

**THE REPUBLIC OF TURKEY
BAHCESEHIR UNIVERSITY**

MANAGING DIGITAL TRANSFORMATION

Master's Thesis

UĞUR ÖZDEMİR

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**GRADUATE SCHOOL
INDUSTRY 4.0 (EN)**

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Thesis Supervisor: ASST. PROF. DR. ADNAN ÇORUM

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To my mother and sisters,



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Uğur Özdemir



ABSTRACT

MANAGING DIGITAL TRANSFORMATION

Uğur ÖZDEMİR

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Recent research shows that more than 80 percent of organizations have already embarked on their digital transformation journey, but around 25 percent believe these efforts deliver tangible benefits. When we try to analyze the root causes underlying these beliefs, we see that the digital transformation has not been reduced to a practical order. In my thesis, I consider the digital transformation as a project and stick to the project management principles; I give an explanation of how a practical digital transformation project management can be put forward by stating which points should be given extra attention at which stage.

Keywords: Digital Transformation, Project Management, Industry 4.0

ÖZET

DİJİTAL DÖNÜŞÜMÜN YÖNETİMİ

Uğur ÖZDEMİR

Lisansüstü Eğitim Enstitüsü

Tez Danışmanı: Asst. Prof. Dr., Adnan ÇORUM

Haziran 2021, 40 sayfa

Son araştırmalar, kuruluşların yüzde 80'inden fazlasının dijital dönüşüm yolculuğuna çoktan başladığını, ancak yaklaşık yüzde 25'in bu çabaların somut faydalar sağladığına inanıyor. Bu inançların altında yatan temel nedenleri analiz etmeye çalıştığımızda, dijital dönüşümün pratik bir düzene indirgenmediğini görüyoruz. Tezimde dijital dönüşümü bir proje olarak değerlendiriyor ve proje yönetimi ilkelerine bağlı kalıyorum; hangi aşamada hangi noktalara ekstra önem verilmesi gerektiğini belirterek pratik bir dijital dönüşüm proje yönetiminin nasıl ortaya konulabileceğine dair bir açıklama vermenin gayreti içerisindeyim.

Anahtar Kelimeler: Dijital Dönüşüm, Proje Yönetimi, Endüstri 4.0

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ABBREVIATIONS

PM	:	Project Management/Manager
DT	:	Digital Transformation
PMI	:	Project Management Institute
HR	:	Human Resources
PC	:	Personal Computer
IT	:	Intelligent Technology
VDD	:	Value Driven Design
RM	:	Risk Management/Mitigation
APM	:	Association for Project Management
AI	:	Artificial Intelligence
LR	:	Literature Review

1. INTRODUCTION

With the latest trends in project management and project process management especially in Intelligent Computing Technology (ICT) / Software (SW) area like Agile and DevOps, management goes from vertical to horizontal structure rapidly. So, what to do in 2020s to survive as a leader or influencer in industry? And how to build a talented team would work fully dedicated for getting success in organizational Digital Transformation (DT) projects? How an organization go from traditional to digital with quickly launched digitalization projects? How to make this transformation more effective, practical and smooth without losing vision to catch technology train that drive very rapidly in today's business environment.

As described in the abstract also, many firm stated that they are already started to work on digitalization but outputs do not meet the expectations with a high percentage. Also many articles written that business owners should accept digitalization as a vision of their organizations and hold it in another place from daily works or short/mid-term projects. This thesis influenced from these two cliché, and outlined the important points that need to observe in care while managing digitalization projects. Yes, projects; another way to enhance business style in a quick and practical way. Many Software/ICT projects driven by so called traditional firms today already for being digital. Research projects on SaaS products, mobile APPs, remote management and many similar projects are helping to these firms in a pre-defined schedules with a small/mid-sized talented team efforts.

In many thesis or articles, authors explained some systems, applications or platforms to migrate into business to be successful like: IoT (Internet of Things), cyber security monitoring tools, digital marketing with immersive advertisement channels, artificial intelligence algorithms, robotics, and smart factory plants and so on.

But not stays on how to implement or manage them after started to take real actions on being digital. In below parts, thesis will follow the latest Project Management Institute (PMI) structure with just main things to take care for being successfull in DT projects, and giving some hints on the each step or specific subject.

An interview is also included in this study, which is completely based on research, re-examining the sources with a different perspective, past experiences and cases that need to be examined, reinterpreted research results and rich references. The interview focused on the term SaaS, which can perhaps be called the catalyst of digitalization for today, and which is thought to be able to put companies ahead of their competitors with successful integrations in a really short time.

2. BACKGROUND

Digitalization projects require more than customary IT execution, have a high potential to trigger hierarchical change, and need a joined scene on innovation and business. Albeit, very little exploration has been committed principally to DT projects, related examination can encourage us something about how these undertakings are overseen. Prior to fostering an underlying working meaning of DT projects, we will summarize what we definitely know. By uniting disengaged experiences, we expect to make a more comprehensive image of DT projects (Barthel and Hess 2019). In research, there are four different cases from the companies operating in telecommunication, plant construction, media and automotive industries to influence in main differences or similarities of a DT project management approaches.

The project team structure can be based on a hierarchy system, a flat one or a matrix system. These have different ways of organizing the relationship between management team and employees (BusinessDictionary 2016), and better to share structure of the team regularly for new mates especially. Otherwise, employees will always have questions in their minds and regularly project manager, director or other managers should struggle against these questions. If new employees not a true professional, recruiters must encounter this (somewhat parallelism in understanding) issue.

As a result of the detailed research and case studies of Kurman and Arpe (2019), we can summarize the five KSFs (key success factors) as follows. Top management support is critical, which reflects the literature, the need to sue for defined responsibility and empowerment leadership, for the first KSF. As a second important factor, it should be acknowledged that more horizontal hierarchies and inter-functional collaborations are of great importance, thus confirming the literature obtained. In the next, they showed that people management forms another component and is partially aligned with a digitally savvy culture and vision. They identified as a fourth KSF that the use of data and digital technologies supports DT. And lastly, they have introduced their customer-focused KPIs. Therefore, they argue that their data confirms the relevance of customer and

product information as defined in the literature, but recognize that such information needs to be developed, based on their analysis, to create customer-focused KPIs. As a result, they stated that all these factors are of vital importance for successfully digitalizing the structure.

