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Going Agile, a Post-Pandemic Universal Work Paradigm - a Theoretical Narrative Review

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Abstract: Due to digital transformation, technology advancements, telework, we can no longer pretend that traditional work offers high incentives and efficiency, but on the contrary, traditional work falls behind each year, deeming organizations and individuals to adopt the agile work. Rapid technological developments have altered the way businesses operate, with the goal of producing viable solutions in an environment fraught with unpredictability. This paper is a theoretical narrative review on the general topic of agile work. The present paper addresses the issue of determining the best international practices for implementing agile methodology at work, carrying out a theoretical narrative review. Basing on literature on present-day theory the authors make an attempt to explain the implications of implementing agile methodologies into organizational culture, summarize existing approaches to classifying the main effects on implementing agile methodologies at work, consolidate and document best international practices for agile methodologies development among employers. After defining the concepts of agile method tailoring and agile maturity, the data obtained in the theoretical narrative analysis reveal that the implementing agile methodologies have a direct impact on management style, on teams, on learning environments, and on employee's mental health. An overall conclusions and discussions section is presented along with the personal opinion of authors. This work is intended to open a post-pandemic agile work research methodology, since there are no systematic approaches to this topic.

Keywords: *Agile work, agile maturity, agile method tailoring.*

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1. Introduction

This paper is a narrative theoretic review on the general topic of implementing agile methodologies at work. The present paper addresses the issue of determining the best international practices for implementing agile methodology at work, carrying out a theoretical narrative review. Basing on literature on present-day theory the authors make an attempt to explain the implications of implementing agile methodologies into organizational culture, summarize existing approaches to classifying the main effects on implementing agile methodologies at work, consolidate and document best international practices for agile methodologies development among employers. After defining the concepts of agile method tailoring and agile maturity, the data obtained in the theoretical narrative analysis reveal that the implementing agile methodologies have a direct impact on management style, on teams, on learning environments, and on employee's mental health. An overall conclusions and discussions section is presented along with the personal opinion of authors. This work is intended to open a post-pandemic agile work research methodology, since there are no systematic approaches to this topic.

Agile work has been clearly induced by the larger extent to which performance against objectives has settled in almost all organizations, enforced by law at least in all European countries. Performance against objectives is focused on competence assessment together with employee's professional autonomy and the capability of teamwork, or relatedness. Based on self-determination theory, specifically fundamental psycho-logical needs theory, which posits three basic psychological needs that must be met in order to promote well-being and health (Vansteenkiste et al., 2020), one can perfectly depict the congruence between these psychological needs and professional assessments criteria. These three psychological requirements of autonomy, competence, and relatedness are typically universal, meaning that they apply to persons and situations alike. However, certain needs may be more pressing than others at different times, and they may be expressed differently depending on time, culture, or experience. SDT recognizes these three intrinsic requirements, which, when met, allow for maxi-mum function and growth. In other words, being agile means, nothing more than simply adapting to this century job scheme: agile work. Due to digital transformation, technology advancements, tele-work, we can no longer pretend that traditional work offers high incentives and efficiency, but on the contrary, traditional work falls behind each year, deeming organizations and individuals to adopt the agile work or perish. Further on, this personal

opinion will be augmented with evidence-based research and theoretical frameworks of agile maturity in relations to work.

Agile methodologies involve both the ability to adapt to different changes and to refine and fine-tune development processes as needed (Dingsøyr, et al., 2012; Rad & Rad, 2021). Agile methodologies also rely on early and continuous customer involvement, both in terms of establishing project goals and providing input on subsequent proto-types as the project moves through its product lifecycle. As a result, the iterative nature of Agile allows for regular stakeholder engagement, on-the-fly modifications, and re-scoping project requirements in response to new information or client requests. Interestingly, despite the fact that Agile project management approaches are becoming more popular in dynamic situations, much of the research on their efficacy has been circumstantial or based on modest sample sizes.

Organizational design is a critical component of competitive advantage and performance, and as environments become more complex, unpredictable, and unstable, organizational agility is becoming a more common design choice. However, the organizational design characteristics linked with agility are little studied, and diagnostic frameworks are even scarcer. Most agility frameworks have a solid strategy, an adaptable organizational architecture, shared leadership, and a strong change capacity. Organizational design is essential for gaining a competitive edge and performing well. Even the most brilliant plan will fail to realize its full potential if an organization's structures, procedures, and systems do not support it. The complexity, unpredictability, and instability of environmental change, on the other hand, appears to have surpassed our traditional organizational design techniques and conceptions.

Executives are trying to create organizations that are efficient enough to generate performance in the short run while being flexible enough to sustain performance in the long run. The "new normal" requires businesses to be extremely agile merely to survive, much alone prosper.

Agility is a dynamic organizational design capacity that can detect the need for change from both inner and outer sources, implement those changes on a regular basis, and maintain above-average performance. The third feature, persistent above-average performance, is a must for agility.

Agility has become the focus of increased research, with both academic and practical requests for a greater understanding of its origins, development, and effects. Consultants, administrators, and organizational academics, for example, have at-tempted to comprehend the components and implications of agile strategies, while others have investigated the

features of reconfigurable and ambidextrous structures. The number of frameworks that thoroughly investigate agile organizational architectures is significantly less. One agility framework, the built to change model, suggests that organizations break away from traditional design assumptions, think about how each design element or feature must be architected with flexibility in mind, and then align them dynamically to support both adaptability and sustained high levels of performance.

Further, this narrative research on agile work will focus on the following topics: agile method tailoring, agile maturity, agile culture effect on management style, agile culture effect on teams, agile culture effect on learning environments, implications of agile culture in employee mental health and a conclusions and discussions section.

2. Problem Statement and Research Methodology

The multifaceted objective of the research under investigation is to undertake a theoretical narrative review of scientific literature related to implementing agile methodologies at work among employers. The aim involves the following specific tasks: to clarify the concept of agile methodologies, agile method tailoring and agile maturity. The the data obtained in the theoretical narrative analysis reveal that the implementing agile methodologies have a direct impact on management style, on teams, on learning environments, and on employee's mental health. This work is intended to open a post-pandemic agile work research methodology, since there are no systematic approaches to this topic.

Therefore, the present paper focuses on answering the following questions:

How are agile methodologies perceived by employer organizations?

How can be defined agile method tailoring and agile maturity?

What are the best practices in implementing agile methodologies at work?

How can we measure the effect of implementing agile methodologies at work?

To conduct the theoretical narrative review, we undertook the search for the scientific literature concerning the use of agile methodologies at work. We have chosen two open academic databases, namely: (1) Google Scholar; and (2) Dimensions. These databases, which are freely available web search engines, contain a wide selection of peer-reviewed papers, abstracts, monographs, and conference proceedings on the topic under investigation. Furthermore, these databases contain peer-reviewed papers

that are indexed in Web of Science or Scopus. The primary inclusion criterion for database searches was journal articles written in English that reflected on the theoretical framework and methodological elements of applying agile methodologies at work. The corpus included 94 items of scientific literature concerning the following topic areas: agile method tailoring, agile maturity, and the impact of implementing agile methodologies on management style, on teams, on learning environments, and on employee's mental health.

To achieve the aims of this research we used the following methods: formal concept analysis, summarization and discursive reflection.

