that works on the data. So, those three teams combine. Communication between those three teams per se is siloed, right now, as a change management, because the business IT team, our operations guys apply in IT. So, their thought process is very different. DevOps team, I'm sure, you know, has a very different thought process. Data ops team has a very different. So, bringing these three together, has been a challenge and has been a gap. But we're getting Somewhere. Outside of that, the business teams. So, we work in smaller cross functional teams. But again, communication is a problem. Because how a business team articulates a problem is very different. They would naturally, there's a bias for them to assume, for example, a data guy will understand the problem that they are understanding. So, they leave a lot unsaid. Yeah. Should you come back with a prototype to say, if you didn't see this, it's obvious for me but you should have realized he can't he has not worked in industry for 20 years, you realize that but that guy doesn't understand that either. So, it's, it's bringing many worlds together. That's our lesson, our biggest challenges right now. And as a result of communication, So, we have good weekly reviews, we have daily stand ups, we have monthly project with all of that happens, good program and project management. But that's not what I'm talking about. I'm talking about if people are on the same wavelength, they're talking the same language and the quality of what you do. Improve. So, I think that needs time is this entire team is only eight months old. So, we're getting there. We're getting there slowly.

Keya Saha 27:52
So, despite having that zero to seven, you know, knowledge transfer, program management, session, everything that you all have, despite that, there is still a gap in communication, even though the product owner is signing off. There is

C1 28:15
A process is only there to facilitate and but it's the quality of the conversation within that process. Yeah, it's how well people are articulating versus how well people are listening. Whether the like I said, it's full of assumptions now, I would assume. So, if I'm having a conversation with you, on airfreight management, I will treat you as my vendor saying, I'd like to get a update every time a

customer makes a booking. Right? Then you come back to me with a wireframe, okay C1, if a customer makes a booking, you will get a notification. So, then I asked you, yeah, Keya but where is the airway bill, you will tell but you didn't tell me as an Airway bill but for me, it's common knowledge that with a booking an airway bill must come but I haven't told you that. So, multiply that into every task, every project.

Keya Saha 29:07
Data scientists get involved in these conversations, or is it just a business analyst that is in involved in these conversations with the product owners.

C1 29:17
So, we didn't involve them earlier but we've now got started to get them involved and its improving Keya, So, what we've done is the last six months, we've strengthened that pool of analysts because we found that to be a huge gap and when we strengthen the pool of analysts, we found that it was Solving the problem significantly. So, for example, we now pair every data scientist up with a good business analyst.

Keya Saha 29:46
Exactly because if you have an analyst who is listening to a product owner and then the analyst, he understands whatever he understands and then he is translating what needs to be done to the data scientist. So, anyway, there is like a gap that is that is going to be there in that whole translation. So, by the time the data scientist gets the information, you have already lost some information in between.

C1 30:12
Yeah, So, it's not that we didn't have it. So, for example, we had data analysts in I Sorry, business analysts in it the product team or the enterprise systems team. Okay. But it was one step. So, we added analysts to work in the data science team. Yeah. Yeah. So, you know, that, that bridging that gap is what has really helped it now.

Keya Saha 30:34
Okay. That's, that's great. That's great. So, I'm coming to the end of this interview. And I just have like one last question to you. Do you all have like a front office team that is like dealing with the customers and, like a separate back-office team that is supporting this front office? Team people? So, do you all have Something like that happening?

C1 31:00
No, that's what we're just rolling out. Here, we have a key account management team, okay. But the key account management team, let's say, there's a key account

management in the US key account management team in Europe. They work with their customers and their own offices support them at operations. But we are trying now that we have our processes standardized, measured, we are moving it to a global data processing centre. So, customer service will be in the markets, data and operations will move to a central location in Sri Lanka. So, that's, we've just started rolling that out. It's a one-year project. That's happening right now.

Keya Saha 31:48
That's, that's wonderful. That's wonderful. So, I've come to the end of the interview session that I had. So, I.

C1 31:57
Answered all your questions.

Keya Saha 31:59
Yes, yes. I'll stop recording. Now in that case.

C2 interview transcript:

Keya Saha 0:04
Hello, thank you so much for you know, taking time off to meet me it's a working day today right so you Are you still working?

C2 0:11
Yes. Yes, we are working from home. Okay.

Keya Saha 0:15
So that will be on till like the lockdowns are on right.

C2 0:21
Looks like it will be until the end of the year. I mean, we've been working from home since April last year. It looks like it will continue. Yes, it will continue till the end of this year.

Keya Saha 0:32
So, you all haven't like gone back to the head office? I think the head office is in Kolupittya, right?

C2 0:39
Correct. We've gone for couple of meetings not more than two or three.

Keya Saha 0:47
So, it's practically work from home remote working culture which is like sort of cutting in right?

C2 0:54
Yeah, it can it depend on the departments to some of the departments do we sit more frequent than us but when it comes to mine which is take most of most of the staff can

work remotely and when we connect on meetings and calls and since they are more task based, I think it is easy for us to work from home.

Keya Saha 1:20
Understand. So, Mr. C2, did C1 update you as to what this interview is going to be all about.

C2 1:30
He sent a brief mail to us and if you could just give about a quick intro.

Keya Saha 1:37
Yes. So, my name is Keya and I am doing my dissertation right now for my MBA and my major is going to be data analytics and business processes. The topic over here that has been picked for this qualitative research which is based on interviews from certain people, the topic that is picked, that I have picked is challenges faced in implementation of you know, artificial intelligence and digital transformation and what are the challenges that are being faced right now by large enterprises in order to ensure that an enabling environment is being created? So, even if the company has a lot of budgets which are allocated for something like this, is there something that is stopping this from happening? So that is the area of research? So okay, yeah, so, so I have a few questions which would sort of lead to understanding if there are a few factors that are that could be affecting this whole change because it's suddenly there's like a lot of things that are different now, because people are like coping up with a lot of things and a lot of things are happening remotely, digitally. So, the entire research is based on this on the implementation of this artificial intelligence, digital transformation in large enterprises. Okay. So, can I move ahead with the interview? Yeah, sure. So, what I would first like to understand is what is your idea about digital transformation and how important do you think digital transformation is?

C2 3:36
Okay. So, my idea on digital transformation is I come from a perspective even though I am from a tech background, I believe firmly that tech should not drive business tech should be an enablement to the business. So, technology should be the technology should play the supporting role to a business. So, on that line of thinking, digital transformation should be I mean, first, the organization should understand what they want to what kind of and what is the roadmap and roles? For example, Is it like, is it revenue acceleration or it could be improved agility and faster time to market a cost reduction maybe or better management of some compliances or regulatory or increased customer satisfaction, security and risk reduction or quality of service or reliability or any other

things something like a brand reputation may be employee satisfaction or talent retention or any other Strategic Initiatives so there are different things that an organization would map so to that one, ways can I leverage the systems when it comes to digitally? How do I how do I make that acceleration or that reduction or that reputation management? How do I lubricate that from digit from a digital perspective? Where can I add value? Where can we add value from? For example, our customer satisfaction? Okay, can we cut down some of the steps that they do now, through a digital implementation? There are seven steps that they do now can we put it to five steps, or we can put it to five steps? But can we make the seven steps seamless? can we reduce some of the manual work can we make it so it's all needs to have a target focus on like I said, so for me digital transformation is supporting that business drives are to make it better from an from a from a digital end.

Keya Saha 6:04
That is very elaborate. So Mr.C2, so does ABC, they have an objective for this digital transformation that is happening right now in ABC? Is there like a vision or a mission in terms of digital transformation that is happening like you said that there must be an objective and they need to be like precise about what needs to be done even in terms of support.

C2 6:36
The answer to that question is yes and no. Yes, because digital transformation or this whole digital focus at ABC is new as new as maximum two years. So, I mean it was two years ago you feel we weren't much focusing on technology. I mean, we didn't have a technology department either digital functions or digital like in terms of roles and designation then there weren't any. So, the tech or digital at the ABC is maximum two years old. And for the last two years, there has been a digital transformation roadmap that was built. But the roadmap is just 12 months road maps because what, as an organisation we are trying to get at is one I mean, for digital transformation to really work you need to have a lot of aspects. One of the main things is when it comes to the C suite or the top level that sponsorship their belief and their support. So, what we are at, we are at that phase now where we've got the C suite support, we've got the we got the what you call, buy in as they are investing on deck tech and digital. They believe in tech and digital that phase has already passed. Now we are coming into the stage of Currently our digital transformation focuses on a lot of firefighting issues, for example, or do we like okay, there's a system that is not functioning properly now how do we how do we correct that? There are some customers who are not happy now. How do we align that there are some there are some manual steps that, we do now how

do we automate so it's very short what we call plan short term planned firefighting to make sure those housekeeping things are put in properly kind of a focus? ABC is slowly going into from this year onwards, we are slowly going into thinkers what are our long-term plans about that we need to looking at our competition, looking at the market changes because of this COVID the dynamics have really change we've got so much a positive as well as been negatives. So, we are slowly going into that area of defining beyond the 12 months plan but we are not there yet now.

Keya Saha 9:31
So okay, so you would say that, like soon, you would have those kinds of plans to align with the business strategy and make sure that you know, the digital also forms a very important part of ABC, like, the very short road maps that are happening do you set aside budgets for digital transformation yet or it's not really formal yet it's just happening like you. You do things as they come along, projects as they come.

C2 10:00
There are budgets there are budget set from that side that's why I say from that side the organisation top management has really trusted the involvement of digital and tech, so because of that we have full support in terms of our resources resource you know a lot our talent acquisition or skill development or budget setups and all that are now in place.

Keya Saha 10:29
That's great. So, how big is your team? How big would you say your team is.

C2 10:37
So, the team started off with 12 now I mean, I'm talking about the technical alone, tech and digital alone team started off with 12 our team by the end of this year it will go up to 26 and this is apart from the systems is enterprise systems team are now there's another thing called enterprise systems. I don't know whether you talk to them but they are the ones who are handling for example, ERP and all day-to-day applications of the company. Okay, so, the team that I am talking about DevOps and data Ops, so, that's all-development work and data science work.

Keya Saha 11:25
Yeah. So that, is the team that I needed to talk to.

C2 11:29
For right, we would go to Yes, so we would go to 26 full time staff and on top of that, we have about roughly five outsourcing staff also roaming around because some of the projects are the demand more resources. So, for that purpose, what we do is we take resources from outside to balance our you know, effort, needs.

Keya Saha 11:56
That's wonderful. So, what would be the challenges, or you know, issues that you face in terms of this whole implementation now say suppose you're talking about digital transformation you end up doing a few sets of projects I would presume. So, what according to you would be the main challenges or the main issues that you face when it comes to implementing these projects?

C2 12:28
Okay, one of the biggest challenges we are facing as an organisation is the fact that digital and tech is new as a function and as a department to the organisation, so because of that and if you see organization is more operators driven because of because of the nature of the business. So the mindset of Agile the mindset of projects are new to the organisation when you when you look at the entire team, the rest of the teams so that whole for the last one and a half years but the finding challenges in that direction is that staff are not used to have Okay, let's let's have a project let's allocate some resources, how do we now manage the scope the scope keeps changing because the customers keep demanding they are not used to controlling customers on a scope basis and things like that. So that, human resource aspect is the how and when you do understand when a tech team works on digital projects, I mean, we would take we would implement a method or methodology like a scrum or agile or something like that and then we would break it into springs, we will focus on a lot scope, we will implement change management we would put project management in we would have a programme management applied to where that thing has taken a big learning curve for the rest of the organisation.

Keya Saha 14:10
On the same page.

C2 14:12
The services because of that, that's one big challenge that we are facing now and it looks like for a good another six to one, six months to one year, we would still face those transitions happening from a from a work ethic or no discipline bias inside the organisation. Another challenge is the systems and the applications we have like from legacy applications to because of the organization's business is very much large driven and it's in different countries. So different customers. So, I mean, if you take a DI system or a ERP system, it's not as easy as to make a change for us to make a change in an SDI application, because it's implemented. in several countries, several

customers are using it. And it's very, it's very, it's, it has a customer dependency and different architectures and so on things like that. So, for us to make a change. So, for example, ABC doesn't have an API architecture now, we are now only implementing that, oh, it's more point to point. Okay. So, if we I mean, we are implementing that we can see a lot of issues because we need to then change a lot of systems based on that. And we need to convince some customers based on that. And so that transition from some legacy applications or traditional applications to digital is another challenge that I see it. Okay, the third biggest challenge. The third biggest challenge now, that's a huge challenge is finding talent and resources. This is a very common challenge. I mean, I've seen this. I'm in tech, I'm working in tech for the last 20 years. So, I have seen tech resource issues all the time. But maybe because of this COVID thing, I don't know whether this is to do with Sri Lanka, or this is a general issue. The resource market has gone very hard on a totally different angle. And the there's a huge demand for tech resources now in Sri Lanka. So, it's very difficult to attract good resources. And that's partly because this is a very peculiar aspect to this whole situation. ABC is not a tech company. Yes. So, I can imagine when I was a software engineer way back then or when I came out to the tech market, I like to work in a tech company, as opposed to a non tech company. Because it will look good on my resume, as well as I can. I can expect if I work at Microsoft, or if I work at some, like here, we have big companies like WSO2 or MIT or any company like that over chooser, I can imagine, I'll be around a lot of tech people and I can get a lot of tech exposure and so but ABC being a logistics centre freight forwarding company, I think that also plays as a negative effect that a lot of resources do not know, value much as to join in non tech company, even though they are joining a tech role. those risks, yeah. So those techs, I mean, to tell you, simply for to fill up a single position, we might sometimes do about 80 interviews. That's huge. That's why we have a huge crisis in terms of on boarding tech, good tech resources, I might say. And from the conversations, some of the research that we've done, it all comes down to, you know such issues. Plus, there are very tech driven companies like the ones that I mentioned before and HCl and so on that do a very rapid the recruitment campaign now. I mean, I saw last week and this week and one company has put out 70 vacancies and they are very tech driven. And there's a company called HCl they have about 300. Yeah, they are an Indian company. Yes, they have 300 vacancies.