In her thesis Danailova (2017), extending the powerful abilities writing in the advanced setting, while at the same time clarifying the significance of creating abilities like change and insight. By partitioning abilities into substantial abilities, like getting the hang of, incorporating, planning and rebuilding, as approaches to manage any outer climate more concrete, observationally demonstrated key moves that should be made to arrive at development computerized change level. To represent continuous cycle and nonlinear way, she utilize the idea of change the more precise advanced development. direct certain connections found between an organization's capacity to utilize it to help its IT base key cycles and the level of computerized change.

In Business Horizons, authors are advising four levers to enable digital transformation by creating an innovative digital project team including “Diverse and targeted team composition”, “Iterative goal setting”, “Continuous learning” and “Talent management”. They also outlines some challenges with traditional IT team like “Project leadership associated with project management versus coaching and mentoring”, and adding tips to overcome these ones like “Train and mentor digital team members through leadership and onboarding programs” to help shifters (Guinan et al. 2019, pp. 717-727).

3. MANAGING DIGITAL TRANSFORMATION

Digital transformation is the integration of new generation technologies into all business areas of a company, fundamentally changing the way business is done and transforming products into value-added products. It is also a cultural and structural change that requires organizations to constantly challenge traditional methods, engage in an experimental team, and be comfortable with flexibility.

In this thesis, theoretical approaches and literature studies related to the general structure and analysis of digital transformation processes are presented in a systematic way. This structure has been established as similar as possible to the structure currently used by PMI in general. In accordance with the PM-BOK (Project Management Body of Knowledge) flow, it started with people and continued with the details of process and work environment. In addition, literature information is given in a way that allows the previous studies on the subject to be followed in the same flow. While trying to support the theoretical framework and current experiences by citing sources as much as possible, it is not intended to be a reference book or source. On the contrary, it would be more accurate to see it as a supporting material for digital transformation projects, as well as the main sources used on project management.

3.1 PEOPLE

In July 2012, the London Symphony Orchestra performed a composition entitled *Transits – Into an Abyss*. One reviewer called it “artistic and delightful”. The event marked as the first time that an elite orchestra had played music composed by a machine.

Above research is not an opinion, actually; it is from Martin Ford’s famous book - *The Rise of the Robots: Technology and the Threat of Mass Unemployment*. The book was earned “Business Book of The Year” award given by a press and a research company. Then, why Project Management Institute (PMI) placed the title “People” in the first

place of their new exam content outline? What are the things behind PMIs' trust on humankind, especially in 2020s while human cannot decide about serious issues in their own – in other words, without getting help from analytics applications?

Aside from the fact that human beings pollute the nature and cannot use the world's resources in a sustainable way, even dragging it towards the end of its life; unfortunately, our lives are not easy at all. These days are not that easy, and when we think of natural disasters, wars and epidemics, we are trying to deal with all of them at the same time.

It is necessary to examine these problems not only with their material but also with their spiritual dimensions. Human beings are such an entity that they constantly multitask, not only when they are at work. For example, we often become what we want the other person to see, not the emotion we feel. We think that when we must decide about our own life, we must consider everything, and everyone involved in our life. Perhaps for all these reasons, we can say that every person is a leader, whether by birth or learning, but successful but mediocre.

3.1.1 Employer Branding

As it is understood from Human Resource Business Partner (HRBP) in corporate offices, “Employer Branding” is a bit virtual definition occurred from some of the governmental regulations related to management of Research and Development (R&D) Centers. But basically, struggles given by companies to hire more talented and developed candidates; in addition to using them for multi-tasking like both Software (SW) development and algorithm researches.

Organizational mission, modern-day employees, business enterprise culture, and the possibilities for boom your company gives bring a ways greater weight than any interesting video games or unfastened snacks. Those center factors of what it's want to paintings at your business enterprise are what humans need to get a feel of earlier than

applying. And the important thing to sharing all these critical records is to construct your agency emblem.

The agency emblem is what allows potential task candidates purchase into what the business enterprise is all about—your culture, humans, and purpose. Your agency emblem efficiently highlights those characteristics that make your company a unique vicinity to paintings, placing you other than the crowd, humanizing the company, and in the end inspiring applicants to use to consideration.

3.1.2 Recruitment

Experts predict that by 2020, the global workforce population will predominantly include younger workers. Millennials will make up 35 percent of the global workforce and Generation Z will account for 24 percent.

To many recruiters, hiring millennials is still a big mystery. In order to attract and recruit this generation, first thing should be understood which industries (Figure 3.1) they are moving to, which they are leaving from, and why?

Figure 3.1: The Top Industries Gaining Millennials According to LinkedIn



Source: LinkedIn (2017).

The research shows that “being visionary” (not only in words but also in practice) is the most attractive thing for employers when payroll regulations and salary are not much

different from each other. So, what kind of digital innovation for recruitment period can show the organizations more visionary?

Publishing the job opening also in the mostly used social/career applications or websites while publishing it into website. And better to allow people apply the job easily with their profile or early prepared resume instead of redirecting them to companies' website career tab and asking many unnecessary questions which many of them already included in their resume or profile information. This will show that organizations are running regulations into most practical way and allowing employees to accomplish real tasks without stressed out of limited time period because of time wasting procedures.

Request to do online test or remote task from applicants. This action will leave "more selective company" effect to job seekers. And HR and technical reviewers will be saved from massy interview counts, so potential employees can enter more details in their low count interviews and select more suitable or talented new mates for the company.

Do more online interviews instead of face to face ones via a mature online interview or conversation tool. A job seeker might live far away from office and even then can apply an open position that not fit him/her entirely, however the company can post another job fitting this applicant wholly later. Applicant will absolutely encounter distance between the office and home for attending a second interview. Thus, to prevent this kind of issues like potential employees might be perfect fit for the company enabling online interview would provide time, reputation and attitude for the company.

3.1.3 Building and Leading a Team

First, it is better to recruit new colleges whose visions are highly matching with the organizational DT vision and strategy. Then, express the strategy, vision, structure etc. The things will affect the project in every step, or all stakeholders should be aware of entire working period for the organization or project. Go from Human Resources to Human Resources Business Partner, and let the team give feedback to a friend not to a

formal employee from another department. Having this approach would positively affect team-members motivation and project efficiency.