3. Agile method tailoring

Many businesses want to implement agile procedures in order to reap the various benefits that they provide. These benefits include, but are not limited to, a quicker re-turn on investment, better software quality, and more customer satisfaction (Leppänen, 2013). There is, however, no formal procedure for the public domain that helps companies in implementing agile techniques as of yet. To address this issue, authors Sidky, Arthur and Bohner (2007) describe the agile adoption framework and the novel technique. The framework is divided into two sections: an agile measuring index and a four-step method for guiding and assisting organizations in their agile adoption efforts. The Sidky Agile Measurement Index (SAMI) is a set of five agile levels that are used to evaluate project and company agility (Sidky et al., 2007). The four-phase method, on the other hand, aids in assessing (a) whether or not businesses are ready for agile adoption, and (b) which set of agile practices can and should be implemented based on their potential.

Thus, agile techniques allow an organization or team to embrace a specific subset of principles and practices depending on its culture, beliefs, and the types of systems that they create. More specifically, each company or team adopts a unique agile technique that is suited to its individual demands. However, the extent to which a tailored approach serves organizational objectives, for example its goodness, is debatable. Existing agile assessment techniques are either limited in scope and application or rely on comparison studies. The authors of this study offer an organized, methodical, and all-encompassing methodology to evaluating the 'goodness' of agile techniques. Soundararajan and colleagues (2012) evaluated an agile approach based on three criteria: (1) its sufficiency, (2) the organization's capacity to support the method's chosen principles and practices, and (3) the method's efficacy. To assist the evaluation, the authors suggest the Objectives, Principles, and

Practices (OPP) Framework. The Framework identifies (1) agile philosophy objectives, (2) principles that support the objectives, (3) practices that reflect the principles, (4) links between the objectives, principles, and practices, and (5) indicators for assessing the degree to which an organization supports assists the implementation and the effectiveness of that procedure (Soundararajan & Arthur, 2011; Soundararajan, 2012; 2013).

The goal of Oliva and partners' (2019) study is to explain and assess how the com-bination of knowledge management and dynamic capabilities in situations that de-mand organizational agility helps to goal-oriented management. The authors use a single case study to achieve the intended goal. Semi-structured interviews were used to collect data, which was then evaluated a posteriori using the content analysis approach. Based on the facts gathered, a model was developed that incorporates several management theories and guides the management by goals process of a startup. The suggested model demonstrates its ability to represent a startup's mode of operation and allows it to build the cycles of testing, measurement, and knowledge seizure that are substantially spurred and intrinsic to the development process of new enterprises in dynamic and unpredictable environments. It is envisaged that the detailed study findings will provide real examples of how the major principles of agile organization, dynamic capabilities, knowledge management, performance evaluation, enterprise risk management, and management by objectives may be used. The uniqueness of this study (Oliva et al., 2019) is centered on the integration of a conceptual triangle and its implementation in a startup case study: agile organization, dynamic capabilities, and knowledge management.

In recent years, the software world has embraced agile approaches. The transition from traditional to agile approaches is not easy. Software businesses require assistance in making the shift from traditional software development approaches to agile methods, as well as strengthening their agile skills. Several agile maturity mod-els/frameworks have been created in recent years to help businesses in agile process improvement and agile adoption (Ozcan-Top & Demirörs, 2013; Stavru, 2014). The authors of this paper evaluate the merits and shortcomings of agile maturity designs from the viewpoints of agile process evaluation and optimization. The authors applied the models in a specific software organization to assess them, explaining the models' strengths and limitations and providing recommendations for their usage (Ozcan-Top & Demirörs, 2013).

Globalization has facilitated the entry of a large number of rivals into the industrial industry. As a consequence, various market participants contact current producers to supply a variety of items (Balaji et al., 2015). To

gain a competitive advantage in today's quickly changing business climate, businesses must collaborate with suppliers and customers to simplify processes and achieve targeted levels of agility. Companies are looking beyond cost advantage to deal with market volatility. The importance of speed, quality, and agility in reacting to the specific demands of consumers and marketplaces is being stressed. This research focuses on increasing the flexibility of an organization's supply chain by assessing several agility criteria and generating the agility index. Organizational agility is essentially concerned with an organization's capacity to adapt to external market stimuli such as risks posed by competitors or even simple variations in demand. An agile company, in particular, will need to improve its skills to reduce both the costs and timescales of any change, both in terms of initial outlay and ongoing operations. Though numerous methods for measuring organizational agility have been presented, relatively little work has been undertaken in the field of Total Agile Design Systems (TADS). TADS is a concept developed partic-ularly to assist a company in achieving more agility via the use of modern technology (Balaji et al., 2015). TADS deployment necessitates identifying whether or not the organization is agile and what the organization's current agility level is. This is made feasible by a technology known as the agile quantification tool. The successful deployment of TADS will ensure the acquisition of greater quantity and quality of agility. Following the introduction of TADS, the agility index parameter will need to be computed in a similar manner in order to draw comparisons (Balaji et al., 2015).

In terms of agile methodologies, agile practices, and perception of agile values, Santos and collaborators (2011) conduct a survey to examine the perception of soft-ware professionals working on various fronts of the discusses the link between the us-age of agile methods and the quality of software programs in the development process. The outcome demonstrates agile techniques that may contribute to quality in three ways: increased staff participation, agile management of suggested requirements, and code development (Santos et al., 2011).

Scrum has emerged as a viable Agile Software Development (ASD) paradigm, focused on defining immediate deliverables and organizing short deadlines, known as Sprints, for developing, implementing, and presenting them for customer testing (Gamble & Hale, 2013). Scrum represents an agile, lightweight framework that provides steps to manage and control the software and product development process (Sutherland & Schwaber, 2011). While these techniques are being embraced by companies, expanding them to the classroom is proving tough. Once in place, evaluating individual

student success purely on the product output and Sprint grade is a difficult process (Gamble & Hale, 2013). Authors have used a collaborative environment that includes a social network, project management modules, and an event capture system to collect and analyze large amounts of data and events in order to investigate metrics that are relevant to assessing individual performance aspects related to working on an Agile team for software development (Gamble & Hale, 2013). According to the findings, predictive data is available following each Sprint to determine individual performance qualities and their link to product results (Gamble & Hale, 2013).

Although several writers have emphasized the benefits of Agile, with its emphasis on persons and relationships over processes, customer collaboration over contracts and formal agreements, and responsiveness over strict planning, there have been relatively few large-scale, empirical research to back up the claim that Agile techniques can increase the chance of project success (Serrador & Pinto, 2015). It was originally de-signed for software development, and it is still mostly an IT phenomenon. However, as a result of its success, it has now expanded to non-IT initiatives. The authors investigated the influence of Agile usage in companies on two aspects of project success: effi-ciency and overall stakeholder satisfaction versus organizational goals using a data sample of 1002 projects from various sectors and countries. The authors next looked at the moderating impact of factors including perceived project vision/goals quality, project complexity, and project team experience. According to the author's results, Agile techniques have a favorable influence on both aspects of project success, with the quality of the vision/goals serving as a marginally significant moderator of this effect (Serrador & Pinto, 2015).

Despite the abundance of current agile techniques, businesses are increasingly interested in developing their own customized ways to match their unique context. The authors of this study examine how agile methodologies may be built in-house to suit unique software process demands. The authors present an agile metamodel meant to facilitate the creation of agile methods and rely on measurements to give direction to agile methodologists throughout the design phase and during the development cycle throughout (Ayed et al., 2012).

