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DIGITAL PROJECT TEAM CULTURE WILL INFLUENCE THE REQUIREMENTS ON PROJECT MANAGEMENT METHODS

Abstract:

In recent years, the field of digitalisation increased in organisations challenging all business processes. Achieving globalisation meant rapid changes using new technologies, evolving businesses and a highly competitive environment. Investing in projects of all kinds, this situation challenged the profession due to the high transformation and adaptation of requirements. The industry released more and more digital, virtual and technological developments and projects been launched constantly. To keep up to this speed all business managers had to use more and more digital tools which already had an impact on projects and project management.

The pandemic, since 2020 and the related lockdowns, changed business behaviours on a worldwide basis. Projects had to adapt immediately to work only remotely as like all other businesses and additionally the areas of education had to change to distance learning. Inevitable after these 2 years there is a focus on the challenges and benefits on this virtual project work and it has to be defined how it will work with existing project management methods using the latest digital tools where now everybody is familiar with.

The questions are rising; 'Which additional team skills have been gained during the pandemic?' 'What are the key factors to lead / run projects successfully in 2025+?' and 'How do Project Management Methods have to be adjusted?'

The paper will not provide a new project management method as such but will outline a new combined approach resulting in mixed methods and the use of digital tools. This was experienced in higher education during the pandemic and reflected in the impact on project management. Which will lead to a digital transformation in communication and documentation for future projects. Questionnaires have been executed as qualitative research method as well as literature research conducted.

Keywords:

Digital Transformation, Project Management Methods, Traditional Project Management, Agile Project Management, Project Based Learning, Communication, Higher Education Learning, Virtual Team Lead

1.   Introduction and Relevance

The world is constantly changing, from the first steps of globalization and networks at the beginning of the century to a highly technological and digital world, all connected but diverse and in a permanent digital transformation process. Business have to adapt on a regular basis, so innovative new solutions are required in all areas. All companies are challenged due to the pandemic with Covid-19 and the war in the Ukraine is impacting supply chains, the availably of resources and raw material. This uncertain global business environment in which everything is rebuilding and reinventing itself, businesses have to adapt very flexible and quickly. The companies have to mature their ability to activate the value of delivery, reduce risk and improve the speed to market as well as controlling costs and resources. (cf. Langley, 2018)

The number of projects is increasing rapidly in every organization where it is recognized that the skills of strategic thinking and digital transformation are absolutely essential. As all companies are impacted by digital disruption so are projects. Project managers are ongoingly challenged even before the shutdown. During the pandemic in addition to the technological force the virtual / remote force been added to a very complex environment. The provocation for project managers is not just to remain having great leadership, management, business and strategic skills, it is expected to add digital and technical skill to almost all project fields. With all the changes project managers need to keep up with changing technology and remain the ability to learn. (cf. Langley, 2018)

The quality of the enormous amount of available information differ and it gets more important to generate the own toolset of methods and supporting software to be able to keep up to speed. Most projects will have new business and technological areas and project management knowledge have to be used which has not been generated before. Agile methods been the answer to challenge very strictly, predictable projects at the beginning of the century but starting with 2020 ties, more dimension been added. Jobs differ and additional versatile competences and completely new disciplines arise. (cf. Fadel et al., 2017, p.2f)

While the term Industry 4.0 was introduced smoothly, challenging business with automation, cyber physical business and digital transformation, the pandemic with Covid-19 hit the world and caused disruption in all sectors.

So, the ongoing shift between human, machines, automation and algorithms might displace a lot of jobs in the near future. All companies which neglected the change before, are now forced to act according to any kind of digital transformation. After the pandemic and with the war in the Ukraine the business in Europe hit constant challenges and specifically project managers need to be flexible but very mature to prepare the businesses for an unknown future. People gained a quantum transition using remotely digital tools working in a virtual environment for many months. The new skills of all levels of project members have to be considered when rethinking the project management methods, structures and tools. (cf. Llopis, 2020)

The main aim of this paper is to investigate what is required from project managers to run projects successfully. Which tools would be helpful and which additional skills are available at all project

members considering their specific digital capabilities with the boost of the pandemic increasing the use of digital infrastructure.

The overall **key research questions** for this paper are:

'Which additional team skills have been gained during the pandemic?'

'What are the key factors to lead / run projects successfully in 2025+?' and

'How do Project Management Methods have to be adjusted?'

Supporting these questions hypotheses have been defined which will be evaluated in a literature research and facilitated by questionnaires as a qualitative research method.