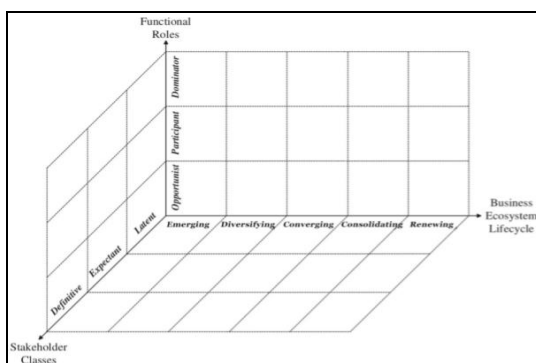
Another issue is that, the company cannot transform by just the bottom line of triangle; there are also mid-level managers have crucial role on the project success. And for those individuals sharing the digitalization vision would never be enough, the company must get their opinions and create a partner vision for this long-term journey. Also planning new trainings about using digital assets in managing, encouraging them to give feedback about missing parts and continuous improvements.

3.1.4 Stakeholder Management

Hein et al. (2006) refer to stakeholders as any group or individual who can affect or is affected by the ecosystem's services. Stakeholders are separated inside and in a roundabout way, yet additionally as indicated by their level of significance, and they are delegated such. Thusly, it tends to be resolved which stakeholder should be spoken with first and the desperation of this.

Lu et al. (2014) have combined elements of previous researches to develop a multi-dimensional framework called the Triple Oscillation Model. As shown in Figure 3.2, it consists of stakeholder classes according to Mitchell et al. (1997), functional roles as brought out by Iansiti and Levien (2004) and business ecosystem lifecycle according to Rong (2011).

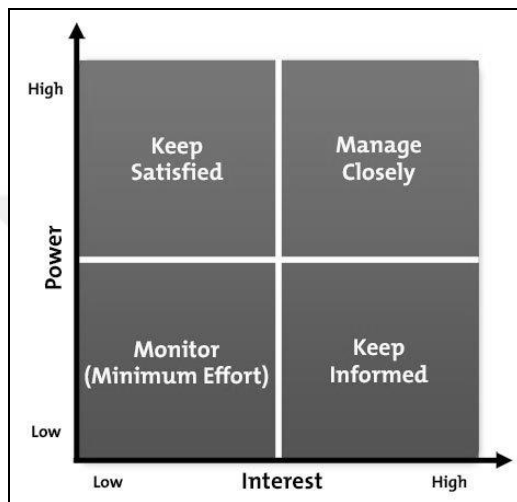
Figure 3.2: Triple Oscillation Model



Source: Framework presented by Lu et al. (2014).

Successfully managing stakeholders is related to communication with fifty percent, in main belief; after getting many trainings and researches. What about other fifty, then? Is it so easy to say just understand the below cart (Figure 3.3) and place stakeholders to the right area?

Figure 3.3: Stakeholder Prioritization



Source: Adapted from Mendelow (1981).

3.1.5 Continuous High-Performance Culture

Firstly, there are two different terms need to be care if a team or organization wants to catch a continuous high-performance culture while doing their daily/target works beside. One of them is project performance and the other one is employee performance as known. However, both have similar processes like evaluating the performance, tracking it continuously and off course steps need to be taken to improve performance.

Even government agencies started to evaluate employee performance nowadays, and some of them make it mandatory for companies and agencies belong to themselves. Many companies, including locals and internationals, are distributing somewhat bonuses and gives salary increase regard to the results of these evaluations. And there are various ideas about the criteria list take in charge while judging team members' performances like for communication talent, relationship management, work

prioritization capabilities, knowledge sharing, self-improvement and other ones specifically related to job and position of people. Criteria list belong to each one of those groups or categories should be clearly defined and accepted by the staff.

Also, scaling is another consequence for performance evaluation, and requires sensitiveness as much as criteria group mentioned above. E.g. when you define high grades for nearly impossible contributions or outputs, members will be pessimist to get well grades and good money and/or benefits. This will be directly affecting their performances as expected.

Barr (2015), the author two books devoted to project performance measurement area, outputs the seven measures essential for this topic as in the next:

a. Direct Impact (Project KPI #1)

So the size of this impact on a business performance measure is a measure of a project's success. It's the size of the difference between the level of performance before the project's start time, and the level after the project's end time. You can easily measure the direct impact of a project with an XmR chart of the business performance measure the project aims to improve.

b. Bottom Line Impact & ROI (Project KPI #2 & #3)

A project won't be successful if the cost of doing it was not sufficiently lower than the value of the impact. So we need two other important measures about financial impact, like costs saved or income generated, and return on investment (ROI), which is the cost of the project relative to the financial impact.

c. On-time & On-budget (Project KPI #4 & #5)

Measures can also help us manage the project while we're implementing it. A well-managed project is more likely to have a big impact and big ROI. This is where the most commonly used measures of project performance come in: on-time and on-budget. And these are measured at regular milestones throughout the project. But they only make sense if we don't change the goal posts.

d. Stakeholder Support & Engagement (Project KPI #6 & #7)

Support for our project might also be important. Stakeholder perception of value can be measured to monitor this, in part. But a more direct measure of support is the amount of stakeholder participation in project tasks and events.

3.1.6 Persevere

In business, persistence implies inclining forward, strolling one foot after the other into the chill pioneering wind until you've arrived at your achievements and in the long run accomplished your objective.

Numerous individuals come up short since they surrender whenever there's any hint of trouble. Then again, pretty much every example of overcoming adversity incorporates a component of perseverance and assurance.

In other words, “perseverance” is tied in with seeking after a more significant standard and building up a capacity to manage difficulties and disappointment in transit. Persisting is a mix of outlook and propensity. Precisely it's tied in with having the endurance to really continue onward and doing the correct things. Intellectually it's tied in with realizing where to go and how to manage difficulties right. Tirelessness alone won't make you effective, however without it you will never go anyplace, and with it you can go farther than a great many people.

Continuing is tied in with defining the correct objective, having the correct outlook and doing the correct things constantly. Additionally, can be also said the term means to continue in a course of action even in the face of difficulty or with little or no prospect of success.