Agile techniques, such as Scrum, have arisen in part to solve this issue. Agile relies on a collection of best practices rather than a defined procedure, making it difficult to determine whether it is being applied correctly in a company. The authors (Marques et al., 2018) investigate the viability of utilizing process mining to assess the application of Scrum practices using event logs gathered from a case-handling system A case study

was done at an IT firm that manages its projects with Jira Software. It was able to extract the workflow behavior in two separate pro-jects using process mining. While Scrum principles such as role allocation were revealed, other activities such as customer collaboration were not found in the log. This case study gave valuable insights into the use of process mining in case-handling systems and Scrum processes (Marques et al., 2018).

A recent article aims to present an assessment methodology of agile practices maturity, from the perspective of individual people and project team to the entire organisation in the management of their products, project / program management (Coelho et al., 2020), with agile values and principles serving as guiding axes throughout the model and its application. This article was written using a method that included a comprehensive review of the literature as well as a study of reference models and frameworks in the subject topic. Because there is currently no multidimensional model (capacity and maturity levels versus perspectives oriented to individuals, teams, products, projects / programs, and clients) in the context that helps organizations identify their status quo and promote the implementation of agile practices, the developed model is an added value (Coelho et al., 2020).

Another article describes AgilityMod, which was created with the goal of detecting the agility levels of software development projects, identifying agility gaps, and offering roadmaps to businesses interested in adopting agile concepts and practices. AgilityMod follows the ISO/IEC 15504 software process assessment model's me-ta-model structure, but it differs from ISO/IEC 15504 in terms of process architecture, process descriptions, and other model parts' descriptions (Ozcan-Top & Demirörs, 2015). The authors of this work concentrate on the Model's structure and discuss the Model's development stages.

The goal of Campanelli and Parreiras' research is to analyze, consolidate, and re-port parts of agile methods tailoring research, such as the method tailoring methodologies utilized and the criteria used for agile practice selection. The majority of the articles employed method engineering to achieve customization and were not focused on any particular agile technique. The majority of agile methods tailoring research articles presented or enhanced a methodology, and they were executed as case studies, studying one instance in depth and validating their conclusions through assessment. The basis for customizing was method engineering; the methods were independent of the agile method, and the key criteria utilized were internal environment and objective variables (Campanelli & Parreiras, 2015). Campanelli and Parreiras (2015) compiled a summary of the current literature on agile methods tailoring in order to give insight into how agile

methods tailoring research is carried out (how empirical is the research, which approaches are being explored, what types of results have been generated), to determine the research community's perspective on agile method tailoring (which agile methods have been researched and how these approaches suggest agile practice se-lection), as well as to identify research gaps on the subject. These goals may aid businesses in determining how agile practices fit into their environment, implementing new practices with little disturbance to the existing environment, and reaping some of the advantages of agile techniques.

According to the findings of another recent study, businesses with the highest software success rates also have higher rates of capability in terms of team, culture, client communication, environmental configuration, and partnerships with external partners (de Souza Bermejo et al., 2014). Organizations who adopted agile software development concepts were successful in software development, however using agile principles alone cannot ensure such success. Furthermore, although not considered in the linked research studied, connections with external partners were proven to be a crucial element for software development success and, therefore, relevant to the agile software development sector. In conclusion, this study is important because it contributes to our knowledge of the application of agile principles in software development and if these concepts are linked to software production success; as a result, it investigates a previously unknown aspect (de Souza Bermejo et al., 2014).

One recent research (Almeida & Espinheira, 2021) seeks to identify and compare the major large-scale agile frameworks that businesses may use to manage the work of big, distributed teams. Companies may intentionally make a better-informed selection on the framework that best matches their activities and issues by doing so. This study takes a qualitative method, backed up by exploratory research, to identify and investigate the processes of large-scale agile migration. In the first phase, fifteen scaling agile assessment criteria are discussed. These criteria are then used to a comparative examination of six large-scale agile frameworks in the second phase (DAD, LeSS, Nex-us, SAFe, Scrum at Scale, and Spotify) (Almeida & Espinheira, 2021). In all aspects, the data show that there isn't a dominating large-scale agile framework. However, frameworks like Nexus and Spotify, which are aimed at smaller teams and have a minimal technical complexity, may be found. Other frameworks, such as SAFe and DAD, offer high levels of scalability but need more demanding and significant efforts in altering work processes in a company, whereas these frameworks readily adapt changes (Almeida & Espinheira, 2021).

Authors performed a large-scale empirical research study to identify many elements of Agile transformation in another attempt to present additional proof for Agile methodology. The broad framework of the Agile transformation process was discovered using a Grounded Theory research (Gandomani et al., 2015). The primary goal of this article is to demonstrate the most significant principles to consider while using Agile methods. This research revealed that Agile transformation entails a wide range of ideas, actions, and processes, including transformation requirements, facilitators, framework, assessment, and coaching. Before beginning the Agile transformation process, software firms and organizations should be familiar with these principles (Gandomani et al., 2015).

A hazardous or experimental project with unclear/undefined project objectives is the best option for adopting an agile strategy, since agile allows us to deal with estimated risks during development, with the goal of reducing hazards (Krishnamachariar & Gupta, 2018). The value of any implementation is achieved only if it provides ad-vantages to the business and users, which can be ensured through effective implementation auditing by understanding the implications of the agile approach and deter-mining the appropriate audit methodologies and processes. For auditing conventional SDLC waterfall processes, many businesses already have well-established audit departments and sophisticated IT audit procedures. However, auditing software devel-opment using an agile methodology necessitates a new mindset and audit methodologies that complement the agile strategy's proactive character. One recent article at-tempted to provide a risk-based audit strategy for agile software development, as well as how risk identification and assessment can be combined with software development stages and how agile methodologies can be effectively used as audit tools (Krishnamachariar & Gupta, 2018).

Agile information systems, which are described as information systems created utilizing agile methodologies, are characterized by rapid upgrades and the delivery of a limited number of new features on a regular basis. Existing agile IS research has mostly focused on the developer's perspective, with little attention paid to end users' reactions to these agile IS. The authors investigated not just users' intentions to continue using agile IS, but also their intentions to utilize new features as they are introduced, which is a proxy for agile IS's eventual success. Information from 477 agile IS users revealed that users' degree of comfort with frequent changes, the enabling conditions offered, and users' habits are predictors of both types of intents, with users' level of comfort with constant changes being the most powerful predictor (Hong et al., 2011). Users' intentions to continue using agile IS are

also influenced by their happiness with the perceived utility of the system. Finally, people that are creative are more likely to take advantage of future releases of new features. The work of Hong and colleagues (2011) fills a vacuum in the software engineering literature and adds a technology acceptance model unique to agile IS, which are increasingly becoming a foundation of organizations' IT portfolios in a rapidly changing business context.