Limitations: Geographically this research is limited to Western Europe especially to the southern part of Germany, Bavaria and Tirol in Austria. While the literature research focus on Europe the interviews focus on the experience of project managers mainly in the Austrian and Bavarian area, where the project managers gained their experience and the rules related to the pandemic situation are similar and comparable. Due to the actuality of the topic the research considers mainly the last five years taking the timeframe of the pandemic into account.

2. Terms and Definitions

Key terms are clearly stated and defined for the purpose of this paper. Sometimes notions are used differently therefore this chapter should avoid confusions.

Pandemic COVID-19; the Coronavirus disease 2019 also known as Coronavirus or COVID-19 is a disease which is caused by the coronavirus (SARS-CoV-2). It is a highly contaminous infection, where mainly elderly and sick people had firstly a bad progression given there is no cure and medication and the vaccine was developed and at the market mid-2021. Due to the high infection rate people had to remain in quarantine; schools and businesses shout down for many weeks. So far there have been four waves in mid Europe. All businesses had to adapt to the various rules and situations at work. Working 100% on site to 100% remotely from home all scenarios been hit.

Digitalization / **Digital Transformation** as well as **Industry 4.0**, are terms which have been founded at the Hanover Fair in 2011. Starting with the focus on highly automated productions via smart products to AR/ VR and artificial intelligence the trend transferred to all businesses. Global players should have a digital transformation approach. With the pandemic shut down, most businesses experience a giant boost towards the use of digital tools working remotely. For the purpose of this paper with the focus on project management, digital transformation is mainly

representing the training of people on using supporting digital tools for communication and documentation.

Project Management (PM), follows structured methods to run projects. First a project has to be defined.".,it is a sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to a specification." (Wysocki, 2009, p. 6). Project Managers need to orchestrate all project members to achieve the common goal of the project. To structure the project from the very beginning, a *project management methodology* is needed giving everybody a clear direction and approach. Therefore, the foundation of the project, what and how will you do it and how to control success will have to be answered to find the right methodology.

Many different **Project Management Methods / Approaches** have been developed ever since projects been introduced to business in the middle of the 20th century. Following the project life cycle model many different ones are possible. For the purpose of this paper the definition of Wysocki will be used, firstly building categories according to the two variables goal and solution. (cf. Wysocki, 2009, p. 299 ff).
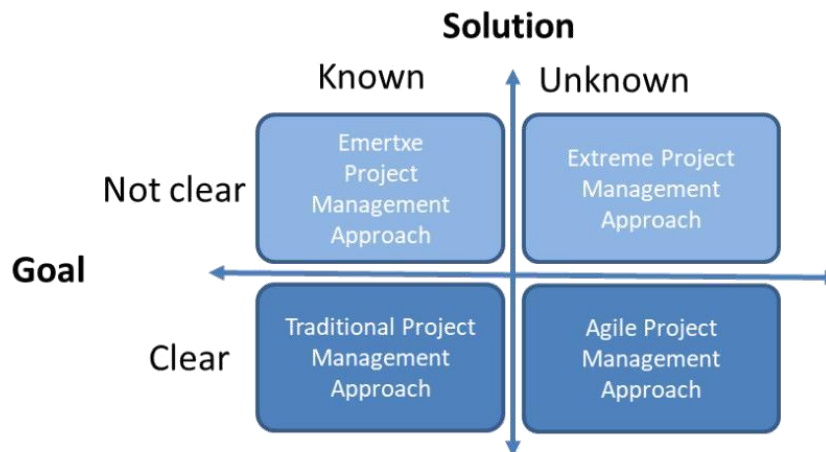

Figure 1: Project Management Approach Wysocki, 2009, p. 300

This paper will stick to the lower two categories, where the goal is clear. It will be differentiated between Traditional PM where everything is plannable and Agile PM with a lot of flexibility. The difference is mainly related to the structure of the project. While Traditional PM should be considered at projects with predictable situations, low technology in a stable, slow moving industries. Agile PM is the opposite, focusing on flexibly and speed using the various tools.
The topper ones are Extreme PM for sustainable R&D projects and Emertxe PM looking for an objective or goal for a e.g. new technology (e.g. Post it from 3M) (cf. Wysocki, 2009, p.299ff).

"Those who plan do better than those who do not plan, even though they rarely stick to their plan." – Winston Churchill[1]

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[1] Winston Churchill, 1874-1965, https://www.projectmanager.com/blog/10-best-project-management-quotes

Given the nature of projects, executing something new and uncertain there has to be a plan, approach and method to execute it, even if changes been made all along.

Digital Project Management is a new term but defined in multiple different ways. While some explain it is the managing digital project like programming e.g. Web pages and Mobile apps (cf. Lowe, 2021) other define it really using digital tools managing all projects interacting with project management methods (cf. Wu, 2021). For the purpose of this paper a digital project manager understands running the project according to project management methods like traditional or agile but using in addition digital technologies.