Keya Saha 19:19
I'm getting jobs like that I've been in the market has there's like a drastic shift in the market like you said. Tech and digital needs because everybody want to go digital. Now. Suddenly, everyone finds the need.

C2 19:35
Exactly. So, because of that, when we want to put an ad if I want to put make my team 12-26. For me to add another 12 or 14 or even 30 is not a is a huge task because there are so much of tech companies attracting those resources elsewhere. So those could be the three biggest challenges I see one is the system change that is happening. Second is the mindset of the people going from more operations to more project base or implementation base or more tech and digital base. The third one is when it comes to attracting skills.

Keya Saha 20:24
understand those are real challenges. I completely get that. So, what's your idea about artificial intelligence machine learning and robotic Process Automation now that you just mentioned that the whole just you'll are just implementing API's now. And you're having issues in terms of the traditional methods of using software's and things like that. So, what is your take on the whole artificial intelligence machine learning?

C2 21:01
Yes, because the previous organization that I worked for and also Me and C1 came from the same organization together we've had I mean we've from AI in terms of even deep learning applications to products to I mean, we've implemented bots to algorithms We even went to create and one of the algorithms we've gone into extreme of that, so for us when we joined we when we both joined, C1 joined before me and I joined about six months after him to ABC now you can see what kind of a bottleneck we all it all of a sudden face at ABC. So, we must start from ground level onwards. But we've come a long way though, for the last one and a half years. We've implemented you know, some of the AI bots on we implemented some of the reinforcement learning to those bots. And then we are implementing some revenue projections using some of the algorithms, some machine learning work is going on, we are investing on certain systems and applications such as the data lakes and azure network and so on, within ABC, so then we can set up machine learning studios and so on. So, it's slowly coming. We're doing those basic setups. The data science team currently is around five people that will also grow a little bit more, they're doing a supporting role now as opposed to coming up with initiatives and value driven solutions to the top management. So, in terms of my idea of what AI and machine learning nice that I have a I don't I wouldn't say expert but I have been working at AI working with AI and machine learning for the last good five, six years. So and from our previous company, we've implemented machine learning and AI on banks, for example. Finding loan defaults, predicting customer values. Then we've implemented on what are called

pharmacy chains to understand sickness patterns in Sri Lanka. So therefore, in order to manage stock and inventory of medicines in Sri Lanka, how to place the next credit card we help the bank to we've taken all their data and tried to position the cards better in the market we help Telco's are one of the largest Telco's is dialog to help them optimise a lot of their broadband solutions and so on based on AI and machine learning models. Well, there's a big platform like Netflix called iflix in Sri Lanka and that's an international platform, so, they I think they're based on Malaysia, so, we help them understand what kind of video content consumption is in Sri Lanka. So, based on that, given them some algorithms and models to curate and broadcast their content better. So, we've done a lot of tech implementations from our different disciplines before elf, me and C1 as a team. So, I would say that we have a good grasp on AI and machine learning. From those exercises, it's just that ABC it's at a new still at a new stage now.

Keya Saha 24:57
So, you have a lot to do here. Very Interesting, right? I mean, it's exciting times and there's just so much to do out there.

C2 25:07
That is one of the reasons why we like ABC a lot is that because this industry I think the I think, from my experience when we look at it, it's one of the late bloomers to come to techniques or to digital. Yes. So, because of that and I think it's mainly because of the sheer size of the industry as well. I mean, if I look at, if I look at even something like a bank, a bank will deal with the central bank of the country and some that's it. But when it comes to this, you have ground partners, you have sea partners, you have our partners, you have distribution, distribution centre, it's so complex and so spread. Yeah, yes. So, you have warehouses to distribution centres and so on. So, for you to change something, it's a big task item because of those reasons, they were very late to come to tech so because of that it served me and in fact, we see a lot of potential for a lot of development areas in this in this line of work.

Keya Saha 26:17
That's great. That's great. Sounds good. Yes, of course it comes with these challenges and that's my line of study. So that's there's I know there's a lot of scope but I know that there are things that are probably preventing that from happening all looks nice and rosy but you know to get there it is it is a task. So yes, so I ABC for whatever that you will have already implemented, how to standardise the process from end to end, because you have so many people who are going to get involved. So, how do you ensure that you know you're standardising the process when you're getting something in as a project.

C2 27:01
One at a time is the answer. So, we focused on so certain things like for example, ABC revamped their website and customer handling from a web perspective, beginning of the last year. So, in terms of how do we put new vacancies respond to customer responses, interactions through web and to how do we reach that? I mean, now only we are building a proper CMS and the proper mechanism, proper process in terms of how do new recruits new applications go online? How do people track different their shipment and so on through our portals, so that that processes and that standardization is taking place at the moment? Then when it comes to another activity that we are doing? Put a lot of spotlights into a lot of loopholes and gaps that we have from our data perspectives. Say, people I'm keying in a lot of spelling mistakes to errors to blank data into the systems. Yeah and it's not standardised. Some say for example, if I say some people might say, say free sale, some people might say FS, some people might say free sale some people might say F, things like that. So, when you look at the data, since we are coming from a digital angle for us to do any of the analytics work, we can see that a lot of errors and mismatches.

Keya Saha 28:44
Are normal. It takes a long time.

C2 28:47
It's exactly so now we are doing from this year onwards cleaning those kinds of processes putting auto-completes putting different mechanisms. So, to the answer to standardisation, I think at the moment and it's I think that's how it should be from organisation perspective, at least taking one at a time. From home to the Out. For example. Let's look at the core applications. Let's clean that out first and then go outwards to see the sales side the procurement side, likewise. So that's what we are doing now.

Keya Saha 29:31
So, I may ask you now since you're working with cross functional teams now, the tech like you said was a support system, right? So, you would be working with different business users. How do you ensure that tacit knowledge transfer is happening within the organisation?

C2 29:54
We do a lot of we do a lot of workshops. We do a lot of two ways, three ways I guess oneself research as a tech team and a digital team, to a lot of workshops and training sessions to like a lot of (KT) knowledge transfer sessions from key resources to the tech team. And the third one is getting the or getting the subject matter experts who are currently in the organisation as key stakeholders from the

beginning to the end of all the digital implementations that are going on. Okay. So, then it's not like a requirement is capture and then digital works in silos and goes back to the business user, the business users are part of the implementation team as key stakeholders, whether they are responsible, or the whole RACI matrix comes into play, whether they are all responsible, accountable, or they are just providing information, or they consulted here and there but they play a key role. So, then they can look at and say, no, guys, let's not look at this, this is not important to us, for example, if you take the nominal rate, it's okay, don't need to take the base rate, let's take the rate with all the taxes and everything. That's enough for us. Because we would come from a digital angle and let's break let's break the rate into what's the base rate? What are the value additions are the rate like the taxes and so on? And that too, because we will do a detailed map but the business user might say no, we don't need that in our industry, let's only look at this parameter. So, for that, we get them involved from the, throughout the entire journey. So, in those ways from and then self-research, each team goes through a lot of seminars and knowledge transfers and reviews and research to do, it was a big challenge for the team to get into the logistics and supply chain vocabulary. Because they use a lot of acronyms and abbreviations and so on things like that. So I mean, if you when I speak to Senthil those days, eight or 10 words these days are all FCLA, CLM and it takes take some time to understand. But so, we do a lot of self-research as well. So those three are the techniques that we currently do in order to bridge that gap.

Keya Saha 32:33
That's great. So how is the communication flow? managed? You all have a lot of documentation. How is that happening among cross teams across functional teams?

C2 32:46
Yes, we maintain a lot of documentation, we maintain a lot of internal chat groups, or communication channels and then a very, very structured, very frequent regular updates sessions on some there are some projects that are going on daily. Some projects going on twice a week basis, some projects go on a weekly basis to ensure that stakeholders and everything everyone's on the same page.

Keya Saha 33:20
So, there is the communication flow is managed without much of an issue, you would say.

C2 33:28
I would, I wouldn't say much of an issue. But compared to where we were six months ago, we are very transparent and moving forward now but there are some areas to improve. The thing is COVID happen on top of everything. Yes. So, working from some of the team players 70% of the team or 60% of the team hasn't seen each other yet. Okay, because they were recruited even during COVID. Or they have seen the team. The team has met in couple of occasions but they haven't seen business users. So, because of that, those are the challenges that we're facing in terms of ironing things out.

Keya Saha 34:21
This work from home culture is a bit it is a bit challenging, right to not see people work remotely, it is a bit challenging. So, coming to the end of the whole session, so I just have one last question. So do you have any projects running where you have a front office that is dealing with a customer and a back-office support where you need to ensure that there is communication the communication flow from the customer to the front office to the back office is happening without any challenges. Are y'all working on any projects like that?

C2 35:11
We are. And I wouldn't say it's smooth now but because there are a lot of Baton changes that are taking place in that aspect. Mainly given that our customers are overseas. So, it works on different time zones. So that's a big challenge one challenge because customers wake up eight o'clock in the evening in Sri Lankan time. And then the customers deal with support teams and enterprise systems teams in first-hand so they wouldn't face the tech team head on. Right? It's very, it's very rare that if at all, it's only me as the head that the tech team who would talk to a customer but that's also very rare and most of the time it is dealt either C1 or if it is dealt either by some of the like Linux team or the that is the in the enterprise system teams and so on, because they are the ones who are facing the customers on a daily basis. So, the as you can see, there's a big translation going on as to what the customers meant. Yeah.

Keya Saha 36:22
Exactly that is what I was getting to. Are you facing any issues with that translation that is happening?

C2 36:34
Yes, I think that is part of the previous challenge. Also, I said because customers, like for example, customers wouldn't talk tech, customers would talk requirements from a business and yeah, then the current team who has been doing a marvellous job throughout the history of ABC are the within quotations, I would put the tech or the technical resources that ABC has had so far in that is in the in the company. So, what they will try to do is that they will try to translate what the customers meant into a into a tech system and give the tech team a requirements

document. Okay. Now for the tech team, tech teams' customer is an internal customer which is the enterprise systems team. Yes. Once the system is slowly getting into an implementation drive. The enterprise system team would say that he No, no, this is I don't think they would this is what they wanted. And so, so there are a lot of mis communications that are happening because it was translated into tech by a non tech team, even though they handled technical systems in the organization for all this time. And because we didn't get that first time requirement capture from the customer directly when we got the requirement, so, those kinds of challenges are in a way it's good because this makes all those teams more tech oriented to translate business into tech and tech into business. But it gives a lot of issues into either timely completion of the projects or some of the requirements fine tuning and after all our customers also somewhat understanding. So, those kinds of teething issues are happening now. Right.

Keya Saha 38:53
So that, is that is basically what I wanted to sort of record. I can stop the recording now is, is there anything more you would like to add.

C2 39:05
Unless you want more information to ask. There is nothing more from my side.

Keya Saha 39:10
I'll stop the recording.

C3 interview transcript:
Keya Saha 0:04
So hi,

My name is Keya.

C3 0:08
Hi, Keya How are you? I'm good. How are you?

Good, good. Not too bad. It's a holiday today. So

Keya Saha 0:16
Yeah. I think if I had put the date by mistake

C3 0:26
I scheduled it and I sent it to him. Okay. And we don't. Yeah, I thought Monday is a better day. So, rushed. Okay. Because, yeah,

Keya Saha 0:37
Thank you so much for meeting with me. And has C1 given you a briefing about what this is going to be all about.

C3 0:46
He did send me an email and I saw, it's above blockchain. And he had nominated a few who, who can possibly answer your questions. So, I have an understanding. But let me start off also saying that I'm not a technology guy. So more in the process and methodologies and project management.

Keya Saha 1:10
I think that's exactly what we're looking at methodologies and product management. So, he has picked the right people to talk about this. So, I am doing a research project on an enabling environment, the challenges that one is facing when you're trying to implement artificial intelligence, machine learning, digital transformation and things like that. So, what is stopping companies from, you know, sort of building this enabling environment, even if they have the budgets to pump in for the same? So that's my topic of study. Right, right. Yeah, so that's why, if I mentioned that, we be able to have a few conversations with people within the organization to understand exactly what is their thought process on this whole thing? So, there's like a series of questions that have sort of that I have in mind. And we can see how the flow goes from that. Okay. So, I'd like to start by asking you, what is your idea about digital transformation? And how important do you think it is in today's world?

C3 2:37
Okay, so, I mean, it's still, it's obvious that digital transformation is more like a survival issue, to any company now. And the rate at which it's been created which, to which companies are digitally transforming is rapidly I think, compared to yours now. And if you compare two years now and now, the acceleration is so high and keep the company is trying so much in terms of being transformed but most companies are also failing. So, there's a lot of money that you've been pumped in, like you said, into, into technology. But I guess only the companies that understand how, how you link between business strategy and digital strategy are going to start I'm going to try to there's a lot of work that needs to go in. And right now, I think, mostly companies that are failing, as we can classically call them, digital fashionista, where they think tech first but not business. First, at the end of the day, especially if you're in the service industry, it's about serving the customer. So digital or not, you must serve the customer first. But given the competitive environment right now, I think digital takes a high priority.

Keya Saha 4:02
So would you say that ABC is different in any way.