4. Agile maturity

Worley and Lawler have proposed the most complete assessment of agile culture (2010). A survey and interview evaluation procedure was created based on the built to change agility concept. The survey is the product of a development process that included a pilot survey that was completed by over 20 organizations. To date, around 15 organizations have been tested using a revised and final survey, and all scale reliabilities meet or surpass established criteria (Worley & Lawler, 2010). The poll collects information on 14 different aspects of agility. The robust strategy feature is measured using scales of shared purpose, flexible strategic intent, and strong future emphasis. Scales that assess structural flexibility, resource flexibility, development orientation, information transparency, shared power, and flexible incentive systems make up the adaptable design characteristic. A scale is used to assess shared leadership and change-friendly identity (Worley & Lawler, 2010). The process of producing value is measured using change capability, learning capability, and innovation capability scales. Similar topics may be seen in the interview protocols. They look at how the company manages numerous transitions, builds leadership capability, and explains its long-term transformation and performance patterns (Worley & Lawler, 2010).

Tuncel and associates (2021) suggested a context-sensitive agile maturity model as one of the most recent additions to agile maturity categorization. Many businesses, at all organizational levels, are progressively adopting agile software development methodologies. Whether referred to as agile adoption, agile transition, agile transfor-mation, digital transformation, or new methods of working, the success of this change process is mostly unknown (Tuncel et al., 2021). This is due to the fact that success may be measured in a variety of ways. We created a model of principles with related practice clusters based on current agile assessment models to serve as the foundation for a new agile assessment model capable of assessing agile companies at various scales. We verified our first findings in an expert

interview research to identify improvement areas and verify the at-hand model's applicability, coherence, and relevance, with the ultimate objective of establishing a lightweight, context-sensitive agile maturity model. The findings of the interview research demonstrate that both the structure and substance of our evaluation model meet the expectations of the experts (Tuncel et al., 2021).

The relevance of organizational agility in a competitive context is now generally acknowledged and accepted, according to the evaluation of agile maturity. Despite this knowledge, there are few tools and methodologies available to assist a company in measuring and enhancing its organizational agility. As a result, this research offers the Organizational Agility Maturity Model (Wendler, 2014) as an easy-to-use yet effective evaluation tool for software and IT service businesses. Both scientific rigor and practical realism were achieved using a design science research strategy that included a complete literature study and an empirical inquiry using factor analysis. A cluster analysis identifies patterns of organizational agility that meet the maturity model, demonstrating the applicability even further. The Organizational Agility Maturity Model adds to the field's knowledge by offering a theoretically and empirically sup-ported framework of organizational agility that aids in the development of a shared understanding of the term (Wendler, 2014).

Despite the fact that agile software development techniques have achieved wide-spread adoption in practice, there are still issues about scalability and integration of agile approaches in traditional system development companies. When there is a need to expand agile techniques, the complexity of implementing them grows. SAFe (Scaled Agile Framework) has evolved as a solution to some of these issues (Stojanov et al., 2015). Despite a few positive results from SAFe adoption, case studies reveal a few of difficulties. There is currently no well-structured, progressive strategy to introducing and developing SAFe (Stojanov et al., 2015). Organiza-tions require a standard approach for analyzing current status and progress, as well as creating a roadmap for the effort, before and throughout SAFe implementation. The authors created a maturity model for implementing agile and SAFe methods to meet this demand. Using an existing agile maturity model as a foundation, we added be-haviors that are critical to scaling agile practices for SAFe. A Delphi study is used to build and enhance the model. Following that, a case study was done at a big organization, where the model was used to measure the organization's maturity level in implementing SAFe (Stojanov et al., 2015).

A rising number of software companies are adopting agile techniques. Agile maturity assessment is a way of assessing the degree of adoption and developing a plan of action to improve agility maturity (Yürüm et al., 2018). Many agile maturity assessment questionnaires are available to measure a team's or organization's agility, and many of them don't require any coaching. The utility of these questionnaires, on the other hand, has not been well examined. The purpose of this study is to determine which agile maturity self-assessment questionnaires are available, as well as to examine their strengths and weaknesses in terms of agile maturity assessment. An in-depth case study was conducted to evaluate the suitability of 22 available agile maturity self-assessment surveys based on 7 characteristics: comprehensiveness, fitness for purpose, discriminativeness, objectivity, conciseness, generalizability, and suitability for multiple assessments. The findings of the study reveal that while they do not entirely meet all of the required qualities, they are nonetheless useful (Yürüm et al., 2018).

The research seeks to build a realistic model to measure the degree of maturity of teams producing physical goods in an agile way, as existing maturity assessment models do not adequately reflect the intrinsic restrictions of physicality. The maturity model given (Schmidt & Paetzold, 2017) assesses (1) the team's ability to operate in an agile way, (2) its willingness to do so, (3) the amount to which it should/must/may do so, (4) the extent to which it requires agility, and (5) the extent to which the context permits agility. The model assesses the maturity on each dimension and synthesizes the results to the overall agility index using 140 criteria that experienced practitioners and researchers in the field of agile development of physical products find decisive in determining the degree of maturity in agile development. As a result, fuzzy set theory takes into account the inaccuracies of subjective judgments, improving the accuracy and reliability of derived judgements (Schmidt & Paetzold, 2017).

5. Agile culture effect on management style

Lee's (2015) study looked at the human resources (HR) practices of ten agile businesses to see what HR professionals are doing to improve the organization's agility. According to the findings, HR executive leadership is dedicated, visionary, and focused. They are united by a common goal, and the client is at the forefront of their minds. HR teams are creative in their interventions and solutions, and they are conscious of the importance of slowing down to address the core causes of the organization's problems. HR practitioners in agile firms were found to have excellent consulting abilities,

change management skills, and a desire to generate business value through HR activities, according to the study's findings. HR can assist by enhancing organizational skills and connecting HR outcomes to business objectives. HR practitioners grasp the role of change agent, integrate HR practices to company strategy, harness the potential of technology in HR, and develop HR and organizational competence (Lee, 2015).

Authors (Muhammad et al., 2021) aim to explain the effect of agile management practices on project performance directly as well as while being mediated by project complexity in one of the most recent endeavors to bring evidence on the impact of agile management on project perfor-mance. The abovementioned mediatory connection is also assessed in terms of the moderating influence of leadership qualities. This study evaluates the direct impact of agile management on project performance while taking into account all of its aspects, investigating the mediating factor of project performance, and assessing the moderating role of leadership competencies (Muhammad et al., 2021).

Organizations all around the world face problems as a result of an agile transformation process (Ruyle et al., 2021). The research on agile success factors is inconclusive, and suggestions to aid in the transformation process in the context of the company are required. The aim of this research is to conduct a survey of practi-tioners to determine how difficult it is to apply success criteria in companies in order to foster a fruitful environment for agile transformation (Campanelli et al., 2017). The findings indicate a substantial link between all practitioners' and expert practitioners' implementation difficulty rankings for success criteria. The measurement model and changes in project managers' mindsets, according to experts, are the most difficult success components to implement, whereas incentives and motivation to embrace agile techniques and management buy-in are the easiest. This study's contri-bution is a ranking that businesses may use as a guide for their agile transformation efforts (Campanelli et al., 2017).

The rising popularity of agile system development approaches may be regarded as broadly compatible with management fashion features. However, it is unknown to what extent trends influence how individual businesses embrace and implement agile. The goal of this study, which is based on five case studies, is to apply principles from management fashion theory to better understand how businesses consciously manage their resources (Cram & Newell, 2016). The authors identified three fashion trends throughout agile adoptions: Crusaders, who adopt agile in its purest form; Tailors, who combine agile and conventional techniques to meet their unique circumstances; and Dabblers, who use a few ceremonial agile

activities alongside a traditional approach (Cram & Newell, 2016). The findings of this study can help managers see the relation-ship between fashion and agile development, highlighting the unique potential to improve mindfulness while avoiding the traps of mindlessness. This study adds to previous theories on mindful innovation and management styles by providing insights into the fashion-centric drivers of agile adoption (Cram & Newell, 2016).