3.2 PROCESS

In his famous book – Life 3.0: Being Human in The Age of Artificial Intelligence, Tegmark (2019) dividing the process of life into three steps listed in the next page:

- i. Basic biological (Life 1.0)
- ii. Cultural (Life 2.0)
- iii. Technological (Life 3.0)

What can be understood from his book is that everything can be divided into process. Even to make things easier, more manageable or more practicable for the team means that if life can be divided to processes, processing the business units could give companies much more potential areas to keep leadership, exploring new fields or keeping employees happy with high efficiency and so on. Basically process is a series of actions (task handling) or steps taken in order to achieve a particular end.

Process is so powerful term that even a “Process-based Management” model created for managing projects. And accepted by even PMI to create its main flow for handling a project. And already adopted by the vast majority of project professionals, just like CPUs inside our personal PC exists.

We all have some knowledge about process models including waterfall, iterative/incremental delivery, agile approaches and etc. Main concern is choosing the right approach to a particular project, and it have to be same when project related to digital transformation also. Because major failures are referring the planning phase in general when a deeply RCA (Root Cause Analysis) made by project stackholders. Main elements while choosing best model are:

- i. Complexity,
- ii. Uncertainty,
- iii. Schedule,
- iv. Structure,
- v. Flexibility/scalability,
- vi. Goals (Project Focus),
- vii. And resources.

Project Management Body of Knowledge was written by the Project Management Institute, is a collection of five process groups including initiating, planning, executing, monitoring (controlling) and closure. The PRINCE2 defines 7 stages to complete

processes by relying on their seven principles and seven roles. There are several other organizations also focusing on methods or principles to research and match with company/office approach to digitalization projects, however in this thesis better to outline break points while running processes in 5/7 or more stages.

3.2.1 Kickoff (Takeover)

The same digital transformation projects, applied in specific businesses, cannot be applied to another business since they are generally based on an organization's specific requirements and key elements, anyway a lot of common concepts can be set by the PMO (project management office) or program managers as expressed by Kobal (2019):

- i. Customer experience by using analytical tools to better understand customer needs and to drive their behavior,
- ii. Operational agility with the help of business process digitalization,
- iii. Culture and leadership based on greater inclusion and the value of a diverse workforce,
- iv. Workforce enablement based on collaboration and networking tools,
- v. Digital technology integration by using proven digital technologies to automatize and digitalize existing and new business processes and systems.

Projects for digital transformation might have a variety of objectives, but they frequently lack a thorough understanding of the current condition of processes or systems. Business process analysis and the description and documentation of existing business processes and systems are required to understand the current status of processes and systems. Later DT operations will be built on the foundation of this analysis.

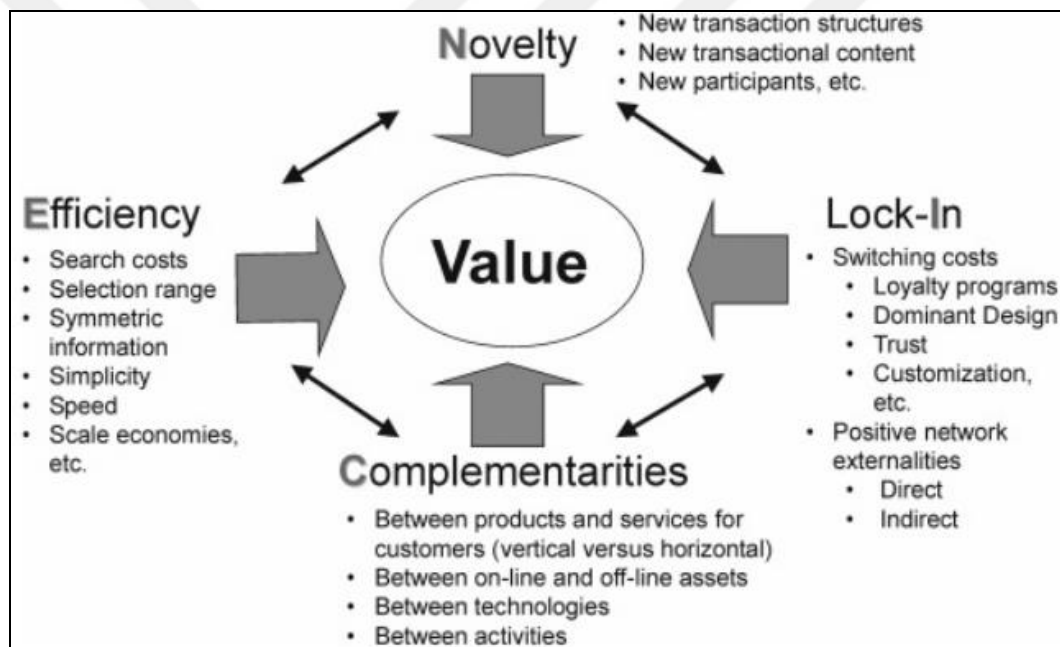
And alternatively, PMs could not be starting these kinds of projects from stretch to end. To give necessary mission and vision to team which are taken from management strategical or project stakeholders decisions all digital transformation project should be

start with proper kickoff meeting to explain all project members what initial requests are, aim of project and expectations.

3.2.2 Business Value Generation

Figure 3.4 depicts the four sources of value creation in e-business that emerged from the data analysis. The term ‘value’ refers to the total value created in e-business transactions regardless of whether it is the firm, the customer, or any other participant in the transaction who appropriates that value (Amit and Zott 2001, pp. 493–520).

Figure 3.4: Value Creation Ecosystem in E-Business



Source: Amit and Zott (2001).

As Kennedy (1963) said: “There are risks and costs to action. But they are far less than the long range risks of comfortable inaction”.

It is better for firms to understand their sources (and attributes of these sources) to create a business value in market. But it should not be based on ongoing situations or limited to traditional structures as well, it has to contain future concepts, technologic updates, changes on demands and resources also. In addition, a deeply analyze needed

to understand relationships of sources before creating a value creation model most suitable for their business, and direct project by referring those factors in advance.

For instance, if a group of people running a software/IT project; they should be caring of quality, performance, security, availability, functionality and reliability related concerns in each phase/step of the project. Even, a term called VDD (Value-driven design), which is based on microeconomics actually, goes viral in system engineering.