C3 4:10

I wouldn't say that if we were different. I'd say we were we will be in the top one or two competitors right now but every company must learn from it which also an evolving journey. You can't put a full stop and say we are digitally advanced. That's good. Continuous solving. There are so many technologies that are being introduced every day. Even if you take a software development student, someone who has studied back in the days might not be competent right now. So, in terms of technology, process, methodologies, people, we must keep on evolving. But the first step starts from understanding what do want where to do we stand and what value are we trying to create to the customer and then understanding your internal environment. Then understand external environment, then creating a roadmap and it has also, you must also foster an environment where you always check and adjust. So, I wouldn't say. So, we are on the pursuit, pursuit of trying something called agile digital transformation. I mean, it's, it's just an idea now but I think extending towards defining it and then going towards a journey. And we did the agile digital path.

Keya Saha 5:32

So, does the company already have like a goal or a vision on how this digital transformation is going to happen? Do you all, allocate separate budgets for this?

C3 5:46

Yeah, so we do have we do have a digital transformation budget. But does this do he go on record where you quote, the employees?

Keya Saha 5:58

Okay, it's confidential.

C3 6:01

Right. Okay. So, I mean, we do have a digital transformation budget, we started out, I think, especially since a CDO who's C1, especially since the day he has joined, I think, we've come up to a massive maturity level in terms of digital transformation. So, we've allocated budgets, we've allocated projects, we've allocated resources into it. But I would say there's a long way to go. There's, I mean, it's you can't work in silos, you can't work in siloed teams, let alone siloed personalities and you also have the management to be ready to be transformed. So, there's a lot of work that way.

Keya Saha 6:43

So, there's, like, so far, there is no goal that has been set, there's no.

C3 6:50

There's a definite goal. But I think the gap is between certain individuals. it's been driven by excellent personalities. But I feel like as a global organization, we need that all these external personalities to come together. But right now, we have silos. And that's also limited. And it's been, it's, I would say, it should be driven by the top management, whereas everyone is involved, not just the CEO and the CDO. But also, if it goes down, it cascades down to the lowest employee. So, we need to be transformation ready. And there's a lot of work that needs to be done but come down to compare to where we are, where we were and where we are right now, I think a massive, massive improvement and that and that is reflected in our finances and how we are performing right now.

Keya Saha 7:44

So, you are already seeing the change that is happening. And it is how is it like sort of aligning with your, you know, vision, vision and the organizational strategy that you're already has this whole digital transformation that you're talking about?

C3 7:59

Yeah. So, it's right now it's embedded to a business strategy as well, because we are a freight forwarding company. And we realized that, you know, assets and assets could be in terms of data and digital. So, for us to be competitive, there's no option other than being in a transparent in terms of data and having integrations capabilities. So, it's not like any other, I would say a company like Unilever or PNG, for us to stay competitive, we must be digitally transformed. So it's more important than ever and then as a company, I think we've realized it and we do have a roadmap, it's just that there are minor tweaks that you need to do at the foundational level, because you have to have change management in place, you have to have processes that can in place, you have to have project management, program management capabilities, where you can allocate resources where you can deal with these projects.

Keya Saha 9:05

So that is where you come in.

C3 9:08

That's right, this is where I come in. Okay.

Keya Saha 9:11

So as a program manager, so, you are responsible for making sure that these processes are getting in place this integration happening between the teams, there's integration happening at the leadership level, how you know, you're the one who's trying to see how to drive the change management is that is that what it is?

C3 9:33

Um, so, again, I think in terms of maturity, we are in the early stage, okay. So, before you get, you know, looking at process improvements, or restructure restructuring, we are looking at like a small area where we are looking at projects right now, okay, we are managing projects, the projects. So even in the PMO journey. There's a maturity stage. So right now, I would say in terms of project management, we are only a project office where we monitor projects, we give out status updates, we escalate issues. But at the CDO level which is at C1's level, there's a lot of work that's been done. But you must, right now we are creating a PMO. office where, where we will investigate stage change management once we get the fundamentals sorted which is understanding what projects are allocated, how many resources do we have our teams are talking to each other? do projects make sense for us to, for us to scope and for us to implement? So, it's early stages but certainly, I mean, the PMO office was, I mean, I was recruited last year, I was coming from a manufacturing environment. But from there to now, there's a lot of alignment that has come into place. So of course, the next step is to investigate change management, looking to other functions, not just the digital scope itself, you know, eating into the, eating into the pie, basically looking to investigate the business aspect of it.

Keya Saha 11:13

So how many projects? Are y'all sort of like running right now? What are the kinds of departments that you all have already started these projects with? But because it's throughout, right? this digital transformation has to happen throughout?

C3 11:27

Correct. So, I will talk to you in terms of teams. Now we have a data science team, we have a DevOps team and we have enterprise management team. And then also we have data evangelism. So basically, data science team is right now for focusing on things like rate prediction. Things like revenue optimization, so they are you trying to use predictive analytics. So even before we come to talk, I don't think we are right now maybe talk about blockchain. Let's be honest, too, because there's so much work that needs to be done in terms of data quality, in terms of data capturing in terms of data sanitization, things like that. So, the enterprise system team, we work. So, we believe in this, we believe in a ERP system which is called Cargo Wise. So, the idea is to have that enterprise management system to manage our people and mostly our business processes. So, we do have two, two products. I mean, I'm sure C1 would've mentioned it that we are mainly strong in Air freight and then we have sea freight. Yeah, right. So. So along the lines of we are looking at the basic things, in terms of let's say, in the

front end, we are looking at lead management which is a data science, data science project. And in the process, we are looking at multiple projects that track countries of our shipments. So, for us to come to complex technologies, we had to us were working on the fundamentals now. As a freight forwarder.

Keya Saha 13:00

Okay, so if I had to ask you, what would you feel are like the challenges, are the barriers that you're facing at this point, in terms of sort of creating a better environment? Or are you facing any issues?

C3 13:17

Okay, so I mean, you will figure that out by right now, the way I speak, I think the biggest challenge that we have, is in terms of people, okay, because we both our growth is exponential, you know, somewhere around I think about $400 million a few years ago and we are, we are hitting a massive target, the growth has been exponential. So, to keep up with growth, people must evolve. Right? And we are also acquiring and expanding into different countries. And I mean, we are having around 31 stations right now that in 31 countries. So, I think integration shouldn't be only about technology, it should be about processes and people. So when

Keya Saha 14:09

people would you say, would it be at, like leadership level? Would it be because of resource resources? Or would it be because of the skill? what is causing the barrier?

C3 14:24

Yeah, so people should be, things like technology and business users. Right? So, technologies and like technology teams in the business users should talk for an example. Its technology will always solve business issues. But if the end user and the technology team does not communicate which means there's a major problem where we might create a product that the businesses have want. Then at the production stage, we struggle. So I mean, it's not about I'm not talking about where you, where you transfer knowledge to a business user as this is what technology is about more than that, I think if you, if you think about the fundamental things like, you know, problem solving skills at a business level, as well as basic understanding of, I would say processes and also improving communication, for example, let's say we have a business case, a technology team itself can't build the product. There could be multiple iterations, that multiple, you know, requirement gathering and then there could be prospective that you need to do. Yeah, so that's where we are we are lacking, you know. So that's number one. And number two is even if we. Now, let's say we, we passed

that milestone, teams, management and everyone is aligned. The other problem that we have would be in terms of in-house resources that we have to build those products. Because I feel like there's a big gap between the management understanding and the tech team understanding because they a, from a management point of view, I think this problem, a lot of businesses here, they expect results. In a split second. Yes. So, whereas there's so even to, you want to create a basic product, there's so much that needs to be done. So, what usually happens is to satisfy a management, we will do something we will report out but we will not I mean quick wins are important. I agree that quick wins are important. But also, I think you should, you know, aim far ahead in order to stay competitive.

Keya Saha 16:51

agreed, totally agreed. So, I mean, what is your idea about, like, artificial intelligence, machine learning and, you know, automation, like robotic process automation? So, what is your idea about that, like you said, you just, you're just at the fundamental stage. So, when you're talking about prediction, you're probably looking at the historical data and doing the predictions right now. So, moving ahead, what are the ideas that you all have in terms of sort of implementing this whole? How do you integrate your artificial intelligence and machine learning? Do you think that it is something that is going to be soon, or it's going to be like baby steps that are going to be taken?

C3 17:37

I think we; we are exploring in AI and machine learning. mean, in fact, we do have machine learning algorithm written in certain projects, like lead generation is one project where it throws out potential clients. But I also feel like in in order to fully exploit and take advantage, I think it's a few months, or maybe a year or two, you know, ahead. But I strongly believe in being digitally transformed. In fact, I'm exploring the subject area is well, so. But it all depends on how you identify your use case. And it could be in terms of cost savings, it could be in terms of productivity improvements, or it could be in terms of efficiency. The end of the day, it's about even if you take RPA or even simple in order automations. It's about it's about using a smaller number of resources and producing the maximum output, right? Simple as that. Yes. So, I think we can get there. But also, as an organization, we must think a lot holistically in terms of how we resource even if you have, so, I think the organization is in the right way. So, we'll get there. So that's my belief. And if you ask me, I'm not a technology person. So but if you throw a problem at me, as a program manager, my job is to make you understand how critical

this problem is. Yeah, so we do have a prioritization matrix. Because you can't. You can't cater all the problem in the world Yes because you must cater to all the demands. We do have a prioritization matrix to be prioritized based, basically, based on the urgency value, risk. And are we going to build up like so by understanding a business problem. My job is to make sure the technology solves it. So, I do I will connect the tech team and the business team together. Put them in room and Okay, in essence, this is the problem we have. And this is the problem. So, so if you throw a problem at me and if the team says AI or machine learning or RPA can solve it, of course, we will do the due diligence and understand if we if we spend X number of resources or dollars and what is the output? And then? And if, if the answer is yes, we should proceed, I don't see a problem in throwing these technologies into the business.

Keya Saha 20:36
So how does this whole now See? Now, if you say you're getting your tech team and your business users together, so the business users are the ones that have this amount of tacit knowledge which is there with them. So how is this tacit knowledge transfer happening? Because for a business, I mean, a technology team to come up with a solution, they need to have, like a lot of information and everything is not getting tracked as digital data? So in that situation, is there a way in which you all are tracking tacit knowledge as well, in the organization from, you know, the important leadership or the high level management? Who has this kind of experience? Is it getting documented somewhere?

C3 21:25
Yeah, it is, again, we started I think, project management is the correct. I mean, I would say, project meant putting project management in place would be the answer for your question. But to give you to give you an example. So, let's say a problem is being derived or defined by the business or it could be, it could be problems that are defined by the CDO itself, C1 itself or the CEO itself, or it could be directly coming from the business. So, when it does come, we have business analyst in place. I mean, I mean, a traditional business analyst would start engaging with the business would have a meeting with them would, if it's like a software development project, we would have adopted a document called a user story document where you went from a user point of view and then and then there's a process where the tech team conversation will happen. And then you will have a retrospective, again, with the business asking if there's if, if your understanding and understanding is in alignment and then we would have a specification document, there's a sign off process and then only the.

Keya Saha 22:46
Right is happening.

C3 22:50
Unless there's a sign off process on the specification, the scope and the requirements that are gathered, usually a project one won't go to the development stage.

Keya Saha 22:59
Okay. And there are meetings that keep happening between you know, the teams.

C3 23:03
Yeah, absolutely, you must have the meeting. So, we would offer an example if it's a airfreight rate prediction, we will have a meeting with the with the finance team and also the Air freight head of the air freight. So likewise, I think we do understand who the stakeholders are at every stage when requirement is being developed.

Keya Saha 23:28
So, you are also in charge of standardizing this process end to end because I see that, you know, you would probably be the person who is supposed to ensure that people are following what is being done from the tech team side. So how do you standardize this whole process?

C3 23:48
Yeah, so, I mean, I'm a huge believer in Agile delivery. So, it could be Scrum Kanban. But right now, I'm addressing the change management aspect because since the company's new I can't, I mean I, I've tried and I failed, we include processes, methods, tools and platforms to just to manage the project, so I've, I've taken that as the learning and I'm, I'm slowly trying to evolve into that. So right now, we have project management tools in place but we also have excels in place. So, for an example, if the management wants an excel, we will report out project statuses project reporting in Excel but the tech team usually manages projects, the backlog of requirements in a project management tool. And we also have we also have introduced something called an L gate. So, it's a interface gate it's just like a project lifecycle but we also consider it's an expanded project lifecycle, we are we expanding to the business okay. So, for an example, if l0 is idea l1 is feasibility, l2 is scoping and signup, l3 is a Design and setup l4 development then you have l5 where you pilot, l6 is deployment and l7 business adoption. So, it did we have we have identified who the stakeholder is and who's primarily responsible or accountable to sign off on for an example L2 level the Delivery Manager, the project manager, the customer, the product owner, everyone has to sign off once the project has been developed, the delivery manager has to sign off. So, all

these processes templates standards have been set out but they are rolling. So, we have a PMO roadmap but it right now is a project office and moving slowly moving into Centre of Excellence,

Keya Saha 25:50
Okay, okay. So, you deal with like small cross functional teams in the organization? Or how does this work? How is the communication flow? Like say suppose now you are doing. Like you said, the L gate thing, right? So, you How is the communication flow between the finance team, the technical team, as well as you know, the other person that you mentioned?

C3 26:17
Okay, so the communication has been a big challenge. I'm not sure. Because I mean, I think you find would be a better person to answer that. But the reason why I'm saying that is also because I joined during the pandemic. So, because of work meetings, because of the distance communication has been a big barrier. So that's what I always struggled with, coming from, you know, manufacturing company. And I've also been struggling and also the, me to make things worse, the fact that we are, we as we are operating in 31 countries, if I mean, we do have a HQ team but we are all decentralized, decentralized in terms of seating sensing, or our work from home. So that's been one problem that we are facing. But then again, then again, I think when we do identify who the stakeholders are, we always have, you know, weekly touch base with the tech team, weekly touch base with the data management, likewise, we do have certain processes in place to to improve the communication but since we are taking project by project, so when we, when we have already identified who the stakeholders are, we do have project meetings. But I would say we can improve further.