3.   Research Question and Method

The basis of this research is mainly on a literature research and qualitative questionnaires which have been conducted with pupils / students. Due to its assumptions and limitations the research remains qualitative. The results of the questionnaire provide a supporting point of view given the experience with the tools pre- and post- pandemic as well as the know-how leading projects. In addition, the experience leading projects for over 25 years and running experimental case studies have been considered. The geographical limitation is based on central Europe mainly the southern part of Germany and Austria because some of the regulations of the pandemic have been different by other countries.

The overall **key research questions** for this paper are:

- ‘Which additional team skills have been gained during the pandemic?’
- ‘What are the key factors to lead / run projects successfully in 2025+?’
- ‘How do Project Management Methods have to be adjusted?’

As stated the requirements for all industries are challenging, to run their businesses and succeed in an unforeseen future. But the available workforce got a boost towards digitalization during the pandemic. Driven by the lock down especially all administrative people had to work remotely and been forced to use digital tools. Project teams been ended to work with notebooks and pens, flip charts and whiteboards as well as filling templates being stored on a personal PC. The world became virtually all of a sudden. Especially larger companies and institutions switched rapidly to a new environment just to be able to do something and be able to continue working (cf. Wu, 2021). Just some years before, it was a vision to achieve a digital education like this. Increasing businesses of global companies proposed to meet virtually, use digital platforms and set up all documentation in the cloud. This sounded very futuristic for small and medium sized companies which experience a rapid promotion during 2020/2021 (cf. Lowe, 2018).

Institutes and supporters of higher education been debating how to educate for the unknown future requirements. Given the lack of skilled engineers and workers this was and is a clear goal

for everybody educating. The speed of development is permanently increasing, so the pressure for the education system is very high. But even in very old fashion organizations where online education seemed impossible the pandemic forced to use new didactical methods supported by the digital transformation towards modern learning and teaching techniques. So, a hybrid model between online and classroom training took place and more additional sources like 'Youtube Videos', 'MOOC's ('massive open online course'), AI (Augmented Reality) and other digital tools entered the education systems. Luckily the foundation of digital learning tools been set just before the pandemic hits the world.

> H1: All business people like Project Members and Leaders have been intensively trained to use digital tools during the pandemic

This hypothesis will investigate if the business people working on projects are okay using digital facilities in general and their expectations for the future. The assumptions is that project members, teams, leaders and clients have been forced to act due to the closed business sites. New standards been set in the virtual environments basically by a trial and error base. Looking at the feedback it made people to adapt faster as expected.

Before 2020 the highest disruption at work had been related to globalization, technologies and digital transformation. With the pandemic changes to the jobs been based on the highest physical proximity, so skill requirements and jobs changed in various areas. Considering remote work which can be done without a loss in productivity a study supports that 80% of the work will remain remotely to an extent, even reducing office space long term by 30%. Growth in the area of transportation, delivery and warehousing causes a shift to digital transactions. Many people will have to change jobs in the near future and businesses have to prepare to it providing trainings very early in the process. The request on cognitive skills may shrink like physical and manual skills. The request on technological, social and emotional skills will increase. This is based on the new work environment. Workforce has a major transition ahead (cf. Lund et al., 2021)

> H2: Requirements on jobs changes due to crisis and the success of projects are more dependent on strong personal skills.

This hypothesis focusses on the rapidly changing environment and the people which have been adapted due to the challenges before the pandemic and after. No matter the businesses will have to align to the speed and impetuously changing world. Specifically, in the area of project management, where leaders always have to be up to speed being under constant pressure to ensure success delivering the projects. A report reviewing the old and new skills needed for project managers, result in mainly new requirements for skill sets.

Ever since agile project management methods been introduced at the beginning of the century they have been part of the skill set for project managers. A study of HR representatives and project managers laid out that 70% are using agile practices specially to manage disruptive

technologies. Project managers of the future need to be familiar with project methods and tools, be risk tolerant, create their own culture, have data skills, an innovative mindset and be customer focused (cf. Langley, 2018)

Projects are an essential part of all organizations getting even more important with the rapidly changing environment. Project Management is hundreds of years old but even Business Project Management was stabilized and developed related to business structures at the beginning of the last century. At this point in time projects have been less innovative and more predictable as today therefore traditional plannable project management approaches have been established.

> H3: Project Management Methods as they have been developed will disappear, the new methods will be a hybrid mix peered with supporting tools.