3.2.3 Communication

Business communication skills for individuals generally divided into four titles as networking, presentations, meetings and negotiations. According to a Willis Towers Watson (WTW) study carried out in 2009, companies that effectively communicated their value proposition to their staff, were generating 47% higher total returns to shareholders compared to organizations that hadn't made internal engagement a priority. Unlike in 2009 when the Willis Towers Watson survey was carried out, there are now an incredible selection of platforms to help internal communication.

- i. Email marketing systems can help you push your message and success stories out to staff,
- ii. An internal blog updated with the ups and downs of the process can engage employees and provide insight into how the process can help their department,
- iii. Setting up groups and message boards in Slack can support communication across departments,
- iv. Creating quick polls and surveys can encourage feedback,
- v. Reviewing data and using analytics to learn what areas your co-workers are engaging with helps to continuously improve the process.

3.2.4 Risk Management

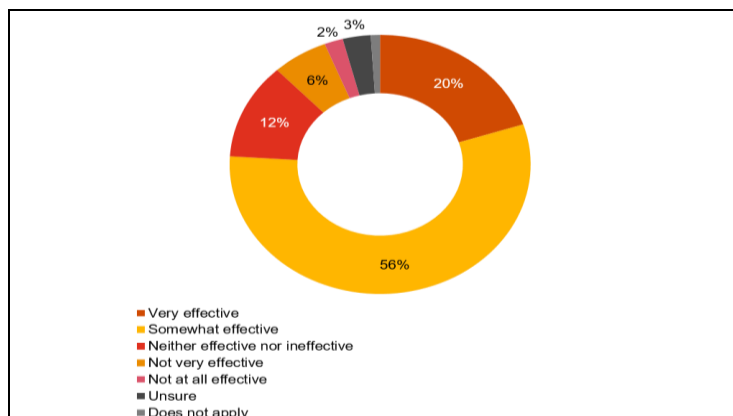
There are two popular definitions of RM. According to PMI (2016): it is the systematic process of identifying, analyzing, and responding to project risk. It includes maximizing

the probability and consequences of positive events and minimizing the probability and consequences of adverse events to project objectives. And for APM (2012), RM is a process whereby decisions are made to accept known or assessed risks and/or the implementation of actions to reduce the consequences or probability of occurrence.

As Lahmann (2019) explains based on Figure 3.5:

“PwC 2019 Risk in Review Study outlines that 76% of business leaders believe that the way their organization is managing risks on its digital journey is either very effective (20%) or at least somewhat effective (56%). However, it is striking that 48% of the respondents are willing to take more risks than in the past as a result of their organization’s digital roadmap. Only 9% make a clear statement that they would like to reduce risk in response. For the 48% of respondents, an appropriate method for managing their potentially new risk will be most important if they want to increase their risk exposure. However, with respect to project management we have to classify these risk takers as ‘non-believers’ and ‘believers’. ‘Non-believers’ generally deny that the potential impact of project risk management can be determined, once it has been applied. ‘Believers’, on the other hand, are convinced that risk management has to be done by the book. Reality shows that it is a bit of both”.

Figure 3.5: PwC 2019 Risk in Review Study Results



Source: PwC Global Risk, Internal Audit and Compliance Survey (2019).

Managing risk is now easier with a number of RPA investments, visualized data, ERP platforms, and of course audit / risk management software. So what are the risks when

digitizing? There are around 200 risks in DT/DX projects including below 4 important ones:

- i. Top management's support to the project,
- ii. Keeping the project purpose in the background for the employees,
- iii. Remaining release processes in operation,
- iv. Failure to effectively control the prepared products or platforms by legal / consultancy teams on elements such as personal privacy, data management, cyber security.

3.2.5 Budget

The vast majority of projects is not completed on budget or in time. Labor, scope, planning, financing, delays and underestimation of whole project are also other relative reasons to take project to the failure also. That's why PM should focus on each of these sub-elements while estimating the budget. It's better not to forget that many digitalization projects are failing because of remaining releases of the operations and outputs as outlined in prior subject.

In 2004, Standish Group International –an independent IT research consultancy company established in 1985 in the United States, known for its reports on information systems implementation projects in the public and private sectors– outlined that 53 percent of software projects are failed because of delays and exceeding the allocated budget; again 18% of the projects were not successfully finished because of insufficient risk factor analysis made in planning phase. (Kwan and Leung 2010)

There are several tools or programs used by project managers to estimate the total cost of a project. Also, there should be a project budget template includes a detailed estimate of all costs that are likely to be incurred before the project is completed, created by PMs. Large commercial projects can have project budget planning documents have detailed in several aspects. It is better to co-operate with people have financial skills in these kinds of projects.

3.2.6 Resources

A project manager that fails to allocate project resources is like a carpenter without a hammer. (Hartney 2017) That's why estimating task resources is an integral step in project planning. It also happens to be one of the most fundamental aspects of project management, one of the steps that the project manager utilizes on a day to day basis.

It is impossible for any project to be run without access to the necessary resources. These resources can include money, people, time, and the physical availability of goods such as servers, software, and space and power in the data centre. Each resource must be approved by the relevant business unit to enable delivery of project outcomes. (PMI 2013)

3.2.7 Scheduling

The project to develop the Airbus A380 aircraft was launched in 2000. When it was during its assembly stage in 2006, a pre-assembled wiring harness produced in Germany which did not fit into the airframe led to a two-year delay in production, cancellation of deliveries and a significant increase in cost (Shore 2008).

Time management planning is also a key component of effective project management. This enables the project manager to set a realistic timeline for each project team member to complete their assigned tasks, whilst ensuring the project continues as smoothly as possible and keeps to an agreed deadline.

Additionally, a project team typically exists for a fixed period of time. During this time, people will join and leave for a multitude of reasons. Consequently, the project manager has to deal with the knock-on effects that such transitions have on the team. This is achieved through using project scheduling tools which incorporate some element of adaptability to address unforeseen delays.

3.2.8 Scope, Changes, Issues and Roadmap Definition

Project Scope Management involves ensuring all the required work and only the required work necessary to complete the project is accomplished (PMI 2004, p103). Any work that does not support the needs of the project is Out of Scope and should not be performed. This concept seems obvious, but unfortunately only 29% of projects are completed successfully. This means 71% of projects either fail outright or are “challenged” - completed over budget, behind schedule, or deliver fewer features and functions than the Customer expected (Standish Group 2004).