The benefit of Agile Coaching for organizations implementing agile methodologies is examined in O'Connor & Duchonova's (2014) study to aid firms adopting agile techniques in deciding whether or not to use an Agile Coach by analyzing the value they may offer to organizations implementing agile techniques (O'Connor & Duchonova, 2014). According to the statistics gathered, Agile Coaches may provide various benefits to businesses that well outweigh the financial costs of hiring one. As a result, we believe that hiring an Agile Coach for agile adoption has financial benefit, as evidenced by the change's faster return on investment (ROI).

Table 1. Main differences between traditional development and Agile development after (Dybå & Dingsøyr, 2008).

	Traditional development	**Agile development**
Fundamental assumption	Systems are fully specifiable, predictable, and are built through meticulous and extensive planning	High-quality adaptive software is developed by small teams using the principles of continuous design improvement and testing based on rapid feedback and Change
Management style	Command and control	Leadership and collaboration
Knowledge management	Explicit	Tacit
Communication	Formal	Informal
Development model	Life-cycle model	The evolutionary-delivery model
Desired organizational form/structure	Mechanistic (bureaucratic with high formalization), aimed at large	Organic (flexible and participative encouraging cooperative social action),

	Traditional development	**Agile development**
	organizations	aimed at small and medium sized Organizations
Quality control	Heavy planning and strict control. Late, heavy testing	Continuous control of requirements, design and solutions. Continuous testing

For project planning, a combination of conventional and Agile approaches is typically acceptable. Even with Agile projects, some criteria, such as project size, safety standards, and known future requirements, necessitate forward planning, whereas turbulent, high-change situations necessitate less advance planning and more usage of Agile methodologies. Too much or too comprehensive preparation may lead to wasted time and effort, as well as a lot of plan rework, whereas not enough initial planning can lead to project failure. Serrador and Turner (2015) discovered an inverted U connection between planning and project success in 1386 initiatives, in terms of the effort (time) required to plan fully. That is, they discovered that putting in too much work and time preparing may be just as detrimental to project performance as putting in too little.

While bigger companies have the means to undertake such a shift, small and medium-sized firms (SMEs) typically cannot, and so require other ways to enhance their agility and remain competitive in the global market. Authors (Zuzek et al., 2020) present a case study of a Slovenian medium-sized manufacturing company that implemented only certain APM practices separately, rather than as part of a structured APM methodology, and still achieved significant benefits: improved communication, faster detection of discrepancies, more effective problem-solving, and greater flexibility. The findings also indicate that APM practices, even when applied independently, have a positive influence on project performance in terms of both efficiency and stakeholder satisfaction, and may therefore aid in the establishment of a more eco-nomically, socially, and ecologically sustainable workplace.

Organizations nowadays are almost like "living creatures," in need of some stability while yet being able to function dynamically, since new trends have transformed and continue to alter the way they operate and behave. The leader is an enabler in an agile company, which is distinguished by less bureaucracy than previously and a de-sire to respond quickly and flexibly. The picture below illustrates the notion that organizations are living creatures.

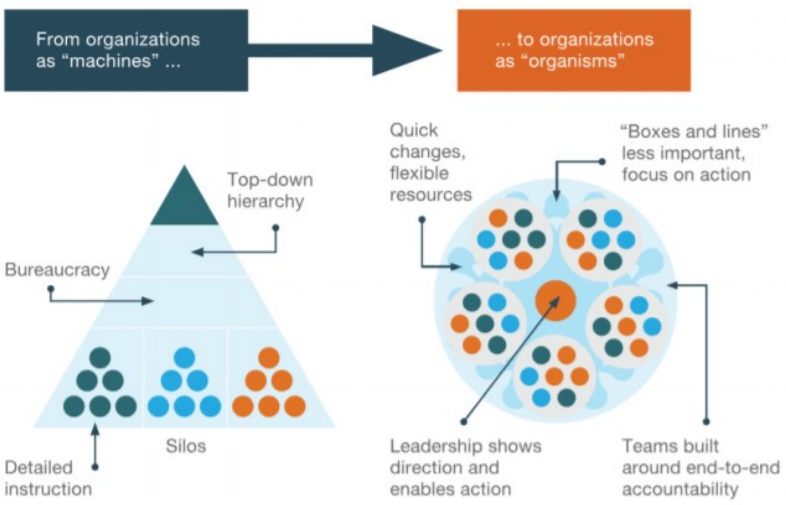

Figure 1. Agile organization as a living organism (Hancock et al., 2018)

Rapid technological developments have changed the way businesses operate, striving to create viable solutions in an environment defined by a significant level of unpredictability. Many businesses have died as a consequence of their failure to respond quickly enough to changing requirements, while others have thrived as a result of their inventions, focus, and strategy, all of which promote continuous development. An organization's ability to adapt to a changing environment is required to remain competitive in times of severe unpredictability. Managing change has several problems; it needs both short- and long-term planning, and the objectives, particularly in an agile setting, may entail a significant degree of inconsistency. This is due to the fact that forecasting the future has grown increasingly difficult, but predictions are important for establishing a sense of direction. Scrum, for example, wants to develop iteratively in short cycles, emphasizing the importance of being quick and inventive, which occasionally allows for last-minute decision-making. Long-term goals and broad standards are set in place in Scrum projects, especially when dealing with complicated challenges in large businesses, to steer the teams toward a cohesive vision. Agile isn't as chaotic as it's often made out to be. Given that Agile places a premium on technical quality, this necessitates a high degree of accuracy and risk management.

In terms of change, consider the team and its leader sailing in a boat with constantly changing weather conditions. Even though the team or the leader can't control the weather, a boat usually has someone in charge, even if it's in the middle of a storm or another unforeseen occurrence. It might be stated that when the person in charge of steering the boat becomes very focused and engaged in the work, needing to make judgments on how to approach a difficult circumstance, this is when they become particularly focused and invested in the job. The features of change management are described in this way. The more uncertainty there is in the actual world in terms of technical advances and trends, market changes, or rising demand, and risky investments, the more influx it creates for change management. Culture is always a part of change. It's difficult to govern since culture is complicated in and of itself. Returning to the four key components of culture model: flexibility, mission, engagement, and consistency, a company would benefit from considering how it is dealing with these challenges. A mission is usually long-term in nature, establishing the path in which the organization will travel.

Adaptability can refer to a range of aspects that have to do with the environment in which businesses function. Commitment and responsibility, which have previously been explored, are examples of involvement. Despite pursuing high adaptability and being on the lookout for unexpected changes, it has been proven that agile companies require a level of stability. Studying the factors of how flexible the company is in respect to the changing environment is important for agile executives. This involves following a meaningful long-term mission that is led by vision and represented in the organization's goals and objectives. It's also worth examining how engaged and capable the workforce is, as well as if the systems and processes complement the company's culture. Agile will assist businesses to be more aware of these challenges by encouraging frequent reflection on them, as this is how they may accomplish continuous improvement. In the practice and sharing of awareness, agile leaders play an essential and demanding role.