Keya Saha 27:44
Okay, right. That's, that's good. That's very good. So, my last question to you, is that, are you trying to do some kind of projects where you have like, some kind of integration on your front office as well as integration at the backend? Like, is there a separate team that deals with the customer and a separate team that does the backend work? Are y'all doing integration on something like that?

C3 28:13
Is it in technology term?

Keya Saha 28:15
In terms of technology? Yes, in terms of digital transformation, or you're trying to link something like that?

C3 28:21
Yes, we do. So, EDI process is one classic example. How we integrate into customers and partners our carriers and how we integrate ourselves into our ERP system. And, from that we also push information from our own systems to the customer. For an example, like I said, track and trace are so important to the customer where for an example, if you're working with us, they would like to know where the shipment is. Yeah. So, while we connect, so let's take under armor for an example. We have we have a PO management capability into that, let's take a scene as a customer. We do connect into a partner system that we can pull information and pushing formation to the customer, where they can get real time information on where the shipment you know, has it been delayed and which put it So again, we started out in phases. So right now, we are working on projects where we can push out information to the backend team. I think the development team is working where the customer can get real time information about the shipments. So, integration for freight forwarding is a no brainer. It must be there. And the as identified and we are also working on a few projects, where we are doing integration

Keya Saha 30:03
So, do you'll face any challenges in terms of now say I have a front-end team and I have a back-end team? Do you face any challenges in terms of communication? Or, you know, things getting lost in the process due to which there are like issues in terms of completing the process?

C3 30:24
Yes, we do. Challenges can be interpreted in multiple ways. So let me give you one example, from the customer to the tech team, the requirement translation also could be a problem. I'm not sure whether it's because the because usually tech teams, I think their communications can be improved. I mean, that's something that we've seen over the months. And I know in other companies as well, where tech teams usually have communication barriers. So, it leads to misinterpretation Unless a CEO or CTO in our company intervenes, there could be communication, you know, spills, or barriers to this one. Yeah.

Keya Saha 31:16
Would you say communication barriers? Because you're cannot I mean, the tech team does not have the authorization to have meetings with the right kind of person to get first-hand information is, is that what it is?

C3 31:32
No, I would say, I would say that's not the problem, I would say the problem would be understanding the requirement because tech team, their specialization is tech not business, or specialization of communication. But if you ask me, my specialization, I will say 10% tech and more business strategy and communication. But we would prefer to have, because we do have a technical project manager. But we don't have, we wouldn't we don't have project managers who are also strong on their business or soft skills. So that is a problem that we have. So that we feel that there's a gap in the interpretation, interpretation. So, when there's.

Keya Saha 32:21
A customer requirement and the understanding of the tech team have, what is the requirement in terms of business? What makes business sense?

C3 32:30
That's correct. So, when that happens, there are budget overruns. There are inefficiencies there are time overruns. That's probably that's one problem that since the day I have joined that I've seen in the tech team. So that I mean, of course, we are open for suggestions in terms of seeing how, how we can develop, I've always suggested something like an agile transformation journey but I don't think we have the capacity or the or the knowledge. So, we are thinking of working with a consultant in future so that we can organize a structure the team then organize, so we can have a better output.

Keya Saha 33:16
Okay, okay. So, you feel that the amounts that are being, you know, invested into AI and ml is a good idea in the organization, you think that there are positive outcomes that are coming out of it? And there is a good future?

C3 33:33
Yeah, I'm a strong advocate of technology. They are being built for reason. They have purpose but we shouldn't be a digital fashionista. So, I think we should be digital masters. This is something I think I extracted from a book I can't really remember. But it's about technology and capability, when you're high on the technology and capabilities, you become a digital asset.

Keya Saha 33:58
So, I've come to the end of my session with you and thank you so much for your inputs. And C3 it was great talking to you actually and I can stop the recording now and continue the conversation.

C3 34:13
Okay.

C4 interview transcript:
C4 0:05
I'm sorry, I just want to excuse myself beforehand, I might cough. In the middle of this, I'm sort of recovering from COVID.

Keya Saha 0:14
Are you feeling better now coming?

C4 0:17
Yeah, it's been it's been about two weeks since I sort of was discharged but still in the recovery process, so it's going to be taken about a month for you to recover. Was it? Oh, no, no, not really, it is that I had some I had sort of asthma has the condition. So, they just want me to sort of be observed during that period. So yeah, everything is fine. Thanks.

Keya Saha 0:47
Okay. So C4? Has C1 updated you about what this interview or so-called meeting is all about? Would you know what this is about?

C4 0:56
Yeah, I was I was told it was to do with the challenges of implementing AI within an organization. Yes. And you? And sort of, you know, any, anything related to that? Other than that, I don't I mean, that's, that's sort of my limit of knowledge on the on the interview. That's all.

Keya Saha 1:17
Yeah. So, it is basically this. So, I am doing a research project. And the research project, the topic of the research is challenges faced by implementation of artificial intelligence and digital transformation, basically, the path of digital transformation of a company. Okay. And my focus here is ABC as the company. So that is, that is basically what it's what it's going to be about a few questions, of course, it's going to be confidential, even the report will not have your name. Just to get to the grass root level of the problem, if there is any, in terms of implementation of these of this whole digital transformation or artificial intelligence, that kind of thing, the whole journey. Okay, okay. So, I'll just start off by asking you the very basic of what is your idea about digital transformation? And how important do you think it is?

C4 2:27
Right, my idea about digital transformation, okay. What I think digital transformation is essentially a few steps, right? I mean, first phase would be where you start working digitally. That means where you sort of, does it doesn't matter what it is that you're doing currently. Right? And you take that process, you take that process and you put it into a digital form, right? Let's say for example, if it's a recruitment process, right, so in some also this one, no, I'm talking in terms of context of Sri Lanka, is that okay? Yeah, that's fine. Right? Yeah. Okay. So, in some of the companies that have worked in you know, recruitment is at some part of recruitment is purely

manual, right, so you're bringing the CV in a hard copy format you submitted and that process you know, it's purely manual right. So, you can maybe not digitize the whole process but digitally some part of the process so, that is one level of digital process right. So, the next big step what I see as digital transformation is probably no in that what will happen is there are there are some benefits to digitalization as well you know you have the record that and you can probably go back and look at some of the things that people received in the past and you know, you have some sort of database element that comes in right next step is know what digital what this process does is it gives you databases right? Like you have data that's you as an example you digitize the recording process then with that there's a lot of data that comes in right for example, you know, how many things you get in for a certain procedure, how many CVs that are processed or short listed? And you know, what the whole how many, like what's the sort of rate at each stage right? Then what you can do is you can sort of analyse that data to understand you okay, if you if you want to receive you know, you want to shortlist this many candidates, how many CVP to receive in in that sense and what other platforms they should advertise on certain things like that. Right now, get SaturdaR's using the data that you have collected. Because you digitize a process, right? And then that's, that's. So that's like, first would be something like, you know you look at you just analyse the data and decide based on that. Since, you have the data, the next step is, after you do like a manual intervention, something like that you can, once you know how it works, you can automate that which is usually handled by an AI. So that's how I see the lifecycle where you sort of, you know, digitize the process and how that can move be moved into something like that. So, then the AI would be holding the record but essentially, right, I mean, it's not probably there yet but this, how I see as your digital transformation begins. When you say, transformation, what do you implies you're shifting from a manual, manually driven, you know, process to a digitize digitally supported process, right. Like, is that is that so that's that sort of interest? Probably a bit here and there. But yeah, that's sort of what I feel.

Keya Saha 6:15
So, you, are you an external consultant for ABC? Are you an internal consultant in data science? For ABC, you are a data consultant,

C4 6:24
I am an internal consultant.

Keya Saha 6:26
Okay. So, in terms of, you know, ABC, so to speak.

C4 6:34
Just that I'm relatively new, it's been about four and a half months since I joined. So, I might not know,

Keya Saha 6:45
That's fine, I'm not going to get into Nitty gritties. I just wanted to from whatever experience that you have, that is fine. Right? That's, that's Yep, I have I know, I, I've met a few other people, right, like before you. And they mentioned to me that yes, that is the are looking at digital transformation. So, is there like a, like a goal or a vision that the organization has in terms of digital transformation? And is there like, you know, do you all have like separate budgets for this? At ABC?

C4 7:22
Ah, separate budget? Yes. At least in terms of goals, there was a, there was a sort of infrastructure plan that was put into place. So, it has two areas that we are mainly looking into right now, yes, we are trying to solve the biggest problems, two biggest problems that we have right now. One is a data database that we are trying to sort of centralize the data. Currently data is (So this is a bit early in the process) So we haven't yet to reach the sort of AI level, we are still in the process of consolidating the data and making it accessible through maybe a data warehouse, data lake, ideally, Data Lake. And so, we have, we have one, one source of data for all of them. So currently, what happens is, an analysis can be done by three people, they will use three, slightly different software, it's the same source but they have their own, they apply their own certain, you know, data cleansing processes and certain things like that, get out to report. So, we want to avoid that what we want to do is, you know, give it give them a say, Okay, this is the data that you're going to use. I mean, you can probably change the granularity do certain things like that but it contains the data. Right? So, this is the final data, this is what's going to be used for analysis across the globe. And, you know, that's, that's it. So, we are mainly working on that. And we are looking at a few identified key points of interest that ABC has, right? So, one is the prediction of the airfreight rate, right? Okay. So, freight rate prediction, it's, it's quite crucial, because it's one of the main revenue generators we have. So, ABC, has reached their revenue goals already. They are going to go because I've been because I mean, because of COVID, essentially, right? Yeah, so, COVID sort of has led to this whole rise in air freight, because you know, because of the whole backlog that people want things a bit quicker. And because I'll let you know, that has risen so that's benefiting us as a company, right? So, one thing is we want to try and see if we can predict that into the future and probably because you know, this is one this might be a one-off thing-COVID. I'm hoping it won't happen again. So, when the market stabilizes, the rates are going to drop, right? Yeah, yeah as the rates drop, we would want, we would want the ability to predict it some level, right? To understand where it's going to go because then that helps us through the negotiation process. So that's just one project that we are mainly worked on in the in the other projects that we have, we have like a sort of scenario planning project going on as well. And certain things so we mainly have one piece which is the database, then we have identified a few projects that we are looking at, that has some direct revenue impact for us in the short term.

Keya Saha 10:39
Okay. Okay. So, is there like, the digital transformation strategy? Are they like trying to align it with their vision, mission and goals in the organization? Are they trying to get it included in the strategy?

C4 10:57
Yes, yes. Yes. Okay. That is, I mean, it's not aligned yet. But that's what they're heading at. That's what they want to be. Okay. So currently, it's not exactly alike. But what are they looking at is trying to get themselves aligned with the main strategy of the company?

Keya Saha 11:20
Okay. That's, that's wonderful to hear. So, what according to you, like for the few months that you have been there? What, according to you are the biggest challenges or issues that you are facing?

C4 11:36
What am I facing? Okay. The biggest issue I'm facing is the data issue.

Keya Saha 11:41
Okay.

C4 11:43
Because there is a gap between what the management wants to do and what the data can support. Okay. Right. So, I mean, the management sometimes wants us to do a, you know, weekly prediction of something of a particular commodity, or not a commodity but a particular, you know, air freight or some freight rate or something, right. But the granularity that we have with that is only one week, giving you an example. Right? So that there are gaps like that. So that's, that's what I'm dealing with these days. So, then we have negotiate with the stakeholders, okay, we really can't give you this because we don't have the data. So, then what we decide is okay, is it? I mean, I mean, if you say to the management most wants the best thing, the best thing possible, right? Yeah. But, I mean, they, they sometimes, we just always think the best thing. So, it's our job to sort of negotiate and say,

okay, we can give you the best everything. Because of this whole data. In fact, one thing we can do is if there's a particular project that you want to be prioritized, then we can start collecting data from this point onwards, okay, so that maybe once we get a set of data, maybe in, say, a year, then we can sort of try and see what you wanted something better. So, we try to convert that into data, sort of collection strategy as well. So that, I mean, you might not be able to get it right now. But maybe in a year's time, maybe six months' time, we can at least have an experiment on it and see whether what we wanted was possible, whether it makes sense for us to you know, maybe invest in more infrastructure or something like that. Right. Yeah, I hope you got that.

Keya Saha 13:40
Yeah, that makes sense. That makes sense. So, you would say that your main issue right now is managing the management's expectation, as well as balancing out, you know, balancing it out with the actual data which is available. Yes. So, what is, what would your idea be about, you know, artificial intelligence, machine learning and robotic process automation in the logistics industry or DSL or within your organization? Do you think it's important? you're implementing it?

C4 14:23
I mean, ideally. So, for a company like ours, right, so we are mainly looking at freight forwarding, right? Yeah, freight forwarding. We don't, we don't essentially own anything, right. We don't ship merchandise. We don't own airlines. We don't have warehouses of our business. We just come we are centrally coordinating with everyone. You say okay, you know, you just basically coordinating mode, right? So currently we are doing it to humans, right. Ideally if it's, I believe, it's just me it. It's a bit complicated, right? So, let's say for example, we improve our processes to a certain level that we can coordinate through AI. But the issue is the any instruction that our AI gives needs to be received from the other end. Right? So maybe the airline should receive, okay, this is me placing a booking on this day, for this month, right? I mean, that, that doesn't need to be there. So, it's not this aspect needs to develop this industry as a whole needs to have some level of acceptance for that. Right. But for your, you know, they need to sort of progress towards this goal as well. So, yeah, I mean, it can be done, logistics in general, of course, it can be done, I mean, most of them, I mean, for example, like some of these pricing, how prices are determined, those formulas are mostly handled by AI's logistics algorithms. Yeah. I mean, it's not this, you know, these days have been synchronized and codified, they have some, they run their own algorithms and they give a price out to say, Okay, this is the price that we are going to quote you. Right. So, it's more

prominent in the airline industry. You know, your ticket price is based on so many factors, you know, date of booking, airline route and, you know, setting airplanes sometimes you so, yeah, I mean, it's, it's, it's a good direction to head in, right? It would make our lives easier as well. But, you know, there's always risk of people losing jobs but by how well you think of that is, you know, why would you want to do something like, you know, coordination with people, it might be a bit boring, right? It opens you up to do more. Yeah.