The top 4 factors associated with project failures are:

- i. Poor End-User / Customer Involvement
- ii. Poor Executive Management Support
- iii. Improper Planning
- iv. Unclear Statements of Requirements

3.2.9 Handover or Closure

The effective closure of the project is also key to any project’s success. Knowledge of the closure criteria and the processes to be used when closing a project are key. Knowing when to ‘pull the plug’ is also something that is regularly misunderstood or not accepted by project managers. (PMI 2013) A project closure event requires that learnings are captured and incorporated into a continuous improvement process, in line with best practice.

However, project handover does not always mean the completion of the project. For this reason, project delivery can be made between the project manager and three business people in below:

- a. Another project manager
- b. Integration manager
- c. Operational manager

As can be understood from the people mentioned above, the project may be in three different stages at this stage; the project is finished, it continues by being transferred to another team or person, it is finished, but it requires integration before it is put into use. In any case, this stage is very important and must be followed seriously in order to make the project progress successfully or to make a good impression. A detailed handover plan should be made, final checks should be made on a checklist at the end of the period and this should be included in the transfer report. Thus, the recipient can make their own checks by going on the same checklist; he/she can also review the list her/himself and give feedback on this issue, if there are any missing points.

3.3 BUSINESS ENVIRONMENT

Business environment is a fairly general term with a wide spectrum of synonyms and parallel expressions that are frequently used. Sources, which engage in business competition, specify the business environment as general external conditions where any business implements its activities. As described by Grublova (2001):

“Business environment must be perceived as a set of external factors having impact on the economic position of a company, motivation and behavior of individual entrepreneurial subjects. The business environment is made up by a wide spectrum of conditions for doing business in the area of legislation, institutional infrastructure and market operations”.

Instead of some professionals who are not accepting as the same thing the both business environment” and “market environment” terms. Better to focus in Business Environment in this study or encounter it as the same thing with the market environment. Because the seniors who are not accepting this engagement, mainly relies on the business dynamics unlike project basics.

As Sharan Aggarwal said: “A business is like a plant. It needs the correct environment to grow. Because it has grown significantly somewhere else, does not mean that your environment can sustain it equally well”.

3.3.1 Compliance

The term “compliance” can be defined as the act of adhering to or conforming with a law, rule, demand, or request. In a business environment, conforming to the laws, regulations, rules and policies is the part of business operations often referred to as "corporate compliance".

However, most of the young professionals have confusion about the relationship between this term and ethics. Deborah Skinner, Chief Administration Officer, F&M Bank of Central California and Chair of the Western Bankers Association, expressing the difference between these two terms as in below at her speech, given to Bruce Weinstein from Forbes:

“You can be compliant without being ethical. We strive for both. We want to do the right thing because it's the right thing to do. By doing the right thing and hitting all the rules for compliance, then not only are you doing right by your customers and the consumers, but you're also not going to get hit with some kind of enforcement action that's going to prevent you from doing what you want to do with your business. If banks are found to be not in compliance with the various laws and regulations, then they can face penalties. Some of those penalties can be: if you want to open another branch, you're not able to, and if you want to acquire another entity, you can't until you've cleaned up whatever your compliance issues are. We don't want to find ourselves in that situation, so the easiest way to not find yourself in that situation is to be compliant”.

And Weinstein(2019), summarizing the ideas taken from various business acumen with the three items in his article about the difference between compliance and ethics:

a. If you're in compliance and/or ethics, it's worth having a clear understanding of what each department or program is about, how they're similar and how they differ. Then make sure that everyone in the organization understands these similarities and differences and what this means for their own roles.

b. If you're not in compliance or ethics, find out how the company defines each area and what this means for you. Whether you want to move up in the organization or simply remain gainfully employed there, you will put yourself in good stead if you know the difference between ethics and compliance as your company defines them.

c. No matter how your company views compliance and ethics, what its code of conduct is or whether you work within or outside of the compliance and ethics programs, it's not enough to ask, "What do laws, regulations or policies require of me?" The follow-up question should always be, "What is the right thing to do".

3.3.2 Evaluation

There are several Techniques of Assessing Business Environment like PEST/PESTEL, SWOT, Porter's 5 Forces Model, Value Chain Analysis and Life Cycle Assessment; and different classifications on this theme like internal – external environment or macro – micro (marketing) factors. For instance: if your options are “money”, “freedom in creativity” and “self-improvement opportunities” for the question like “What are the main elements that allows you to feel good and relax at work?” means that research is focusing in internal environment. Otherwise, options can be one of “branding budget”, “competitors”, “legal restrictions”, and etc. if the researchers are focusing on external environmental factors. These are also can be called as macro and micro environment as described in the entry. Nowadays in addition to those exact factors, professionals believe that here is an also a grey one named as marketing factors having factors that semi-controllable like strategic alliances, customers, civil society, suppliers, industry regulators and so on.

PESTEL investigation model, otherwise called full scale climate examination, is a viable methodology for dissecting the full-scale climate. It can break down the outside climate, yet additionally recognize all powers that affect the association. It is a technique for exploring the outer impact variables of the association. Each letter speaks to a factor, which can be isolated into 6 central point: political elements (Political), monetary variables (Economic), social components (Social), specialized elements or

tools (Technological), energy saving and any kind of pollution (Environmental) and governmental issues (Legal).

SWOT is a sort of investigation whose intention is not to inspect, but instead to sum up and present the circumstance. In the primary (qualities and shortcomings) segment, the qualities and shortcomings of the organization are seen as an inner review, while in the subsequent part (openings and dangers), the effect that the organization or foundation may have outwardly world (different organizations, government, and so on) Rather than uncovering the future circumstance, it uncovers what the current circumstance is and figures out what may occur later on in like manner. Correspondence control must be assessed along with correspondence arranging and situating circumstances to comprehend its significance completely.

Porter's five powers model (P5FM) is utilized to investigate the business climate to assess the appeal and benefit of an industry. Porter's five powers model was proposed by Michael Porter in the middle of 1980s. He accepts that there are five fundamental serious powers in an industry, which are the opposition between existing rivals in a similar industry, the danger of likely participants, the danger of substitutes, the haggling intensity of providers, and the dealing intensity of purchasers.