Involving the trajectory of the Covid-19 pandemic it remains uncertain how the businesses can continue. But the focus is definitely set on new business models. Most companies will return to the offices but others considered mobile working for the first time in their business history. Therefore, projects of all kinds will require a huge change in methods and tools to support the diversity in workplaces. The project managers nowadays are the contemporary witnesses of transformation (cf. Swinkels, et al., 2021).

4. Analysis of the past pandemic criteria's as a basis for new project requirements

At the beginning of the pandemic in March 2020, not having any medication, cure or vaccine there was an overall consensus that people remain at home if ever possible. Only some jobs had been considered relevant for the system (e.g. doctors, supermarket clerk's, ..) at the time and these had been working mostly as before. All others including kids at school or students had to remain home for their studies, people doing office work or running projects worked all of a sudden just remotely. After recognizing that this situation will last, institutes and schools got very creative in using digital tools and methods which had just been in a trial status at the time. Organizations set up or increased mobile work places so everybody tried to keep the business up and running. A process of reinvention and a boost towards digital tool started. In 2020 in spring very slowly firstly because everybody was waiting that the pandemic will disappear quickly.

While over summer people almost went back to normal, it was clear that they had to prepare for a next pandemic wave in winter. New training and working environments had been set up and old PM methods had been supported by new digital tools. All people even the ones who had nothing to do with digital tools before had to use them. Mainly with online trainings and training on the job, people had been prepared to run the business remotely. Reviewing the job report from 2018 – before the pandemic – it was assumed that 85% of the job which will be needed the next 10 years

haven't been invented. The need and daily use of remote digital tools was a boost on the digital transformation. A new entrepreneurial mindset had been developed and people came in touch with new technologies gaining confidence using it. Stating that the internal approach and mindset has to change for the companies running projects in these disruptive times, they pointed out clearly that as a minimum all project managers have to be trained (cf. Langley, 2018).

The hypothesis can be taken that there was a boost in training;

> H1: All business people like Project Members and Leaders have been intensively trained to use digital tools during the pandemic

To support this hypothesis a question-based interview been executed with 35 project managers in spring 2022. These project managers had some experience running projects before and during the pandemic (see Figure 2).
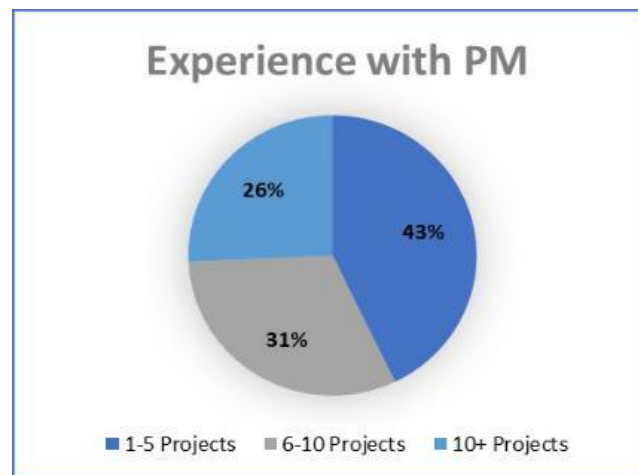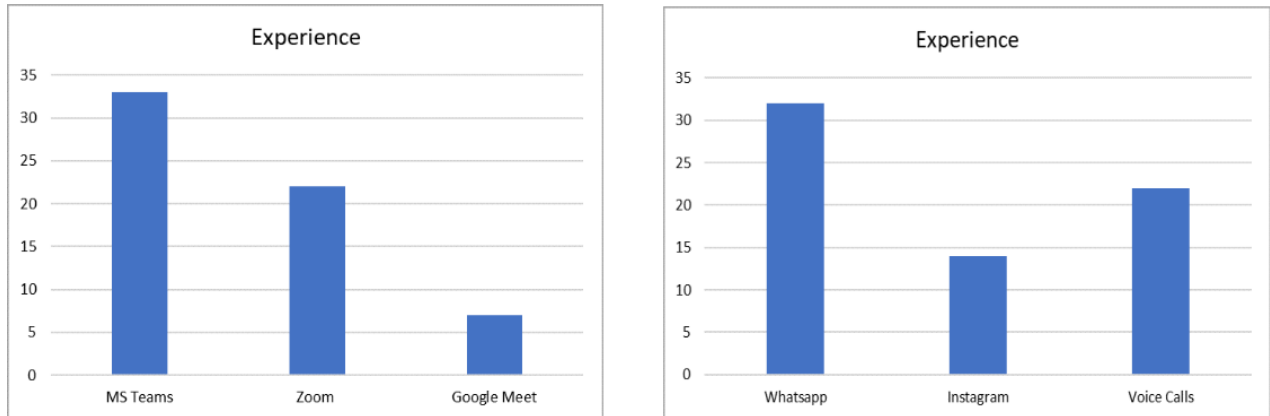

Figure 2: Project Management Questionnare: Demographics, created by author 2022

About 70% had the experience of more than 5 projects which had been considered to answer the question. They worked on projects during the pandemic setting up digital tools and stated that their experience using online digital meeting tools and voice tools in creased significantly and they used it in a professional day on a daily business.