6. Agile culture effect on teams

Agile techniques are popular among Agile teams and businesses. Adopting Agile techniques, on the other hand, necessitates a significant shift in organizational structure and team management. Managers in Agile teams do, in fact, have different roles and duties. This may have an impact on the entire software development process. One research looked into the roles and responsibilities of Agile managers in Agile teams and organizations (Sarpiri

& Gandomani, 2017). Agile managers are in charge of fostering agility, removing obstacles that imperil teams, creating Agile teams, budget control, and ensuring return on investment, among several other aspects, according to the research. Being an Agile manager, on the other hand, is challenging since new duties and responsibilities are difficult to adjust to. Indeed, most managers are unable to accept low-authority management jobs, which are common in Agile techniques (Sarpiri & Gandomani, 2017).

Humans have been forming and working in groups for as long as they have been, and our capacity to create and operate in groups is critical to our survival and growth. Some people, on the other hand, detest working in groups since it may be inconvenient and lead to conflict, bruised feelings, and inefficiency (Gren et al., 2017). Organizations like to arrange work in groups because when a group works effectively, it performs exceptionally well in comparison to other work approaches (Wheelan, 2005). One of the most often stated reasons for software project failure has been the conventional approach to software development, in which projects were typically believed to be "plan-driven" (Petersen & Wohlin, 2010). These approaches were developed to coordinate massive inter-operating components and come from systems engineering and other fields. However, because software does not work in the same way as hardware, new standards were developed. Because these new standards are focused on human connection in order to offer consumer value quicker, they in-corporate many facets of psychology.

Some elements of the modern workplace may pose issues when switching to an agile technique, which emphasizes collaboration and a self-organizing team. When members of a group are unable to physically attend meetings, human connection is more difficult to develop, and communication, culture, trust, and knowledge man-agement difficulties occur (Jalali & Wohlin, 2010). Organizational psychology concerns have received increased attention in software engineering as a result of the agile management methodology (Balijepally et al., 2006; Lenberg et al., 2015). This study tries to describe the psychological developmental elements of estab-lishing agile teams, which may aid in understanding why certain agile transitions succeed while others fail.

There have been numerous models of how groups act in psychology over the years. There appears to be a consistent pattern to what occurs to all human groups, regardless of their industry or location in the globe (Wheelan & Kesselring, 2005). How-ever, because the idea has been proven to be accurate in most other domains, we see no reason why such a key notion of human behavior should not be present in the software engineering area.

Many scholars have classified the patterns into various stages and assigned various labels to them. According to Bion (1992), a group is always divided into two states: the labor group and the fundamental assumption group (consisting of dependency, fight-flight, and pairing stages).

The study of psychological elements of agile development is a relatively young re-search topic, and several studies on agile techniques and culture have been done (Iivari & Iivari, 2011; Tolfo & Wazlawick, 2008; Tolfo et al., 2011), personality traits (McDonald & Edwards, 2007; Seger et al., 2008; Feldt et al., 2010), and job satisfaction (Melnik & Maurer, 2006; Gren et al., 2015). However, there is just one paper on agile workgroups and group psychology that concludes that productive group norms provide superior results. Collocation is a problem that arises frequently in today's software development environment. In the same manner, all teams must deal with the problems that come with being geographically dispersed. Site visits, synchronous communication technologies, and knowledge sharing infrastructure are among the options proposed by Noll et al. (2010) for capturing and making explicit implicit information.

Because agile projects place a greater emphasis on close-knit teams than typical waterfall projects, characteristics of group maturity become even more critical. This psychological element of establishing an agile team has received little attention. The goal of a recent study was to see how establishing agile teams is linked to a social psy-chology-based group development model (Gren et al., 2017). The authors per-formed ten semi-structured interviews with coaches, Scrum Masters, and agile process managers from seven different businesses, as well as a poll of 66 group members from four different companies. An agile measuring instrument and one section of the Group Development Questionnaire were included in the survey (Gren et al., 2017). The findings suggest that group developing features are important for a successful agile transition, according to the practitioners. In addition, the quantitative assessment of agility was shown to be highly associated with the assessment of group maturity. The authors believe that include these psychological factors in the definition of an agile team might assist define an agile team and enhance comprehension of agility (Gren et al., 2017).

For modern managers, coping with agile development teams necessitates the adoption of a new mindset, or psychology. While procedure is important to ensure that the team produces high-quality software that meets customer needs, it's also important to remember that the Agile Method takes a more relaxed approach to management, putting more emphasis on team members' adaptability, communication, and openness, as

well as the team's and management's (Crowder & Friess, 2015). It fosters a management climate in which managers exert less control and more cooperation. The manager's role moves to removing roadblocks, encouraging openness and communication, and monitoring the change-driven environment to ensure that the entire product meets objectives and requirements, but without exercising too much control over the agile development process's ebb and flow (Crowder & Friess, 2015). Change is no longer incorrect; rather, the inability to change is incorrect. The authors examine the new soft skills that today's managers require, as well as how they contribute to or hinder from modern agile development.

Employee turnover is one of the challenges that software companies confront, and it has a significant financial impact (Melnik & Maurer, 2006). Evidence from a variety of fields consistently supports the influence of job unhappiness on high turnover. The study looks into whether and how work happiness is linked to the development pro-cesses that are employed, as well as the factors that influence job satisfaction across a wide range of industries. The amount of expertise with agile techniques and overall work satisfaction were shown to have a modest positive association (Melnik & Maurer, 2006). Agile teams have twice as many people who are satisfied with their jobs, according to the research. The ability to influence decisions that affect individual work, the opportunity to work on interesting projects, and relationships with users have all been demonstrated to be statistically significant motivators (Melnik & Maurer, 2006).

The connections between people in groups, as well as characteristics of group maturity, have been proven to have significant influence on effectiveness. In fact, mature groups have been demonstrated to perform much better in a variety of sectors, such as finishing projects faster (Wheelan et al., 1998). If the faculty work-group is at a mature growth stage, students perform better on standardized examinations (Wheelan & Tilin, 1999; Wheelan & Kesselring, 2005), and intensive care personnel working in a mature work-group saves more lives (Wheelan et al., 2003). All of these studies have demonstrated that paying attention to group development may help the group improve its performance and, as a result, give a better percentage of project success. An agile approach to projects has been found to be more effective in the agile development domain (Serrador, Pinto, 2015), which raises the issue of whether group maturity might be one significant component of this difference in success.

Agile working is critical for organizations and workers in the digital world to satisfy the demands of consumers, service users, and ever-changing markets. This must be accomplished while also achieving effectiveness and

well-being objectives. This book applies cutting-edge theory to explain how to optimize agile working by addressing essential topics such as personality, teamwork, and management (Grant & Russell, 2020). The writers describe the notion of agile working and deconstruct often misinterpreted phrases like remote working and telework. Before giving future insights, Grant and Russell (2020) investigate the well-being implications of agile work, such as sedentary behavior, digital distraction, and digital resistance. The book examines cur-rent practice in the context of existing and growing theory, paving the way for further advancements in the area and assisting organizations in making agile working work for them. In the disciplines of occupational and organizational psychology, human re-source management, organizational development, mental health, and well-being, Agile Working and Well-being in the Digital Age is a significant new resource for practitioners and academics.