Keya Saha 17:06
Taking jobs, it's about building new types of opportunities

C4 17:10
For people. So, I mean, yeah, that's, that's the gist. This is this, how I look at it. I mean, it's good, it's good. But the thing is, we should understand that not everything can be automated. That's a very important thing to understand. But probably I'm just getting this from a manufacturing point of view. So, when Tesla was trying to build their Giga factories, they, they, their first goal was okay, we are going to minimize as many people as we can. So, they try to automate everything, right. But they realize by doing that, they are spending for certain tasks, they're spending more time with the robot than what a human can do. Right? So, you need to find that balance there. You know, sometimes humans do things better. Yeah. So, I know, I can't give you off the top of my head. I can't give you an example for the luxury industry. But there are things like that as well, so we need to understand those areas as well. And, you know, try to integrate this with the AI. So as always, So AI I say is augmentation. It's not, it's not. I mean, does replace some work. But it sort of frees you up to do other more important things which an AI can do. So, they are essentially AI can easily replace repetitive tasks. Yeah. Very, yeah. So yeah, that's that extent. So that sounds what you are expecting.

Keya Saha 18:43
Yes, yes, absolutely. Every answer is the right answer. So, at ABC, since it's a big organization and you're, I think you're working with different teams, right? So how do you standardize this process end to end? How are you managing to do that?

C4 19:13
Can you just elaborate a bit on that? I mean, what do you mean when you

Keya Saha 19:17
when you when you say you are trying to get the data? Okay, you're saying you're trying to normalize the data in

a single database, right? So, about this must come from different sources, right? Your data source will be different sources that you get the data from? Yeah. So, when you do that, how do you how do you ensure that is getting standardized? How do you ensure that all the teams all the different functions that are happening at ABC is pretty much following the same process? How do you get that to happen?

C4 19:57

Right Well, we are still not at that level, to be honest. I mean, we are still in the process of building it. But I'll answer your question from a point of view that I ended a previous company. So, what we wanted to do is I mean, same sort of concept, right? We had we already set up a data lake and make sure that we only use it. Right. So, what we did was, we do an audit, essentially, right? Third party to see the analysis to gather data, right? So, the, the analysis received to that group director from x source which is the sort of business analysts that the internal team versus what we did, we did an audit of the numbers and how it differed, right? So that difference, what that I mean, that's what we set out there. So that's, that was our goal, these two numbers can't be different, this, this must be the same. So, to see whether we achieve that goal, what we do is we just do that again and see, okay, how is it different? Why is it different than if, if we made the source the same? And done everything? Why is different, right? So then, based on that, we see, okay, how you process this figure and how we process it is different. So, it's not nothing to do with the source, then it's something to do with our own processes. Right? So, then we must figure out, okay, what's the right process of doing? It should be adhered to the process that these guys are doing. Or should we come up with our own process? Right? So, I mean, then the logical answer will be we had to do to get the other experts in their particular field and we just need to follow that process. So, I mean, there are there are certain things that we can do that. So, we have to, we have to sort of go back to the questions that we had and sort of retested. That's the simplest way to sort of see whether we are going in the right direction, right. So, if still, I mean, if you do this action and if still, there's an issue, then we can sort of fix it further, sort of examine by why it's happening and sort of fix that going forward.

Keya Saha 22:07

Understand, understand. So, ABC, how does your tacit knowledge transfer happen is, if you are interacting with the business users and you need a certain amount of information in order to do your work as part of the whole data science team, how do you ensure the tacit knowledge is getting transferred?

C4 22:35

tacit knowledge, KT, so how do you ensure it, okay. So yeah, we've I mean, we've had that problem as well, getting that knowledge transfer in the, I mean, in the previous analysis, because there is a tendency. Okay, how do I say this? Okay, so that's it. Okay. The first point where you sort of understand the tacit knowledge is where you need to understand the phase. When the management team usually gives you a requirement, right? So, when a management team gives you a requirement, it's a very high level, right? Yes. Yeah. They would say they would say, okay, we want to see this thing. You know, we want to see, I mean, I'll take this air freight job, right. The first thing was, we want, we want to see air freight rate prediction. That's all right. Yeah. Need air freight rate prediction, right? So I mean, from that, so at that time I wasn't there, so I'm telling you what I've been told as well. But that's, that's how it has happened. So that comes in, right. So, then we, as people who are trying to break down the problem, need to understand, okay, what does that mean? Right? First question is, why do you want this? Right? Why is it a pressing business need? Where does this fit into our processes? Right, that need. So essentially, we ask questions, we ask questions, then we learn from those questions, right? So, first thing is why do you want this? Okay, let me understand the why then, what exactly do you want? Right? So, from the why you can sort of understand some of the what, what exactly is wanted but you know, it's good to ask that question. So, then we require, okay, you want it for the top 10 trade routes that we are currently handling across some 23 countries adopting and we wanted at a granularity of week, right? Okay. And granulator Weekly and we want the prediction for a year. So, a year's worth of prediction, weekly. So that means if 52 values in a particular trade route, so let's say for example, we take Shanghai to Chicago, rate prediction. Okay, we are going to give you the rate, the predicted rate from the first week of Jan into the last week of December. But that's the requirement, how would they use it, they would use this data look at it and understand, okay? based on this data that only they would make the decision to decision to price, go for price negotiation with maybe an airline, to say, okay, we want, we'll pay you this much, x amount, that is probably maybe a bit higher than the prediction value, I don't know that how they do that. That is up to them to do that. They will send the price and will negotiate based on that. So tacit knowledge is what I would think if we needed to ask questions, right? I guess if we are trying to understand this, there are multiple ways to do that. So, one thing is what we call ideation, right? We ideate the problem, where are we heading with this? Right? So that they can put a simple call, right, someone takes down the notes in this, you know, this idea and see what's happening, right? And then we have interviews with like, specific

stakeholders. Okay, one is markup sessions with who are like specialists in that area. Right, then we have like a specific set of questions before going forward. Let's sort of relevant to that problem that we're trying to solve. And we just go into go in depth with that. Right, with that person. So, through that we share the tacit knowledge, other than that there are you know, sometimes presentations that were done to someone or something like that. We sort of take in and process as well. So yeah.

Keya Saha 26:51
So, at ABC, do you all have like small cross functional teams that are working? Or do you have large teams that are sort of working? And how is the communication flow managed? Because it's such a big company?

C4 27:06
We find small but what do you consider small teams?

Keya Saha 27:09
I would say close about 15-20 people would be like a small team.

C4 27:16
Yeah, I would say small, we would have small teams. Because the technical digital team itself is small. There's not a lot of people, maybe maximum pushing, it would be about 30. Okay. I mean, when I say technology that involves data scientists, people from the enterprise team, that's the guys who are looking at the ERP all of them together. So, if you I mean, that's, that's a, that's the technology team. But other than that, if you, exactly the tech team, other than that, everyone else is-So even the management you see are outside. Even people who are appointed as industry expert or area experts, we would consider as outside the team and we will lease them through either business analyst or some, just like a normal meeting session with them. Yeah, I would say also, one challenge that they're having is it's a bit hard to communicate when you're not in the same physical space. Yeah. So that, that's an example we want to know, like a very small, tiny fact. Right? about, you know, you know, how to do something, right? Maybe, let's say, for example, you know, maybe how to write a file to a particular location in a coding perspective, right? Yeah. So, you can Google that. That's true, right? But if you are in the same physical space, you just, you know, call your buddy up and say, Okay, how do I do this? Yeah. Can you just, you know, show me how to do it? Yeah. Right. And that, that, those small things. So, the thing is, you get, you get a lot of small talk questions like that. Like that throughout the day. Right. And that usually is processed physically you meet up and do that. But currently the situation I mean, you wouldn't, it's too small to call

someone and get an answer. Right. It's the biggest, what that does is when you're constantly communicating, if someone spots a mistake that you're doing, we are going in the wrong direction. They can correct you. Yeah, yeah. They can put you into clarify, okay, you're on doing the site. We discussed, you know, to do it like this while you're doing this. I mean, yeah, the course gets corrected automatically, right. Yeah. So that's a challenge that we have Right now, because although even though you know, after meeting we sent those and the meeting minutes here, this is what happened all at all, like people still not the same then because you know, sometimes, if we'll have to say, right, it's not, we will sometimes do slightly different things. And at the end of the day, it's different from what we discussed at first. So, I think being in the same physical pace remains that to some degree not fully. And that even that is not taken away. Things are working.

Keya Saha 30:34
I understand. I am working on Yes, yes, absolutely. I totally agree with you I would any day prefer an office space as compared to working from home, I would like to want to interact with your Oh, colleagues because it's, it's a lot easier. I would totally, no doubt that, you know, you have your flexibility when it comes to working from home. But somehow it doesn't feel like that feeling of working doesn't come like working from home. There's, there's always like a barrier there. I mean, I think, right? Yeah, like the whole travel like I, the advantages of it would, of course, be like, you know, maybe travel times cart and things like that. So, what I'm reading more and more is that probably people would move into like a sort of a hybrid model which is also fine. If people can, like at least twice or thrice a week, this fine that. Yeah but those

C4 31:43
Its moderation, so it's Yeah, moderation. Yeah,

Keya Saha 31:48
I think that's fine. So, there are pros and cons but I am not up for this 100% work from home kind of

C4 31:57
Economic, there are people who can do it, there are people who can do it. And there are roles that allow for that as well. So, for example, though, it let's say, for example, in this in this journey of digital transformation, we are still in the initial stages of it. Right? Yeah. So that we are still learning on the process. Right. So that is very, so that I mean, there are a lot of questions, we will have a lot of questions.

Keya Saha 32:25
Absolutely.

C4 32:26
I mean, that for a company like that, who sort of starting this process, where they don't have a process in place to handle things, you need to be physically present in the same space for it to be a success, that is what, I believe, right. So maybe companies who are sort of very, you know, advanced in this program and they don't even think about this digital transformation, they've fully digitized process. And, you know, maybe very fully process driven and they have like, even for the tiniest thing, they have process in place, they can do it to some extent but still, the human factor would come in and say, Okay, I need that physical, you know, with the colleagues because it's a different environment, correct?

Keya Saha 33:13
No one likes to see, as much as everyone loves their family, nobody likes to see them through the day!

C4 33:19
Exactly!

Keya Saha 33:22
You get that break? out? Yeah, that's true. That's true. I completely agree with you on that. I think.

C4 33:32
Are you? Are you working on technology? Yes.

Keya Saha 33:35
I am. So, what I do is that I'm working for an Indian company. And okay, I do some data science projects, as well as handle some clients. So, it's like, more to do with the digital space in terms of digital marketing as well as a few data science projects in terms of, you know, customer segmentation, fraud detection, those kinds of things. So, I'm like, sort of, in between business and data science. So right, that's where I come in. So that's why I thought that, you know, this, this kind of a major in MBA would sort of help in like making this journey a lot more fruitful or enriching. Because it's very important to understand the business side of things as well. It's not, it's not just because somehow there are things that get lost in translation. And that causes a lot of I would say, delays and confusions, yeah.

C4 34:38
It's a certain delay that is caused by everyone, right, you must go and rework it.

Keya Saha 34:43
Yeah, exactly. Translation is not happening right, then in that case, you know, so that, gap is always there. You know, like tech business, there's always like, a gap that needs to be bridged. So, I'm sort of working on those

lines that understands data science as well as understands business. So that's, that's what I'm doing right now. That's cool. Yeah, I think it's a requirement now moving. Moving ahead.

C4 35:19
Yeah. Moving ahead but I would think is, I mean, yeah, you would need that role as well. But generally, the analytics, I mean, I'm not, let's say no, I wouldn't say analytics per se but you know, certain knowledge on coding certain knowledge on your digital infrastructure that would need to get normalized. Yeah, absolutely we will be using that going forward. I totally.

Keya Saha 35:46
agree with you on this and I have a last question, I think we have three four minutes so do y'all have any systems where you have like a front office that is interacting with the customer and you have like a back-office support system? And how's the communication flow manage that you're facing any challenges on those lines? separate team facing the concept of team doing the task.

C4 36:27
As far as I know I think I don't have enough knowledge to give an answer to that okay. Okay it's biggest that are probably processes that I mean that work like that Yeah, I'm probably qualified to answer that question I don't know whether there is a problem or is not a problem. I don't know, i simply I don't know (it's fine) that's probably I mean there are there are usually communication errors between those two in any way when there are two parties communicating there are errors (yeah) so, one thing that I see I don't know probably maybe you can consider it something similar. So, there are a set of data entry, not their full jobs and data entry but they are part of their job involves entering data to the system, right? So, the data entry from different locations tend to differ right? So, let's say for example, I spoke about the air freight rate that is being entered there um, there are various iterations so air freight rate sometimes the airlines quotes what's called an all-in rate so that rate contains everything from your fuel surcharge your insurance costs your taxes and everything. And sometimes they give out a base rate. And in the data that we have both rates are then one single column

Keya Saha 38:19
Yeah, right. That's a problem.