Life Cycle Assessment of an item is a technique for evaluating the natural effect of an item at all phases of its life cycle, from crude material extraction to creation, use, fix and support, transportation at all stages, just as removal or reusing waste. As ISO 14001 declares, "The organization shall establish a procedure to identify environmental aspects and determine those aspects that have or can have a significant impact to the environment". You ought to likewise keep a register of the ecological viewpoints, which is stayed up with the latest and considers arranged new or changed exercises, items, or administrations.

All things considered, computerized innovation is fundamentally to take things and making them virtual; like the things that we are doing with papers and pencils with the manual endeavors like visiting an administration office to deal with some administrative

issues. As a matter of fact, it is a crucial change for organizations to get by in today's business climate after immense improvement in the product, gadgets and versatile correspondence. Furthermore, it is perhaps not simply a change. "It is a mutation" as expressed by Sebastien Bazin who is the CEO of Accord Hotels. Perhaps it isn't just about the business likewise, it impacts all the components of individuals' lives particularly when notice the new Top 10 rundown having tech companies over the ones working in oil area. In this way, pioneers likewise ought to defeat the challenges and vulnerability while each individual is managing those ones in any event, attempting to locate another accomplice or booking an inn with a moderate cost. The one major and not an astonishing thing is administrators can likewise utilize innovation to maintain their business or activities - even about digitalization - under these upsetting new things like utilizing AI to deciding, informing framework modules to spare security, and cloud if gets hard to locate another IT staff.

4. OPEN A PLACE FOR A TECH GIANT IN SAAS BUSINESS

Nowadays, cloud computing is much more stable and proven than ten years ago; so much so that many large and small companies have moved even their most critical assets to the cloud. Moreover, it offers the most logical options that can be useful to catch up with your competitors in the way of digitalization. SaaS, on the other hand, is like giving automatic payment instructions for some of your tax debts or invoices while you are already there in a bank branch where you trust to keep your money, as well as buying insurance, taking a new investment step or changing your accountant's business with a set of products that this bank offers for you. Moreover, it is very easy to integrate and maintained largely by the cloud provider. Their convenience is not limited to this either, when you need any assistance with your own admin operations in the foreground, the cloud / product provider's advisor will probably be a click or a phone call away. Moreover, these services are now offered not only to small entrepreneurs that you fear not getting support in the future, but also to some companies that have proven themselves in this field, which we can call technology giants.

One of them is Huawei. The company's R&D center in Turkey has already started to offer a set of products in SaaS form to the end user in 2020. While some of them are software already owned by the company, some of them were written completely in line with today's needs. It has been tested by many beta users and internal units of the company before it is offered to the end user, and partnerships have been established with local cloud providers for regions that do not have access to Huawei Cloud. And academic interview made about this hot topic including producer and customers. Interview is not just only covering companys' SaaS products, it is also touching to digitalization, projects may be handled by practical tasks like SaaS product owning, and new business environment after pandemic. Here is the interview with the company's R&D director Mr. Haibo (in Latin: Hussein Hai), HRBP leader Şerife Şeyda Tuncer and Infonal Payroll and Personal Affairs Manager Ayşenur Altun about HTRDC's SaaS adventure, compliance with today's conditions and strategies.

When asked how innovation can help businesses support their business in today's volatile business environment, Mr. Haibo said:

“DT is hot topic! And innovation is critical for SMEs, but it as a real challenge for big companies”.

Huawei focuses on ICT as a specific area and provides some telecom solutions, smart devices, software, cloud and AI solutions to support businesses to facilitate innovation. For example, after 4G, many innovations have been made in video and mobile content.

“World is changing and innovation should be divided layer by layer. As Huawei, we are constructing highways; and the customers building cars. Building which car depends on themselves, but we should support either Mercedes or any others”.

Then, we continued with the SaaS solutions provided by HTRDC with Mr. Haibo; and tried to understand that how are they supporting the new work from home (WFH) principles based on examples. Regarding to the rest of conversation, it is understood that SaaS solutions provided by Huawei are not specialized for work from home principle actually. But somehow they support people to be more convenient and flexible off course. For instance, online coding platform provided by R&D center is also supporting all candidates to have an exam remotely. Previously, candidates were coming to office for taking the exam from PC or paper maybe; but now companies can use it for remote recruitment.

“Online is important not just for WFH, also for every condition”.

These online solutions actually designed for the virtualization in every step of life in the beginning; but after pandemic, everybody understood that they are the best fits for current challenging environment.

Another example would be WeFocus. Managers or HRBP can come across with employees every day in the old routine and make a judgment about their situation; if

necessary, they could communicate with them one-on-one and take action. However, such a situation is unfortunately not possible nowadays, due to the pandemic. Thanks to the announcements, surveys and feedback they receive on WeFocus; this communication disconnection can be minimized. HTRDC was the first to use this product.

In the continuation of the speech, we tried to examine the customer feedback and demands that guide the SaaS strategies of both our director and the R&D center as a leader in the sector.

SaaS production or development is a really challenging process, because there are a lot of people working in this field. Even some individual ventures are the competitors, and as a team you have to make a difference to show yourself in front of customers.

“We prefer to take more challenging tasks like putting AI algorithms into each product”.

And try these solutions at first internally to get feedbacks from different people or departments to outline pain points and improvement areas. So, initial borders of the SaaS products were formed.

“Collected feedbacks from customers and beta users to redefine categories and borders”.

When trying to learn the SaaS strategies of the R&D center of the pandemic impact on social or business life, through examples or sensations, Mr. Haibo replied as follows and detailed his personal expectations for the days ahead:

“We were lucky about pandemic effect on SaaS, off course it support ideas to benefit from SaaS solutions”.

It should be unfortunately stated that the pandemic had very serious negative effects for other sectors. But people also learned a lesson from this and the online transition in

every area was accelerated. In addition to the working principles, this change includes the way of business, education and even healthcare are made; and Mr. Haibo added:

“At first, I was believing into returning back to normal; but the virus still continue to evolving unfortunately. And as I read from some of the papers written by scholars in health faculties, some of the vaccines seem to be not so protective against those changes. Maybe most of the people will return to office next year; but ones who owned a new house from 2nd or even 3rd tier cities of China, will not come back probably”.