In the field of information systems, agile development methods (ADM) have be-come a commonly used project management strategy (IS). However, as ADM's popularity grows, so does the number of those who are concerned about the human health risks associated with its usage (Luong et al., 2021). A recent study utilized a quantitative approach to determine if these human-related concerns are linked to a lack of emotional intelligence (EI). In a sample of 194 agile practitioners, EI was shown to be highly correlated with human-related issues in agile teams in terms of anxiety, motivation, mutual trust, and communication competence (Luong et al., 2021). As a result, our findings add to the growing body of knowledge among IS academics, project managers, and human resource experts about the essential role of EI in staffing and training agile managed IS projects (Luong et al., 2021).

Corporate agility is becoming increasingly important to businesses. The impacts of "doing" and "being agile" are critical to achieving positive outcomes in agile work (Eilers et al., 2020). Companies utilize Scrum to improve their agility. Based on an online poll of 129 Scrum development team members, one research investigates the interplay between doing agile (leadership, work design) and being agile (individual traits, empowerment) in connection to happiness and commitment (Eilers et al., 2020). The findings demonstrate that empowerment is influenced by work de-sign and leadership, and that the latter leads to job satisfaction and commitment. The fact that the team is oriented in a certain way has no bearing. The link between job de-sign and outcome factors is moderated by openness to novel activities (Eilers et al., 2020). The findings may be utilized in practice to improve Scrum satisfaction and commitment. They give insight into the

Scrum impact structure and hence serve as a foundation for future study (Eilers, Simmert, Peters, 2020).

Team organizing is a popular strategy to aid cooperation in knowledge-intensive tasks like software development, and it's especially popular in agile methodologies. Researchers have developed a tool to assist businesses in moving away from com-mand-and-control management and toward collaborative self-managed teams. This tool identifies and organizes significant teamwork issues and qualities into five categories that must be addressed when improving teamwork in agile software development (Moe et al., 2009). Aspects include shared leadership, team orientation, redundancy, learning, and autonomy. A radar map showing the cooperation status is displayed on the device. The authors provide empirical examples from working with three teams using this instrument, as well as a brief description of the instrument's potential uses (Moe et al., 2009).

In agile software development teams, a tool is proposed to encourage reflection. Authors provide a questionnaire structured along 5 characteristics of agile cooperation, comparable to the Big Five Model in modern psychology, based on the qualitative model of Moe et al. (Moe et al., 2009). The authors conducted validation research of the survey instrument with 79 participants and 8 multinational Scrum teams to see how well it aligned with current research (Stettina & Heijstek, 2011). The authors find that the variables are widely agreed upon by the teams, and that the survey method is extremely successful. The tool gives a comparable measure for agile teams, as well as advice for each of the factors, helping people and businesses to better recognize per-sonal and organizational challenges (Stettina & Heijstek, 2011).

Because many of the techniques are based on cooperation, the agile approach to managing software development projects necessitates a greater reliance on well-functioning teams. The goal of the study was to see if and how team growth from a group psychological standpoint is linked to various agile team work methods (Gren et al., 2020). The findings show a strong link between group maturity levels and the two agile techniques of iterative development and retrospectives (Gren et al., 2020). The authors conclude that agile teams at various phases of group development embrace different aspects of team agility, supporting prior re-search but with additional data and by looking into real and implemented agile methods. The authors contribute to the body of data indicating an agile deployment and management of agile projects must be tailored to the agile teams' group maturity levels (Gren et al., 2020).

Dingsyr and Lindsjrn (2013) explored the following research topic using a focus group study with 92 participants divided into 18 groups: What factors, according to agile software practitioners, influence successful teamwork? The primary findings indicate that what agile practitioners feel improves and hinders team performance is consistent with what is stated in a research-based paradigm (Dingsøyr & Lindsjørn, 2013). Agile practitioners, on the other hand, appear to lay inadequate emphasis on backup behavior. Agile practitioners place a high value on the development team's physical and technological infrastructure as facilitators of team success (Dingsyr & Lindsjrn, 2013).

To get the most out of these highly dynamic and social activities, team members must feel comfortable speaking freely (Hennel & Rosenkranz, 2020). The authors present a model that explains how psychological safety and (social) agile practices affect team performance. To get a better understanding of team-level impacts, the proposed model incorporates recent research from organizational psychology and agile information systems development (Hennel & Rosenkranz, 2020). According to findings from three case studies done at two big insurance businesses and one software development firm, social agile techniques improve psychological safety, transparency, communication, and eventually productivity (Hennel & Rosenkranz, 2020).

The impact of work overload on job performance has been extensively researched (Lalsing et al., 2012). The model proposes that agile ISD practices minimize work overload and de-tachment, using the stressor-detachment paradigm as a theoretical foundation (Huck-Fries et al., 2020). Furthermore, the authors claim that psychological detachment is a moderator of this connection (Huck-Fries et al., 2020).

With agile approach to software development project management comes a greater reliance on well-functioning teams (Gren et al., 2015). Because greater communication and collaboration are required both inside the company and within the team, as well as with consumers, social-psychological variables have a significant impact on agile teams. The findings reveal a link between group development maturity and what constitutes an agile team, highlighting the importance of psychological group processes in the formation of agile teams. Many characteristics of how team agility is defined, such as team planning effectiveness, interpersonal conflict, open communication, and devotion, were linked to group developmental difficulties. Furthermore, individual nontechnical talents did not explain the mature application of agile techniques, and task implementation efficiency in agile software development teams was not dependent on group maturity, but

rather on individual technical abilities. Many agile measuring scales are not scientifically verified, according to the findings, and the concept of agility has to be split down into elements that need to be investigated individually, one of which is what team agility entails (Gren et al., 2015). Second, agile teams at various levels of group development embrace team agility in different ways, therefore the deployment and administration of agile projects must be tailored to the team's stage of group development. Authors also find that individual technical skills may be more important in agile software development than group development, and that individual nontechnical skills are poor indicators of the maturity of agile methods (Gren, Torkar, Feldt, 2015).

While psychological safety is widely recognized as a critical component in deter-mining how well teams operate, this issue has received little attention in management education and higher education in general (Marder et al., 2021). Given the 'tangled' nature of group work and its widespread use, this exposes an essential gap. The authors looked at how Agile project management principles were used in both an under-graduate and postgraduate digital marketing programme. The results show that the intervention improved psychological safety, as well as team performance, group learning, interpersonal communication, and creativity, while also lowering the problem of free-riders. The research makes three contributions (Marder et al., 2021). First, authors add to our understanding of psychological safety by demonstrating that it may be enhanced by treatments that provide two key antecedents (supporting facilitation and a cohesive framework). Second, researchers advance our understanding of psychological safety in education by demonstrating a broader range of beneficial effects, which had previously been restricted to knowledge growth. Third, the authors provide five key considerations for educational practitioners when applying group work interventions in management (Marder et al., 2021).

7. Agile culture effect on learning environments

Agile learning is the use of agile project management methodologies, particularly Scrum, to learning processes. Agile learning, too, takes small steps and follows an Iterative design that alternates between learning and doing stages. Agile is gaining traction as a new paradigm for businesses in a number of industries because it helps teams manage and react to change. A regional campus Computer and Information Technology (CIT) department began applying Agile across its curriculum in order to offer our students

with workforce-ready skills and improved performance in group projects (Hulshult & Woods, 2020). They claimed that knowing the Agile culture is more essential than the techniques themselves after a visit to a local firm that completed an Agile transformation and is now adopting Agile for all of their teams (Hulshult & Woods, 2020).