C4 38:23
That's a problem, right? So that means I mean there should be a limited I don't know how to do that it's just a number right? Just because you enter that we don't know what that number means. So, I mean that's sort of one I

want to get him in also in the same thing I mean, people how they spell the airline name differs drastically in the entering it I don't know why you need to interact we need to probably have a drop down, so that.

Keya Saha 38:54
Would probably be a good idea. Yeah. I think the ERP systems where they're entering the data is created by ABC itself so those changes can be the done?

C4 39:09
ABC itself? No, so we're using a third-party system but we do have the customization of the front end, we are able to customize you know what the user sees and you know how he/she enters data. So, what's happening so if you don't realize the biggest, this is another point that I want to tell you. So, like most of most of the guys, they have all these ERP solutions in Sri Lanka. Everyone has, if you ask the top conglomerates in Srilanka, they have either SAP either IFS or some big ERP but the issue is they don't use it for your investigations, diagnosis, something like that, they just use it for transaction, right? Yeah. They're just using for transaction, so they just want, that day for the system to work. So, they'll do whatever changes that they need to do if it runs today So the issue with that is the data generated by that is going to be a mess for you when you lay them out, analyse it. Right. So that's, that's at least when I don't know about you until we have the content but from what I've heard, So that's, a massive issue. So, we need to sort of figure that part out first. So, ABC has had the same problem as well. But now we've identified it and we are sort of moving away from it trying to standardize the data going into the system. Yeah, right. So otherwise, it's garbage in garbage out, right?

C5 interview transcript:
C5 0:00
Is there any disturbance where the fan is behind?

Keya Saha 0:03
Sorry?

C5 0:05
Is there any disturbance for you on the tour? No, not at all. My fan is on.

Keya Saha 0:10
There's no disturbance at all. Sure. So, you are the data evangelist for ABC

C5 0:18
Data Evangelist? Yes. Yeah.

Keya Saha 0:21
So did C1, sort of brief you on what this is going to be about this conversation.

C5 0:30
He just told that this is an MBA survey that has been done. And I think much after that,

Keya Saha 0:39
Yes, yes. So that's typically what this is. So, my research project on challenges that are faced while implementation of artificial intelligence and during digital transformations in high level enterprises, basically that is the focus to understand what are the kinds of challenges that are stopping you know, this, this kind of transformation or use usage of artificial intelligence to happen, even though this is like the time where all this is happening? So that's the main topic of study. So, I think he's picked the right set of people because the questions that I had with fun, I think you allow you allow the right people to sort of answer this I met your CPU I met a few people before this. So yeah, so I can start up if you're ready. Yeah, I'm ready. Yeah. So, I'll just start off with like a very basic question of what is your idea about digital transformation? And how important do you think it is?

C5 1:47
So what I think that digital transformation is, it's basically moving from traditional business where, all the decisions taken through gut feeling but with digital transformation, all the decisions, to day to day work, will be supported by, it won't be removed from that person particularly, that may be the later stage but at the moment, it is like aiding the management or the employees to make their decisions using digitization as an aid, for example. So, I'm in the data field. So, I know at the moment even at ABC that decisions are taken by experience and by the gut feeling of the manager but the ideal way with once the digital transformation as he has gone to a certain level, all decisions should be backed with data. So that is one type of transformation that I can tell and that basically my field is on data so for me digital is basically using data.

Keya Saha 3:18
Yes, yes, absolutely. That's fine. You can just tell me whatever you think from your point of view on this whole thing. So, it's there's no right or wrong answer here. Right. So, how important do you think this is up to? How important do you think digital transformation is in today's world?

C5 3:40
So, data and digital transformation is the way forward for most of the companies so for example, you can see we used to go to theatres to watch movies now everything is at a single, you can watch movies on your phone even. So digital transformation is basically convenience for me. And, when you know business point of view, it's basically reducing the amount of waste and creating efficiency.

Keya Saha 4:19
Okay. So is there like a goal or a vision which is already there in ABC in terms of this transformation which is happening or do you all have separate budgets for this kind of thing.

C5 4:33
We have the transformation initiative that is a digital transformation initiative. But ABC is still I don't think at a level where they have implemented a vision or mission but there is a certain objective that we must be honest, we are at the early stage of the digital journey. Since our ERP is also recently implemented, we don't have much data in our store that we can use now for a major transformation. But we can say we have a set of goals that we have set for ourselves. So ideally, by 2024, we should be at least having a proper digital structure infrastructure implemented, while converting our employees into digital transform generation.

Keya Saha 5:41
That's wonderful. So, would you say that when you're in this journey of digital transformation that is already happening at ABC are they considering, you know aligning with their business goals and business strategies and you know their business vision and mission also, are they considering it?

C5 5:57
So, it should, they ideally, we are considering the company goals and digital goals similarly but there are cases where some businesses are a legacy sort of statement where, for example, we are in the logistics business freight forwarding, there are certain things that for example, when you say some countries, they're all going to the digitize, even their customs are digitized. But for example, if we select Sri Lanka as a country, we are not at the stage yet. So, getting a full digital transformation without systems also involved. It is good to have it on a mission statement. But when setting goals, we should consider the external factors as well.

Keya Saha 7:05
So according to you, what would be the major challenges or issues that you are facing in terms of this whole transformation? That is taking place.

C5 7:17
Yeah, so the main issue that I think I feel because I came from MAS, a company which is much more forward in their digital journey, same as Hatim. So, it was a more forward. When it comes to digital and adoption and the culture there was, very fast, you can implement something quick. But at ABC. It's, it's a growing company which had a lot of traditional ways of doing business. So, for me,

the main issue is changing the culture. So, there are, for example, there may be some people who are here for 10-20 years or some from the start of the company but they are used to a certain way of doing things. But suddenly, when you when put a digital platform in front of them, they feel redundant in some cases. So, the idea is resistance to change. But the culture, building up the culture is the main challenge that I find.

Keya Saha 8:33
Okay, that's, yeah. So, what is your idea about, you know, artificial intelligence using machine learning and robotics.

C5 8:50
Not at, not at ABC. But when it comes to MAS, I was involved in a project where we used an AI bot for support tickets to basically assist the users of the IT issues. So that's basically, I was a project manager for that. So that is mainly the exposure I have for AI. And there are also a few initiatives that were taken but I decided to move out.

Keya Saha 9:32
So, at ABC y'all are not really doing anything yet. In terms of AI?

C5 9:40
At the moment, I don't think because what I see is, to go to an AI related function, there are certain let's say for example, you need certain data like for the AI to be trained on So I don't think that we have enough of data that we can, not only data for, let's say, for example, you need the AI to make a decision, we are not recorded any of those decisions that we are taking, even using the existing data. So, I think we are at least two, three years away from AI in an ideal world.

Keya Saha 10:27
Okay. To be fair to start off with, yeah, because the data is not getting captured. I mean, now is.

C5 10:34
Data, not data. So basically an ERP has been set up about two years, two to three years back. Okay. So that data and then the anomalies that came with COVID. And so, it's, it's not like business as usual these days. normalizing those data and we set up the data infrastructure, we completed the project, basically our data lake to our data warehouse early this year. So, I think then there needs to be more data that needs to be coming into the data lake as well.

Keya Saha 11:20
Okay, so are you working between like cross functional teams, or how does the workflow for you?

C5 11:31
So, at MAS, my role was a very core, or I was in the data science and engineering team but here at ABC. Our title is I am like the bridge between business teams and the data teams here, the engineering teams. Okay, so how do you basically

Keya Saha 11:58
In that case, so.

C5 11:59
Now, we are still setting it up. So basically, we started off few trainings, in my case, it's basically setting up certain trainings for data related functions all over the world. So that is in about 20 countries, okay. So, our point is to have individual responsible from that end of the business. So, for example, if you take India there, there will be one guy in India, who will be like the hands-on guy for when it comes to data. And if there are any requirements, he's the one who will contact me. Okay. So, it's basically a what do you call we will be a central excellence team where they will be like the point of contact for us.

Keya Saha 13:02
Okay, that sounds good. So how are you intending on standardizing the process end to end?

C5 13:10
standardizing in the sense, what do you mean by standardizing? Is it the digital data journey?

Keya Saha 13:17
Yeah, in terms of data journey, or since you have so many people who are going to be involved? Right, there must be a way of making sure that everybody's on the same page. So yeah, what is your idea about that?

C5 13:32
So, for us, for us, to start off this journey, we need people to use whatever tools that we have all right. So, for example, we have our data lake where we have and in the analysis service, we have created reports modules, where they can access so no one is using other than me now. So basically, they don't have the knowledge also, at least for them to create a report using those data. So, as a start, what we are doing is we are starting with some visualization platforms like Power BI, we teamed up with Microsoft and they are doing a training so basically what they are doing is we identify the person from the business that is on from each station and we'll be training them to be the power user of for example, Power BI. So, once they are trained and certified, they will be responsible of training the rest of the stations, the employees in stations, regardless of their role in the business. So, for example, for example, let's say he or she is a personal assistant for

a manager, even then, they should be able to, like, visualize whatever help, at least in my head, the manager to visualize the data and show them for them to make it easier to take decisions. And then after that, we will be going through the process. So basically, next training session will be the data, the Azure Stack and then also using database, we are trying to, democratize the data that we have to each station so they can, the stations can do their own reports and if they are smart enough, they can do the data standards work as well. So, at the moment, we are still at ground zero.

Keya Saha 16:01
So, you're planning to move on cloud, if y'all are using going to be using as your

C5 16:05
we are already on the cloud; we are already on as well. So, we are looking out at get into multi platforms as well as rather than not sticking to only to Azure, as a discussion with AWS as well

Keya Saha 16:22
yeah, hybrid systems. (Exactly) So you said you were like the bridge between the business team as well as the data science team. So, in a situation like this, you must be coming across a lot of how do you ensure tacit knowledge transfer happening from especially from the business team to the data science team?

C5 16:43
Sorry, could you repeat that?

Keya Saha 16:46
So, you are you mentioned you were the bridge between the business user and the data science team, right? So now, from what I understand, you understand the business requirement and you pass it on to the data science team for them to work? So how do you ensure that tacit knowledge from this business user or these experts are getting translated and to the data scientist so that they can come up with like, you know, the right kind of analysis that I kind of models?

C5 17:18
Yeah. So, now, just the requirements come to me, I do the analysis. And I get in touch with one of our BI guys or the data engineering team, to check if the availability of the data as well and basically finalize the requirement before any development has been done. So, once they are finally the business team finally signs on the requirement, we will, we will move on with the developments and stuff. But there are cases where our data science team, their engineering team, they create a report and push it on in the case, we find it important I it's my duty to push them

through to the business team says. So that I think happened only once now because now teams are just catering the requirements. So, for us to get to that level. To be honest, our business teams should be able. So, whatever the requirements that are coming in, ideally, in an ideal situation, if you have a proper guide the knowledge on the business team, they can create the requirements for their themselves but that them not having the knowledge is eating up the data science team's time. Some basic requirements, yeah.

Keya Saha 18:59
So that's what I was wondering how you how do you ensure now say, suppose I'm an expert in something and you must get the information from me and then pass it on to somebody else and instruct them what to do. Now, there are some things that I might not tell you because I don't think it's important for you to know or your there might be like you said, you don't even have the solutions to the problems on which you can train your AI data. So how does that get tracked? Do you have a method of tracking that? No. See, suppose there was an exception that has happened in a particular say I'm in the ops team and there was an exception that happened there and I am the manager, I have sorted the issue that has happened but how is that getting tracked? Is that getting tracked anywhere? Do I like to fill any form to say that, you know, this is how I solved the?

C5 19:50
Not now. So, now what's happening is BI teams are building up the inconsistency reports to identify the errors that are Guys meet. So, most of the issues that we faced now is coming from the data entry team or the person who is entering the data not entering the correct data. So those kinds of issues are mainly what we get now. But and that is captured on the ERP system. And there is an exception report that is sent to the business every week if I'm not wrong, okay. So, those are captured. But in those they analyse and the enterprise team that is the ERP team, they will implement certain controls there if possible. And there are situations that, let's say, a date, for example, you need to enter a date but that person has entered numbers. And so those kinds of issues also are there. So those are triggered by the exception reports but I will be rectified by our team by ensuring that particular column there is a verification where the data type is if the data type entered that is incorrect, it will broadly error. But for operational entries, we don't have any anything to capture as, as it as of now. So, for example, since you're in the freight industry, logistics industry, the Suez Canal incident, happened, right. So, we don't have any record. However, Operation teams managed, you know, an event like that. So that's that. So, those need to be done. But since our teams are not aware of how data works, how you even in

AI, when we are training in AI, how, how those work. And also, they don't see seem to have an idea about the need of the information for the data teams as well. So, at the moment, those incidents, if we ask them to record them, what they will see, they will take out of it is, is just creating our job harder. So, those are certain cultural things that we need to address as well.

Keya Saha 22:40
Understand, so you anyways mentioned that you are your biggest problem, your highest priority in terms of challenges the culture.

C5 22:48
Culture, yes exactly.

Keya Saha 22:50
So, I was reached towards the end of the whole conversation, so, I just wanted to check with you. Last thing, do you all have any system where there is a front end that is front officer a front end which is interacting with the customer and then must come back and also get support from the back end? within the team in a situation?

C5 23:15
There are certain, I don't think we have so. But since we are a b2b, mainly b2b company. There are certain for example, I think we have certain our API's we have given out for certain vendors, customers, I'm not sure which customers I think most of them are apparel customers. So, they have certain interfaces on their end. And sometimes they use just the API sometimes I think our guys also created certain interfaces for them.

Keya Saha 24:01
Okay. All right. Yeah, so I think I'm like done if there's something else that you want to say about this?