The question which tools they feel like very experienced with has been based on the region and previous education. Leading mainly projects in small and medium sized companies the answer is possibly different as it would be with large global organization providing standards.

Figure 3: Project Management Questionnare: Experience with tools, created by author 2022

Reviewing Figure 3 shows that basically experience been gained the last 2 years in online communication tools which can be used on a Computer as well as on a mobile device, which increased flexibility. Due to the circumstances interacting online became the daily business. Project managers run their status meetings online as well as reviewing problem databases, documentation and risks. Even steering boards with mature executives been held online. Most of them stated that efficiency even in creased given nobody had to travel and people could be available on a very flexible basis.

Reviewing a study of trainings for project managers where about a thousand HR executives and project managers had been reviewed (cf. Langley, 2018). They stated that about 70% of the future project managers will be trained in using disruptive technologies and tools and developed their competencies'. Tools been mainly selected for training due to company standards, on communication as the study above and documentation of the projects.

In addition, reviewing all the students which been trained being project managers during 2020-2022 remotely, they have been educated using this communication and documentation tools and are motivated even expecting to use them efficiently in the future. They are digital natives which got rid of a lot of old intellectual tools using new methods and a fully digital environment (cf. van der Vorst, 2021).

Hypothesis 1 can positively be supported by literature and these studies, that there was a high boost in digital transformation during the lock down and project managers got used to use digital tools to run their projects.

Looking specifically at project managers, the skills needed to run projects in the future according to all requirements, seem very diverse. Digital transformation been driving businesses and strongly influencing projects the past 5-10 years. Therefore, the skills requested to run these large projects or programs changed. Starting with the beginning of the century introducing agile project

management methods where people has been trained and gaining certificates, the last five years the requirements changed to use additional tools and technics. Roles of the project managers changed even before the pandemic. Coming from the pure requirements of leading a project towards achieving budget, time and performance specification it became more complicated in a fast-moving global environment. (cf. De Bruyne, 2021, p. 158) While the key success factors to achieve a successful project remain pretty similar, the skills and flexibility of project managers changes significantly.

"Disruption is the new normal, and success relies on a workforce that can manage the impact of new technologies." (Langley, 2018, p.5)

The hypothesis for this paper assumes that not just methodic and technical skills are requested for PM for the future it will all lead to the personality of the people and the flexibility active fast.

> H2: Requirements on jobs changes due to crisis and the success of projects are more dependent on strong personal skills.

Looking at the study of Langley stated above, which was executed in 2018 the focus was still on driving the organization towards the journey of digital transformation. The main skills for project managers leading projects at innovative companies had been:

Data Science Skills, Innovative Mindset, Security / Privacy Knowledge, Compliance Knowledge, Make Data Driven Decisions and Collaborative Leadership Skills.

But the study pointed out the customers requested personal relationship and professional behavior much more. Reviewing project failures 28% ranked poor change management skills as the main reason, not achieving the goals for digital transformation. Given jobs are changing so rapidly and people need to adapt so quickly to the new project framework. The skills have been ranked in relation to the failure rates of the projects and four or of five respondents pointed out that communication, leadership and negotiation skills are getting more important. Even project managers which didn't have a highly technical background, succeeded due to high interpersonal skills like an entrepreneurial mindset and the confidence to find ways to get things done with or without new technology. Implementing ongoing training is key to project managers. (cf. Langley, 2018).

Redwigwam executed a survey during the pandemic mainly at smaller companies, which been facing a lot of problems mainly in the logistic area. After stating that remote work can be effective as well, which was a new experience for them, they stated more above anything is being flexible and be able to adapt very quickly to changes. Therefore, the old 9-5 model might never work again especially the pandemic turbocharged some changes like new work models and new technology. Pointing out that trust and good two-way communication are the main skills above all for the future. (cf. Davidson, 2020)

The job report of the PM Institute 2022 (cf. n.a., 2022) is pointing out the skills boostering projects and careers in that area.

The top five power skills for project managers are: relationship building, collaborative leadership, creative problem solving and commercial awareness.