Pandemic situations changed many minds belong to business people, and companies started to hire more software engineers to adopt virtual operations into their businesses. So, there is a huge demand on recruiting tech people. Thanks to being a technology company, Huawei have already enough resource and more than enough knowledge on the software domain.

“In China, all of the top universities started to record each course; and anyone from public can view any lesson belong to any course”.

The following answers were received to questions such as what are the future plans of your organizations regarding the SaaS product range and sales strategies, what factors will be encountered while shaping these strategies:

“We had chosen to build small teams first, then grown with the customer engagement and feedbacks. In the end, organization of the HTRDC (Huawei Turkey Research and Development Center) has changed”.

Now, there is a unified sales team working closely with the SaaS teams, different from rep-office marketing department. Probably, this team will be larger in parallel to SaaS technical group.

Finally, his thoughts on the thesis topic were taken. And he was asked whether he is an enthusiast who believes digitalization is a vision, or one of the practical leaders who believe in embarking on new digital transformation projects to catch the train.

“Digitalization is the future”.

Digitalization or virtualization was one of the topic in Chinese universities at a time when Hussein Hai was attending to lessons (between 2001 and 2005). But, not seen so real or closer enough to that day’s business or social life from the student’s side. To put it into a company’s vision, those years were suitable; however it is a need now and professionals should start to adopt it into their business as soon as possible.

“Not just changing minds or business, cultures should evolve together with virtualization”.

If someone is talking about technology, he/she should has hands on. Being practical is already today’s philosophy. Anyone cannot deal with technology without getting hands dirty.

“Only mobile phone is enough for Chinese to survive in daily life”.

All the verticals have some different background, and have some differences while adopting technology. Anyway, all of them should work on it combining both technical and operational units.

Then similar questions asked to Ayşenur Altun working in Infonol which a company using SaaS products of Huawei. Due to today's conditions, Mrs. Altun believed that they are in a process where organizations have started to carry out all processes in the digital environment. That's why using products that support processes like wefocus helps their business a lot and speeds up the work, as well as providing support and solutions to known problems. These solutions help them to understand the problems of employees more quickly and clearly, making them happier and increasing loyalty. Using SaaS solutions has been developed in a more optional and facilitating way, such as getting data in a more understandable and clear way, allowing problems to be resolved faster.

“We aim for maximum digitalization”.

And she is expressing that they have semially changed working style in respect to customers new way of working in pandemic days. As she, they had to deal with remote working negative effects and understand best practices about WFH. With SaaS products it would be better to digitize in a short time period and start to use its benefits as soon as possible.

Customer and employee needs had been their important inputs to go digital with SaaS solutions. Infonal is really lucky to be informed about SaaS solutions of Huawei, like WeFocus.

About thesis subject, Mrs. Altun expressed her ideas with below sentences:

“At first, I was believing into returning back to normal; but the virus still continue to evolving unfortunately. And as I read from some of the papers written by scholars in health faculties, some of the vaccines seem to be not so protective against those changes. Maybe most of the people will return to office next year; but ones who owned a new house from 2nd or even 3rd tier cities of China, will not come back probably”.

Finally Mrs. Tuncers’ opinions taken about thesis subject and academic interview questions after examples are focused on the Wefocus which is a SaaS product of the company, focusing on employee loyalty and satisfaction. As a HRBP working for a fast-paced company like Huawei, Şeyda Tuncer believed that they have to deal with multiple operational tasks on a daily basis, and again managers have to double check each of the processes in order to ensure zero-mistake implementations are made. Innovative solutions can help HR to automate each step in daily routined and ensure high quality output within a limited time and effort. She expressed that they can easily track and assess employees and even candidates in current abnormal situations via their valuable feedback. They are able to address the shortcomings and provide solution with efficient results, thanks to SaaS applications allow organizations to digitalize in a short time with the quick projects managed with a practical manner.

5. CONCLUSION AND RECOMMENDATIONS

As mentioned at the beginning, this study tried to evaluate digital transformation as a project by adhering to the principles of project management in my thesis. Study was endeavoring to give an explanation of how a practical digital transformation project management can be implemented by stating which points should be given extra attention. So much so that many technology producers have separated their corporate sales channels today, unlike the traditional structure. Through these channels, solutions such as SaaS, Cloud Services, IoT/IIoT (Industrial IoT) and Cyber Security are offered to companies that manufacture end-user products or provide user services.

As a summary of the academic interviews, the participants generally gave fresh parallel answers. It is believed that a practical transformation with the help of quick and easy solutions such as SaaS will benefit companies in this way. In this context, a study to be conducted with academicians and consultants can eliminate the deficiencies of the topics covered and the support given to the organizations with this thesis, if any, by revealing the points that should not be ignored in the theoretical principles.

Although a very specific field has been chosen as the subject, it is clear that a study has been made in the right field thanks to the literature review and the difficulties encountered in the next stages. Because although there are many resources under the titles such as digital transformation, industry 4.0, project management; The number of resources that offer them by blending them with each other is really very few.

Due to the scarcity of resources mentioned above, it has been tried to benefit greatly from a number of event analyzes that have already been made for other purposes for most of the inferences made. Considering this point of view, researchers can conduct more case analysis directly on the subject of this thesis, as well as conduct a deeper analysis study on any sub-title of the thesis.

In addition to all these, it is possible to conduct a study as the antithesis of this thesis. In this case, outputs such as how a revision should be made on the vision and missions of the companies can be given. It is obvious that all kinds of stakeholders of the companies should undergo a similar revision.

During such a study, it can be mentioned about the failures experienced while trying to realize the digital transformation through projects. In fact, it is obvious that such a study will not only support the thesis, but also have the characteristics of a number of lessons that should be considered for those who are interested in this thesis.

In addition to all this, subsequent researchers can also work on the digitization of project management. In this study, this subject has been partially addressed, and it has not been focused on. Where deemed necessary, it is sufficient to refer to the printed examples and some recommendations are given. In addition to the research to be done, it is also possible to create a project related to this subject. It can be a new generation project management tool or a specific application targeting digitalization projects.

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