C5 24:14
No, nothing much. So, I just wanted to ask, have you like spoke to other companies as well.

Keya Saha 24:23
No, my research is purely on ABC. Even though the name is not going to be on the report and neither any of your names going to be on the report? I'm recording it.

C5 24:38
So are there any initiatives that they're taken to like, change the culture of a company or something like that, that which we can, I think.

Keya Saha 24:50
Yes, that is what I think my recommendations would have. Because after I speak, I'm going to speak to about

six people in your organization. Okay. They sort of come up with probably a scoring model as to what needs to be prioritized first in terms of what could be like because if it's six different people saying six different things at some point of time there is an overlap where you can figure out what the actual issue is. So yeah, my report and my recommendation will consist of that so that's what I'm doing research on just to understand exactly what is the pain point here what is what is stopping ABC from becoming because there's exponential growth that is happening in ABC there is yeah exactly there is no monetary issue there is I mean, so what is stopping it from happening is it is it the culture is it resource is it a skill? What is it and then you know once you can like score it to like three or four events that are causing this problem then those things can be sort of certain things can be recommended in order to see like small baby steps? Of course, these things are not going to happen overnight show in an organization so but very, very small. But conscious steps need to be taken in order to solve these issues. So that's why these are your six. The six interviews with the oil just being honest about exactly what the problem is will sort of help me in zeroing on to those one or two points that we really need attention if this digital transformation must happen at ABC.

C5 26:39
Exactly, sure. That's it from my end so.

Keya Saha 26:44
I'll stop. I'll stop the recording.

C6 interview transcript:
Keya Saha 0:03
Hello. Hi C6.

C6 0:08
Hi Keya, right.

Keya Saha
Yes, my name is Keya and I'm meeting with you You're the data scientists for ABC right?

C6
Yes and yes.

Keya Saha
So, I am meeting with you regarding an interview to the topic of research that I have is challenges that are faced while creating an enabling environment basically when you're trying to implement AI and digital transformation in like large enterprises as yours so, that is the whole objective of this interview. Okay. So, to just start off with I'll start with a very basic question on understanding of what your idea about digital transformation is How important do you think it is.

C6 0:58
See digital transformation, when they say digital transformation there are multiple like definition also there right like this depending on the person you ask the question they will give you a different answer like this oh yes a data science for a technical person of what I, when you say digital transformation for me, it is like using artificial intelligence, machine learning, RPA tools to like optimize or increase the efficiency of the process we have now and sometimes, we try to reduce the work like the manual tasks the people who are doing we can reduce that also that is one part of digital transformation which do that. There are some other things like even management decision making they talk about data driven decisions right. So that, is also part of digital transformation from my perspective, so, I think that is also part of that.

Keya Saha 2:03
So, at ABC, do you think that there is already a sort of vision that they have in terms of digital transformation journey that they want to do? And do they have like budgets that have already been set aside for something like this?

C6 2:18
They have like, for the last one two years, they have started working on that, since this is a management, like we are the team, I am in the technical team. So, I don't know the management is in, the budget and those kinds of things we are not aware of. So, what we are like doing is see there are few RPA projects, few data science projects, there are projects which merge both of them so that that is what we are getting involved in so as a technical person, I don't know like I know there is a project but the management vision like what they are allocating into what they are focusing on, those kinds of things that I am not aware of.

Keya Saha 2:59
So, you are very project specific about these things. So, you would not have any idea whether, you know, the digital transformation is getting aligned with the business or, you know, the business mission and vision and things like that, right? That is not something

C6 3:14
Okay. Yeah, because like a technical person they give us the requirement and we do the solution, or we do the research, or we try to build the product. But the mission and mission aligning those things, we know the mission and vision but we don't do a detailed analysis of whether it is satisfying that or not, like as the team we are we are fully focused on technical team.

Keya Saha 3:42
Okay, so from the technical side, what are the biggest challenges and issues that you are facing in creating this kind of an enabling environment for implementation of you noticed transformation to happen or using artificial intelligence? What is the biggest problem that we're facing?

C6 4:02
So, like, I am working there for two years. So, there are a few projects I have worked. Almost all these projects have one, one problem which is a big problem, like there is no data governance involved. So, like each department have their data in a silo. Right? Let's say there's a sales team and there's another team like finance team, they might do the same report but the data they are getting is like the sales might get manipulated data or finance team might get some other data. When you produce the report doesn't match with the actual values. And so that is a data governance issue, right, yes, that part is missing. That is coming up in all the projects like even the current project I'm working on. That is coming up like so. So we have to show that that is a big like as a data scientist. I can say that is the biggest problem we are going to face in even in the future projects like that will be there. So, we had to solve that data governance like we should have a data governance committee or data stewards and we have to continuously check for the data like quality and so, those kinds of things we have to implement, otherwise the silos, like data silos and different departments will have a conflict is going forward also.

Keya Saha
So, you would suggest like a centralised data system from which you know if the data is normalised and y'all can analyse it from there. So, that is

C6 5:36
Basically, that is the idea of data warehouse right. But here what's happening is like sometimes the data even data warehouse the data in data warehouse and sales teams' data is different something.

Keya Saha 5:52
So, why do you think that is happening because of the data entry being incorrect.

C6 5:59
Data governance. We don't have that governance, like okay, this particular data asset is updated and it is across the entire company right, that's why you are not there right. So, sometimes they go on a different path. So, we must have that data governance committee and data stewards and those kinds of thing must be set up I think it will persist in the future also if it didn't fix it now.

Keya Saha 6:28
So, that is in terms of your highest priority that is the biggest problem that you would face are there any other issues that are also being faced in the projects that you are doing in terms of you know, this data science.

C6 6:44
There is also a derivative of this data governance issues like the same to everyone we are working on agile environment right, we understand agile, the requirement changes and all but what the problem we are having is once we work on a certain project and try to build a model try to build a product or anything, after a few months, when you try to present it to someone they will say okay this is wrong or they will change the requirement then and there that is a big problem because it actually has to be changed. Like for example if I if I can give you a logistics company, they have gone hard blocking and soft blocking and CTS rate, we were initially doing one thing and midway, the requirements change into okay focused on hard blocking, soft blocking and CTS separate like that. Okay. But at the end is when we issue presentation, to the final stakeholder who is in the finance department. He said OKAY, we don't need the hard blocking and soft blocking predictions, we only need a marketplace prediction because those are so that kind of miscommunication, if everyone was on the same page, we won't do this, like we are circling on this one place, right? So that problem won't be there.

Keya Saha 8:18
So, you're not getting the output that you require, rather, you're spending a lot of time in doing things that are not really required. Because the requirement is not clear.

C6 8:27
There after a few months, we will be on square one, the starting place, we will be because we sometimes we are doing the same thing. And prior to the old requirement and after that we realised Okay, this is not needed, then we'll go back to the first solution. So, it's time like we lose time resource everything like money and all,

Keya Saha 8:50
Right, right. So that is that is the that is those are the main issues from your point of view, main challenges from your point of view that you're facing, right? Right. So, what exactly is your idea about you know, Ai, ml and RPA. In terms of, you know, the projects that you're doing in ABC, do you think this is important, it's it's a good investment. Is it supposed to happen is it going to be you know, something that is required?

C6 9:22
It is like this, if we don't, like AI, ml and RPA all have the benefit side. If we don't do it, all the other logistics

and freight forwarders are doing it, we are going to miss the bus. So, we have to do it but we have to make sure it is giving us the dividend like it's paying us back. So that is the most important thing. So, when I say AI and ML, those are somewhat similar things. AI & ML. So, there are pure AI ml projects and pure RPA projects and nowadays if you ask few years back also it is not like that common nowadays, they have that thing called hype automation that is like combining AI ml into RPA to one. Earlier days sometimes we implement RPA for the three will be a human in between like attended robot or workflow we will implement. So, there will be any human who will make the decisions nowadays we can model that decision making like a machine learning model or algorithm or something like that we can model that pattern where everything will be automated. So, when you ask me those three those are converging now like it will be like one thing in the future like still even more converged.

Keya Saha 10:49
So, it is very important to start working on those kinds of projects as well in order to have that competitive advantage. Do you work with like cross functional teams or how is your communication with the rest of the people around you or do you work with other teams, or do you just work within your team?

C6 11:18
Like the current while for example, we are working on a project that is like so, there is another team called enterprise team we have to work with them, they are the ones taking care of the infrastructure, cloud, everything, like data warehousing, even though it is related to data, they are the ones taking care of that. We had to work with the cross functional team, it depends on the project also, like there is another project which is called leads gen, so for that we the data team was alone initially now it is since we are going pilot and we are trying to like implement that on foreign ports like India or China or somewhere else, now we are including, incorporating other team from business side financial side and all but initially for that project we were the only, data science team worked on. So, it depends on the project like sometimes we have to work with another team sometimes we will work alone.

Keya Saha 12:25
So how is the communication flow managed in that case when you are working cross functional or you're working with larger teams

C6 12:32
We initially we had some major issues, we didn't get the data, the data governance coming back again, so when we asked for a particular data set, we didn't get the correct

data set, when we show that to the stakeholder, he said that the data set is wrong. So that, communication was the like we must go back and forth and solve that so one thing we have we are doing now is it's like a scrum. It's not like actually a scrum but every day, we are having a call with the state that the problem we are facing we will waste that and they will between us two so that is to solve that problem at the moment. So, it is much better than earlier like. Hello.

Keya Saha 13:31
Yeah, I can hear you It isn't you break up a bit in the middle but I can hear you. So, how are you going to ensure that the process is standardized end to end now because you are doing something you would be getting information from somewhere that information must go somewhere and somebody else needs to be using the information that you are giving them? So how do you how would you ensure that this is like sort of standardised from one end to the other? Is there something that you are already doing?

C6 14:13
Sorry about that. Yeah, you can hear me, right? (Yeah, I can hear you) Ok, what I was talking about cross functional, how we are trying to solve that. So, what we now have is a daily call. So, most of the problems, we can solve it now like early I would say it is much better than early, like, let's say seven, eight months back was hard to get, now it is much better between like a team communication, it is much better now.

Keya Saha 14:46
That's great. That's good to hear. It makes life a lot simpler. So now that you're working with different teams, right? You're getting the information on one team you are working on something you're giving out a particular output and somebody must use that output. So how do you standardize that like end to end.

C6 15:12
So, we don't have that standardization, like so, most of it is based on the project like sometimes it is an ad hoc report, or sometimes it is a Power BI report, sometimes it is an application the end user will use it. So, there it is up to like when we gather this the requirements and that time, we like we put that as a requirement, okay this is how we are going to deploy that deployments management, so, the stakeholders going to use it. So, that is how we are like, we deliver that I don't know whether there is a standard standardization for that or not, like it will tell us based on the project like sometimes it will be a Power BI we are going for, so, once we finalize and get the goal, is like how we are going to deliver it, we try to deliver that. So that, question I am little not sure what to say. Not sure whether.

Keya Saha 16:17
That's fine. So, you interact with the business users also, right?

C6 16:25
Yes, it's a BA like, Yeah, I do get involved but mainly it's the BA.

Keya Saha 16:31
So then how do you all ensure how tacit knowledge is getting transferred in the organization now say suppose I am an expert in operations and you are doing an operations project. Now I have certain things that are not documented but I know that certain problems can be sorted out certain way certain exceptions are handled a certain way. So how is that tacit knowledge getting transferred? Because that is very important for you also to analyze, right?

C6 17:00
Yeah. So, like this, our BA will gather all the requirements based on the requirements, we will create the SRS document like the first initial requirements document. Once that is done, we will be what we try to show like we will have a group call with a group discussion with the stakeholders and the project members like data scientists and data engineers, everyone believes what we try to do, it is we try to show Okay, this is what we understood, this is what we are trying to do, like a POC, we try to show that okay, this is what we are trying to build here. Based on that, if we are correct, they will, they will be okay. Otherwise, they will get back to us and we'll change the requirements. Although, for example, personally agree when to the this happened for two projects I worked on. Initially, they have some ideas like the management to higher up, CEO, whoever has a big idea but they don't know how to put that into a word or documents or anything like that. We have that idea but they don't know how to convey that to us. So, from whatever he may, like, the detail he gives us, we try to understand, ok this is what he is expecting we try to add some something he might need and we will show a POC. Once they show an initial product, then they will he is OK. Then from there, he will start like he will ask us to make the changes and all, so that is how sometimes it works. Okay, so that's what happened like this, this happened for two projects I worked on.

Keya Saha 18:42
That's interesting you're doing a lot of new things every day. So, this is like I'm coming to the end of the conversation. So is there like a front-end office that is sort of interacting with the customer. And there is also a separate back-end office to support that. Is there a system like that where there is like communication flow happening?

C6 19:12
We may say like, what we are building is for ABC, it's like, okay, so it's not like we are trying not trying to build the solution for third party clients. Okay, you understand my point, right? So, I don't know whether I'm tough is that part is that what? I don't I am not sure about that. So, we are directly working with the ABC, whatever they need, based on like a data project. We work with them, so front office, I'm not sure what. You understand my point, right? We're not directly dealing with the clients. Even though we work for ABC, ABC is our client.

Keya Saha 19:59
So, you are not involved in any of those kinds of activities where it is something that is happening, perfect.

C6 20:08
Or I would say that, if you ask my clients, it might be each department, like sometimes finance department might ask to do ad hoc analysis, then we must treat them as the client. So then our usual process will start like BA will go and try to get the requirements. That is how it's done.

Keya Saha 20:26
Right. Okay. That's about it C6 with this whole interview. Is there anything you want to say, or I will stop the recording otherwise.

C6 21:00
No, I would say the immediate concern is like, are you if you are like, I feel the same effective question. The last one is, you ask the last question, I had the same answer, like, immediately, we must solve this data governance issue. Otherwise, you're going to face more consequences. I'm being honest here.