Taking the use of digital tools for granted in 2022, Wu is pointing out that the essential skill to have is being an excellent communicator, reflecting the overall goal while at the same time working on details and being transparent. The role is maximal dynamic and should contain innovation and to adapt to a constantly changing environment (cf. Wu, 2021)

The survey conducted with the 35 project managers questioned the most important skills / success factors for project managers in 2022:
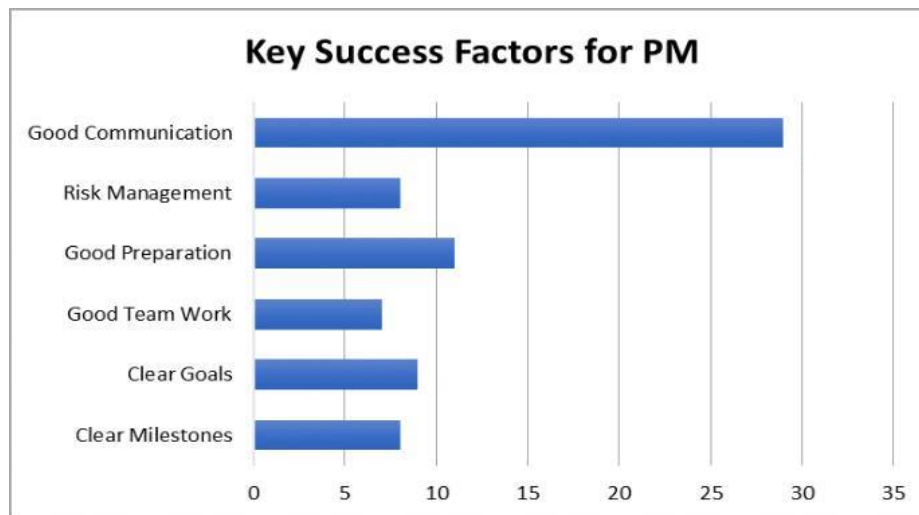

Figure 4: Project Management Questionnare: Key success factors, created by author 2022

Overall "good communication skills" are highly requested for project managers and will lead to the success of the project – see Figure 4.

The hypothesis 2 can positively be confirmed that next to project management methods and tools which have been improved especially during the pandemic – strong personal skills like communication skills and strength to adapt to a constantly changing environment are main skills to have for project manager past the pandemic.

Project management methods have been essential for over many years in business. Structuring projects, documenting results and following an approach towards a given goal was the foundation of project management for many years. As stated before with the model of Wysocki more than

just this traditional project management approach has been used. Agile methods as well as extreme and emertxe methods been introduced dependent on the business situation. (cf. Wysocki, 2009). But with all the mentioned changes the digitalization, disruptive times with the pandemic and the Ukraine war, project need to be managed so much more flexible as these methods will provide. Wysocki added in incremental / iterative possibility for each method where a combination of the methods provided more flexibility at first. (cf. Wysocki, 2009 p.335) But even that haven't been a basis to run projects the past years with all the new requirements.

The old models don't seem to work to a full extend to support project managers especially for digital project management. The following hypothesis been taken to review and expand the situation.

> H3: Project Management Methods as they have been developed will disappear, the new methods will be a hybrid mix peered with supporting tools.

In addition to the given methods more differentiating factors needed to be considered. Firstly, the new share of on-site versus virtual project management. While in 2020 / 2021 all of a sudden, all projects had to work on a virtual, remote basis, now after the lock downs the companies have to choose and can evaluate which mixture would make sense for them, their business and strategy. The main factor will be the share of remaining virtual work. In spring 2022 most business can choose between virtual versus project work in presence. The 35 project managers had been asked for their opinion based on the experience of the past 2 years. The project managers with all different kind of project content expected to remain having a share of virtual work for the project. Over one third expect a virtual share over 50% (see Figure 5). This definitely would request changes in project management and project documentation. Even agile project management wasn't developed for any share of remote work.
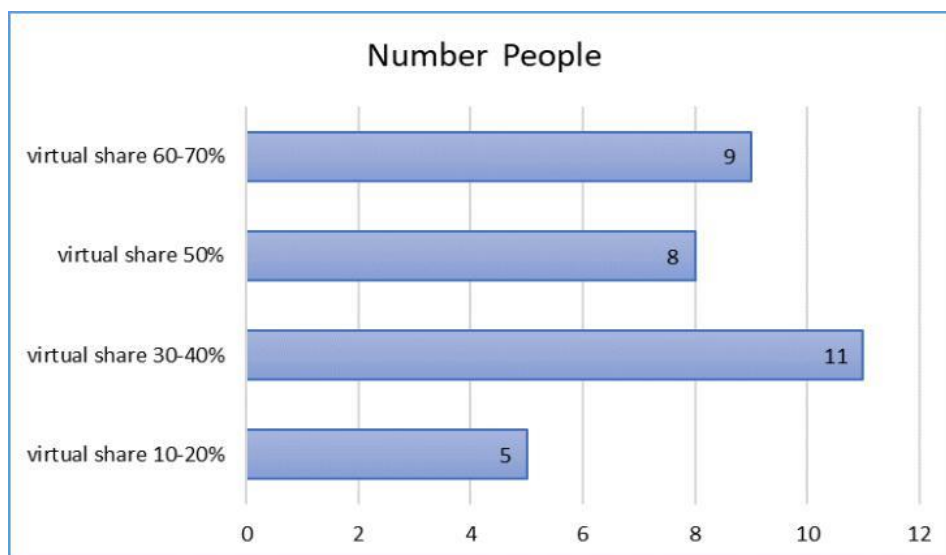

Figure 5: Project Management questionnare: Virtual share, created by author 2022

Te Wu evaluated project management during crisis and reviewed 122 project managers. During the pandemic 76% of the project managers worked remotely. This gained a high demand for digital technology to connect people. He reviewed which project management method has been used. Before the pandemic most projects used traditional project management or traditional structured with agile method as a project management approach followed by pure agile project management and an unstructured hybrid approach. The impact during the pandemic been highest by the first ones due to the fixed structure. But what may have taken years earlier, pushed the workforce significantly forward. People overall got more flexible. In total challenges like e.g. poor motivation, home distractions or productivity remain but the positive parts are stronger and mixed methods – hybrid models dominate. Digital technology can be used for all kinds of methods (cf. Wu, 2021).

Reviewing the Job Report 2022; in Europe are plans rising to get all employees back in the offices. The result is different per country but on average in Europe 52% of the organizations will remain with their back to the office plans. Only 28% are sure that this is in sync with the employees, 52% believe that employee would like to continue in a hybrid model. (cf. n.a. PMI, 2022)

Looking at all the surveys the is a high likelihood that a virtual part will remain at all projects. Project management methods have to ensure an appropriate structure for that, especially with digital documentation / tools.

Digital project management have been introduced multiple years ago. There are so many software packages out there supporting project management with digital tools. Given documentation of the project is very important as communication. There are tools which are just for one method like for Traditional PM e.g. Teamgantt, MS Project or for Agile PM Scum, Kanban, ... The combination of methods is rather specific but will be supported by various tools e.g.
Monday.com, asana, wrike, … .

Summarizing the additional factors will lead to a fully flexible project management model as shown in Figure 6. The three dimensions of old method, virtual share and documentation are diving the combination. At the end of last century projects been run according to traditional project management, physically on site documented mainly according to templates store locally (about 1995). With the rollout of the Internet and global accessibility the idea of agile project management had been promoted significantly. Documentation had been in the cloud but rather according to templates but people worked mainly on site sometimes on multiple sites connected (about 2005).

Now, after one force the digital transformation to use mainly digital tools and the second force the pandemic where due to the lock down everybody worked remotely the use of methods had been stretched. Even before but definitely now after the pandemic mainly hybrid methods will be used. The traditional project management approach been mainly at the staring point for the overall planning supported by the flexibility of a Scrum or Kanban approach for the more detailed planning and execution. Some traditional reports remain like the project charter, Gantt Chart or Status report. A very flexible approach been taken overall supported by communication methods for virtual working and digital tools for project documentation. Currently the approaches been

developed spontaneously according the need but they will be developed further per phase in a mixed combination of approach, digital tool, documentation and virtual approach.
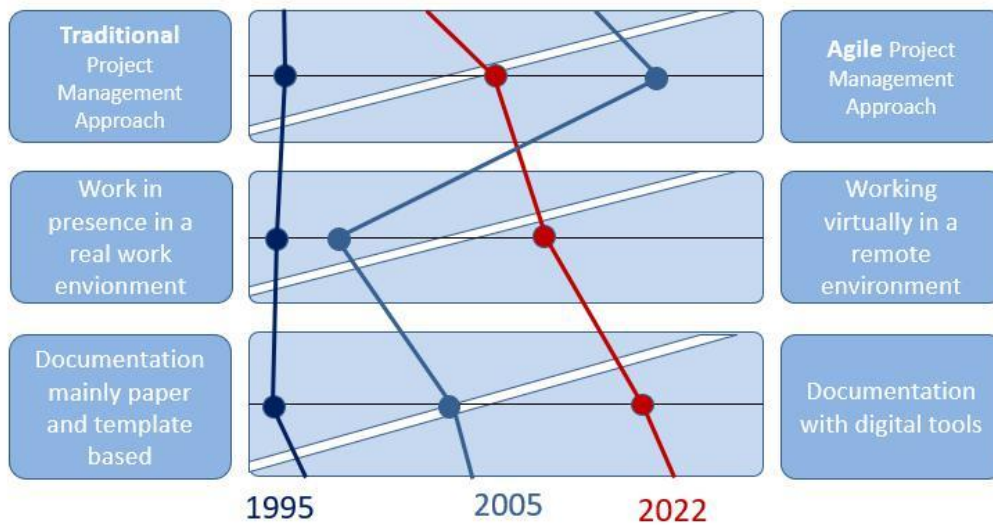
Figure 6: Project Management questionnare: Mixed methods, created by author 2022