Keya Saha
Absolutely. That's what I'm looking at. Because until and unless, we know exactly what is happening at different levels at different points, because everybody's doing different kinds of work, right. So, if we don't understand what is happening at every level, then a consolidated solution to solve the problem doesn't happen. You know, so a chain, even if there is a small break, in a particular link, the whole chain becomes weak, right? So, it's not going to work like that. So, it's very important to understand who is facing, what kind of trouble at which level in order to see what a holistic solution can be to this problem. So that the operations can be smooth, so that the efforts that are being put in are productive. So that, you know, the management is also looking at it in a positive light, that, yes, you know, so much work is going into it, because a lot of things you will not be able to, I would say when it comes to data science, there's there are a lot of

things that as much as people work with numbers, sometimes projects have no outputs, it completely depends on the kind of data that is coming in. And by looking at a like, a million rows of data, you will not be able to say whether you can put it into clusters, whether regression is going to work or not, you know, whether you can predict or not, you know, those kind of things are not possible by just looking at the data only once you start doing the exploration analysis and only once you start doing work on the data when you start figuring that out. So that is like that is something that needs to be explained to the management as well so that they have realistic expectations from what I can see.

C6 22:50
Another thing we like when you explain this, I remember we must have that ml Ops, like it's a brand-new thing. But like we have, to implement that like otherwise, So, the DevOps already went through that for the development team. So, they have that agile, waterfall or whatever method they are working on. We are also trying to work in an agile way. But personally, I think, as a data science thing, there should be a new method to do it. Otherwise, like even trying to work in an agile way, I don't think sometimes we are depending on the project, it won't work. That's some big project work in agile way. If they asked for an ad hoc analysis, fail small analyses, no point in like a daily using agile and trying to create a backlog.

Keya Saha 23:38
True, I completely agree with you. I completely agree with you.

C6 23:44
These are these are the problems like as I'm telling.

Keya Saha 23:49
It's great. It's great. I, I really appreciate all of you just being open about this whole thing, because it really helps with the research. If everyone is going to try to paint a rosy picture which is not true, then it doesn't help with the research and it doesn't help to solve the problem. It's very important to know what the issues are in order to solve a problem. So that is why like, I really appreciate everybody just being so open about what the actual issues are like there's nothing to worry about. This is completely confidential. I am not going to share these videos with anybody.

C6 24:23
When you are going to publish this, like your thesis,

Keya Saha 24:26
this thesis is supposed to be out by end of like middle of next month to be very honest. And once it is ready, I will share the report with y'all. Okay, okay. My findings will be shared with the recommendations.

C6 24:46
I know what I say.

Keya Saha 24:49
Yeah, you will know what you said. But it's just going to come as clusters of this is what the respondents had to say and this is what the issue is. So, it's going to be like that.

C6 24:59
Yeah. Today sorry about earlier like I was like, I was waiting for 5 o clock.

Keya Saha 25:05
No worries

C6 25:10
I think there was just a bit of a confusion there because the time that was sent to me was three but it's okay, that's normal. Thank you so much for finding time. I'm going to be joining the next call with C1, so I'll take your leave. Thank you so much. Thank you so much.

REFERENCES

01. Ngai, E.W., D.C. Chau and T. Chan, 2011. Information technology, operational and management competencies for supply chain agility: Findings from case studies. J. Strategic Inf. Syst., 20: 232-249.
02. Gunasekaran, A., N. Subramanian and T. Papadopoulos, 2017. Information technology for competitive advantage within logistics and supply chains: A review. Transp. Res. Part E. Logist. Transp. Rev., 99: 14-33.
03. Li, W. and F. Yan, 2021. Research on the design of new logistics control chain based on artificial intelligence technology. J. Phys. Conf. Ser., Vol. 1915, No. 2.
04. TekSystems Inc., 2020. TEKsystems' report reveals obstacles to digital transformation. Normans Media Ltd, Coventry, England.
05. Matt, C., T. Hess and A. Benlian, 2015. Digital transformation strategies. Bus. Inf. Syst. Eng., 57: 339-343.
06. Jentzsch, A., N.C. Melcher, J. Gildemeister, D. Schellong, C. Hofer, P. Wiedenhoff and J. Riedl, 2020. Why road freight needs to go digital-fast. Boston Consulting Group, Boston, Massachusetts.
07. Daugherty, P.J., Y. Bolumole and S.J. Grawe, 2019. The new age of customer impatience: An agenda for reawakening logistics customer service research. Int. J. Phys. Distrib. Logist. Manage., 49: 4-32.
08. Gruchmann, T. and S. Seuring, 2018. Explaining logistics social responsibility from a dynamic capabilities perspective. Int. J. Logist. Manage., 29: 1255-1278.

09. Vanpoucke, E., A. Vereecke and S. Muylle, 2017. Leveraging the impact of supply chain integration through information technology. Int. J. Oper. Prod. Manage., 37: 510-530.

10. Hansen, A.M., P. Kraemmergaard and L. Mathiassen, 2011. Rapid adaptation in digital transformation: A participatory process for engaging IS and business leaders. MIS Q. Executive, 10: 175-185.

11. Berman, S. and A. Marshall, 2014. The next digital transformation: From an individual-centered to an everyone-to-everyone economy. Strategy Leadersh., 42: 9-17.

12. Cichosz, M., 2018. Digitalization and competitiveness in the logistics service industry. E-Mentor, 77: 73-82.

13. Nekrasov, A.G. and A.S. Sinitsyna, 2020. Digital transformation infrastructure and transportation logistics systems. IOP Conf. Ser. Mater. Sci. Eng., Vol. 832, No. 1.

14. Bharadwaj, A., O.A. El Sawy, P.A. Pavlou and N. Venkatraman, 2013. Digital business strategy: Toward a next generation of insights. MIS Q., 37: 471-482.

15. Kane, G.C., D. Palmer, A.N. Phillips, D. Kiron and N. Buckley, 2015. Strategy, not technology, drives digital transformation. MIT Sloan Management Review and Deloitte University Press, New York, USA.

16. Fitzgerald, M., N. Kruschwitz, D. Bonnet and M. Welch, 2013. Methodological fit in management: A new strategic imperative. MIT Sloan Manage. Rev., 1 : 1 -12.

17. Mhlungu, N.S., J.Y. Chen and P. Alkema, 2019. The underlying factors of a successful organisational digital transformation. South Afr. J. Inf. Manage., 21: 1-10.

18. Horvath, D. and R.Z. Szabo, 2019. Driving forces and barriers of Industry 4.0: Do multinational and small and medium-sized companies have equal opportunities?. Technol. Forecasting Social Change, 146: 119-132.

19. Parham, S. and H.J. Tamminga, 2018. The adaptation of the logistic industry to the fourth industrial revolution: The role of human resource management. J. Bus. Manage. Social Sci. Res., 7: 179-191.

20. Williams, J.J. and A. Ramaprasad, 1996. A taxonomy of critical success factors. Eur. J. Inf. Syst., 5: 250-260.

21. Ngai, E.W.T., C.C.H. Law and F.K.T. Wat, 2008. Examining the critical success factors in the adoption of enterprise resource planning. Comput. Ind., 59: 548-564.

22. King, S.F. and T.F. Burgess, 2006. Beyond critical success factors: A dynamic model of enterprise system innovation. Int. J. Inf. Manage., 26: 59-69.

23. Oliveira, D.L.S., M.E. Echeveste and M.N. Cortimiglia, 2018. Critical success factors for open innovation implementation. J. Organizational Change Manage., 31: 1283-1294.

24. Oakland, J.S. and S. Tanner, 2007. Successful change management. Total Qual. Manage. Bus. Excellence, 18: 1-19.

25. Oke, A., 2004. Barriers to innovation management in service companies. J. Change Manage., 4: 31-44.

26 Pellathy, D.A., J. In, D.A. Mollenkopf and T.P. Stank, 2018. Middle-range theorizing on logistics customer service. Int. J. Phys. Distrib. Logist. Manage., 48: 2-18.

27 Cichosz, M., C.M. Wallenburg and A.M. Knemeyer, 2020. Digital transformation at logistics service providers: Barriers, success factors and leading practices. Int. J. Logist. Manage., 31: 209-238.

28 Weill, P. and S.L. Woerner, 2017. Is your company ready for a digital future?. MIT Sloan Review, Cambridge, Massachusetts.

29 Kane, G.C., D. Palmer, A.N. Phillips, D. Kiron and N. Buckley, 2018. Coming of age digitally-learning, leadership and legacy. MIT Sloan Management Review and Deloitte Insights, New York, USA.

30 Davenport, T.H. and G. Westerman, 2018. Why so many high-profile digital transformations fail. Harvard Business Review, Brighton, Massachusetts.

31 Singh, A. and T. Hess, 2017. How chief digital officers promote the digital transformation of their companies. MIS Q. Executive, 16: 1-17.

32 Schneider, P., 2018. Managerial challenges of industry 4.0: An empirically backed research agenda for a nascent field. Rev. Managerial Sci., 12: 803-848.

33 Parviainen, P., M. Tihinen, J. Kaariainen and S. Teppola, 2017. Tackling the digitalization challenge: How to benefit from digitalization in practice. Int. J. Inf. Syst. Project Manage., 5: 63-77.

34 Wokurka, G., Y. Banschbach, D. Houlder and R. Jolly, 2016. Digital Culture-or Why Strategy and Culture Should Eat Breakfast Together. In: Shaping the Digital enterprise: Trends and Use Cases in Digital Innovation and Transformation, Oswald, G. and M. Kleinemeier (Eds.)., Springer, Berlin, Germany, pp: 109-120.

35 Hartley, J.L. and W.J. Sawaya, 2019. Tortoise, not the hare: digital transformation of supply chain business processes. Bus. Horiz., 62: 707-715.

36 Dragomirov, N. and L. Boyanov, 2021. Digital transformation challenges of logistics in Bulgaria. IOP Conf. Ser. Mater. Sci. Eng., Vol. 1031, No. 1.

37 Adeitan, A., C. Aigbavboa and O. Bamisaye, 2021. Influence of information flow on logistics management in the industry 4.0 era. Int. J. Supply Oper. Manage., 8: 29-38.

38 Pekarcikova, M., P. Trebuna, M. Kliment, M. Edl and L. Rosocha, 2020. Transformation the logistics to digital logistics: Theoretical approach. Acta Logist., 7: 217-223.

39 Vogelsang, K., K. Liere-Netheler, S. Packmohr and U. Hoppe, 2019. Barriers to digital transformation in manufacturing: Development of a research agenda. Proceedings of the Hawaii International Conference, January 8-11, 2019, Grand Wailea, Hawaii, pp: 4937-4946.

40 Vogelsang, K., K. Liere-Netheler, S. Packmohr and U. Hoppe, 2018. Success factors for fostering a digital transformation in manufacturing companies. J. Enterp. Transform., 8: 121-142.

41 Junge, A.L., 2019. Digital transformation technologies as an enabler for sustainable logistics and supply chain processes-an exploratory framework. Braz. J. Oper. Prod. Manage., 16: 462-472.

42. Edmondson, A.C. and S.E. McManus, 2007. Methodological fit in management field research. Acad. Manage. Rev., 32: 1246-1264.

43. Saunders, M., P. Lewis and A. Thornhill, 2009. Understanding research philosophies and approaches. Res. Methods Bus. Stud., 4: 106-135.

44. Yin, R.K., 2014. Case Study Research: Design and Methods. 5th Edn., Sage, Los Angeles, California,.

45. Rashid, Y., A. Rashid, M.A. Warraich, S.S. Sabir and A. Waseem, 2019. Case study method: A step-by-step guide for business researchers. Int. J. Qual. Methods, Vol. 18, 10.1177/1609406919862424

46. Bryman, A., 2007. Barriers to integrating quantitative and qualitative research. J. Mixed Methods Res., 1: 8-22.

47. Denham, M.A. and A.J. Onwuegbuzie, 2013. Beyond words: Using nonverbal communication data in research to enhance thick description and interpretation. Int. J. Qual. Methods, 12: 670-696.

48. Hair, J.F., M. Page and N. Brunsveld, 2020. Essentials of Business Research Methods. 4th Edn., Routledge, England, UK.,.

49. Hausberg, J., K. Liere-Netheler, S. Packmohr, S. Pakura and K. Vogelsang, 2018. Digital transformation in business research: A systematic literature review and analysis. Proceedings of DRUID18, June 11-13, 2018, Copenhagen Business School, Copenhagen, Denmark, pp: 1-41.

50. Westerman, G., C. Calmejane, D. Bonnet, P. Ferraris and A. McAfee, 2011. Digital transformation: A roadmap for billion-dollar organizations. MIT Sloan Management, Cambridge, USA.

51. Ceylan, R.F., B. Ozkan and E. Mulazimogullari, 2020. Historical evidence for economic effects of COVID-19. Eur. J. Health Econ., 21: 817-823.

52. Klein, V.B. and J.L. Todesco, 2021. COVID-19 crisis and SMEs responses: The role of digital transformation. Knowl. Process Manage., 28: 117-133.

53. Heavin, C. and D.J. Power, 2018. Challenges for digital transformation-towards a conceptual decision support guide for managers. J. Decis. Syst., 27: 38-45.

54. Drnevich, P.L. and D.C. Croson, 2013. Information technology and business-level strategy: Toward an integrated theoretical perspective. MIS Q., 37: 483-509.

55. Kazim, F.A., 2019. Digital transformation and leadership style: A multiple case study. ISM J. Int. Bus., 3: 1-34.

56. Wagner, S.M., 2008. Innovation management in the German transportation industry. J. Bus. Logist., 29: 215-231.