Figure 6 shows in red a possible combination of the different criteria to be considered for a new, overall project management approach. Most possible high-level phases will be defined supported by iterations using tools where project members will sometimes work physically together.

Hypothesis 3 can positively be confirmed; more dimensions will drive future project management methods.

In summary all hypotheses could be confirmed by executing a questionnaire to project managers with experience managing projects pre-pandemic and during the pandemic and reviewing external studies and literature. It provides a basis for the future to run projects after the pandemic.

5.   Conclusion and Next Steps

Projects have been around to support and boost all different areas of the global businesses. Given all the previous changes in technology more and more projects have been set up and should rapidly support and develop all the new requirements. While the Industry got into the next level of development with the introduction of Industry 4.0, the academic sector developed Education 4.0, but projects remained with well approved methods. While new jobs and technologies appeared projects of all kinds remained with well proven methods just challenged at the beginning of the century by adding rapid flexibility and introducing agile methods. Digital transformation of projects started slowly when the pandemic hit the businesses in 2020.

All of a sudden, new dimensions been added to lead the projects. People which been used to work together mainly on site had to work remotely, traveling was eliminated and even visiting customers or just work in your own company became almost impossible for some time. Rules been constantly changing due to the waves of the disease. Companies kept businesses up and running as much as possible and the use of online tools for communication or documentation became the daily business. The content of projects has been changing as much as the supporting technologies and structures. Jobs and required skills have been jeopardized and entire businesses had to restart.

This paper examined the challenges for project managers with the forces of digital transformation before the pandemic and virtual remote working during the pandemic and massive disruptive times.

The overall **key research questions** for this paper are:

1. 'Which additional team skills have been gained during the pandemic?'
2. 'What are the key factors to lead / run projects successfully in 2025+?'
3. 'How do Project Management Methods have to be adjusted?'

Question 1 have been examined with hypothesis 1 evaluation the skills which had been gained during the pandemic. Given the constraint to do almost everything remotely in the home office, all people extended their skills in online communication and documentation tools. Especially project managers practiced successfully how to lead just remote teams and motivate them to still achieve the project goals. Research question one can positively be answered – new skills have been learned, improved and practiced intensively during the pandemic times, which was mainly a boost in digital tools.

Question 2 compared with hypothesis 2 the different success factors which will be needed to lead projects in the future. Reviewing the requirements and skills needed for future jobs it was a clearly carved out that digital skill will be required – which wasn't a surprise due to that many online tools available but in addition mainly soft skills became in favor again. Especially remotely people will have to be even more sensitive and motivating to run teams in the future.

Question 3 about the project management methods is very important to be prepared for future projects, including all previous forces and really developing something new as a basis. Project management methods as they had been developed 20- 50 years ago are a very good foundation even for todays businesses but in total not all relevant factors are taken into consideration. So, new dimensions had been added and will be developed in a more detail if the are other distinguishing factors like kind of project or industry. But the main considerations next to the old factor's *'goal'* and *'solution'* of the project will be definitely the *'presence'* of the project team working virtually, on site or hybrid. As stated with hypothesis 3, cross that metric will be the supporting tools in terms of communication and documentation, so the *'level of digitalization'* should be considered before starting a project and do project planning according to a method. The new methods which have to be developed further should granularly consider all dimensions.

All three questions could be answered reviewing actual literature and executed questionnaires as well as a taken survey with 35 project managers. Overall skills have been gained, tools been learned during the lock-down and people got a significant boost using digital tools and working remotely. These skills will remain and will positively support the businesses. In addition, old methods became obsolete and new more flexible structures have to be added to the mix of methods. New dimensions have been added to select the right approach and model as a basis for each business project.

More details have to be added to the project management approaches and related to digital tools most possibility methods can be developed more precisely. The momentum of the pandemic should not be lost and the increase of digital transformation used in the future.

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