Agile software development methods are widespread in industry, and there is a wealth of academic research and practitioner publications currently available from this perspective. With the rise of Agile within companies worldwide, it is increasingly important for information systems education to keep up with this trend to ensure cur-riculum and courses are up-to-date (Harvey & Prager, 2021). Students in the computing disciplines must be prepared to enter a job market where Agile is commonplace. As such, the topic of Agile in teaching and learning is critically important. The current special issue includes a rich collection of articles providing information systems educators with research-based, practical approaches for both teaching Agile ("the what") and using Agile as a pedagogical approach ("the how") (Sharp & Lang, 2018). In an effort to assist information systems educators categorize the growing amount of literature related to Agile in teaching and learning, a conceptual framework is provided which places the literature along the two axes of pedagogy "the how" and the content "the what" ranging from other, non-Agile to Agile. Finally, the authors present a call for future research integrating Agile on a meta-level in the course development process.

A learning community was formed by a group of faculty members from six colleges at a public university to study the Agile Way of Working, a method of workplace collaboration popular in software development, and to see if the concepts, practices, and benefits of Agile can be applied to higher education settings (Krehbiel et al., 2017). After more than two years of research, experimentation, and reflection, this group discovered that applying Agile to higher education increased student engagement, encouraged students to take ownership of their learning, improved the level and quality of collaboration, and produced higher-quality deliverables. The authors of this paper suggest an Agile Manifes-to for Teaching and Learning that may be used to guide higher education faculty's work both in and out of the classroom. Incorporating Agile tools and practices into the classroom has resulted in a variety of outcomes, according to researchers (Krehbiel et al., 2017).

The authors of a new article examine the modifications made in teaching agile techniques, practices, and concepts in four courses to address a unique dilemma: students must implement agile methods in order to

understand them. When adding applied material to courses, we run into the issue of students thinking that learning and using agile methodologies is less essential than delivering a finished product at the end of the course (Steghöfer et al., 2016). As a result, students are unable to apply theoretical process knowledge and, as a result, lack the required abilities for dealing with specified processes in the business. In particular, authors discuss experiences teaching Scrum using Lego, eliminating formal grading criteria on the given product, emphasizing process application in post-mortem reports, and making organizational adjustments to assist the process during supervision. These modifications are examined in light of student satisfaction, instructor observations, and learning outcome attainment. We also give a summary of the lessons learned to aid in the development of agile methods courses (Steghöfer et al., 2016).

The Agile Teaching/Learning Approach (ATLM) is a higher-education teaching methodology based on software engineering best practices and ideas and using agile software methodologies (Chun, 2004). Although ATLM was developed with software engineering in mind, it may be easily converted to a variety of courses that demand flexibility in teaching and learning. The aims of ATLM, as well as the methodology's process design, are described in this paper. Agility, cooperation, and the learning process are all important aspects of ATLM (Chun, 2004). The essay also discusses the e-learning platform we built to support this ATLM approach to teaching and learning, as well as the technology that makes it possible. Blogging, commenting, instant messaging, wiki, and XML RSS are some of the current collaboration and information sharing tools used by the ATLM e-learning platform (Chun, 2004).

Another study offers a literature evaluation that demonstrates the value of agile methodology to the teaching and learning environment at the university level (Arrova & Mohana, 2014). University teaching and learning has now shifted from conventional learning to active learning methods, in which students are encouraged to learn by doing rather than passively listening to lectures alone. The agile methodology has naturally encouraged team members to participate actively throughout system development phases. Agile development approach has been found as being very compatible and supportive of active academic learning. Some research has advocated and empha-sized ways of incorporating agile into active learning to improve teaching and learning processes. Few publications, on the other hand, have used the academic setting to assess agile concepts. By emphasizing this, the authors propose alternatives for the ag-ile assessment

framework to include the academic environment as a tool for obtaining agile performance feedback (Arrova & Mohana, 2014).

Communication and cooperation are essential for agile development. Trust, openness, transparency, and equality are fundamental agile ideals, yet there is a scar-city of software engineers that possess these characteristics (Meier et al., 2016). The authors show and analyze the implementation of a novel agile educational student project. The didactic approach is based on findings from various industry studies that provide insight into the abilities required of agile software engineers (Meier et al., 2016).

Teaching agile methods has found a home at many institutions throughout the world's software engineering courses (Masood et al., 2018). As a result, educators and students have adopted a variety of methods for incorporating agile techniques into their courses, including lectures, games, projects, workshops, and other methods for successful theoretical and practical learning. Practicing agile in university environments presents obstacles for students, and in order to overcome these problems, they alter conventional agile techniques to make them more effective and simpler to utilize in university situations. One study highlights the challenges students experienced when implementing agile techniques in a university course offered at the University of Auckland including difficulty in scheduling common time for all team members to work together, limited customer availability due to busy schedules, and modifications made by students to adapt agile practices to the university context, such as reducing the frequency of daily stand-ups, combining sprint meetings, and rotating the scrum master from the team. It also highlights the efficacy of these adjustments based on the students' feedback. There are also suggestions for instructors and pupils (Masood et al., 2018).

In an innovative practice paper, conversion master students learned the skills needed for agile software development methodologies through project-based group work (Lundqvist et al., 2019). It's worth mentioning that in the software sector, the majority of agile teams are made up of people with a range of educational backgrounds (not just software developers, as there will also business analysts, designers, testers etc.). In an academic context, such a diversity of positions might be useful in teaching agile approaches. This reflective educational article re-counts the growth of an industry-sourced problem-based agile student project that has engaged students from three distinct faculties over the course of three years (Lundqvist et al., 2019). Despite the fact that the experience has been mostly pleasant each year, this article recounts and comments on both the positive and negative observations made by the teaching staff throughout the years.

Reflecting on these findings has led to adjustments in the projects. As a study conclusion, it is vital to have industrial partners that are actively engaging in the process, and it is also crucial not to overlook the effort that academics must do to organize projects in order for them to be effective (Lundqvist et al., 2019).

The diversity of difficulties in the creation of cyber physical systems presents a teaching challenge. Students join teams to develop a software product as a popular way to teaching software engineering topics; this allows them to experience the difficulties firsthand. However, because cyber-physical systems require a broad grasp of several technical areas, this method is significantly more challenging than "conventional" software engineering and software development. Simultaneously, engineering concepts education lacks the teaching of soft skills, which are frequently critical success determinants for engineering projects. The authors came up with a new task-centric holistic agile method to teaching cyber physical systems. The idea is task-centric, with five instructional techniques that may be employed as needed and an emphasis on technical and soft skills (Mäkiö et al., 2016). The suggested idea allows students to have a realistic understanding of the problems involved in developing cyberphysical systems from different perspectives.

Agile courses at universities are designed to educate students for the ever-increasing needs of the software industry, where Agile has become commonplace. This demonstrates how critical it is to educate and comprehend Agile (Monett, 2013). This is why, in most cases, Agile is not just a component of the software engineering curriculum in Computer Science, but also an independent course, with rising challenges for both professors and students. Another example of the design, planning, development, and assessment of an agile project-based course is shown in this article. The motivation for addressing Agile teaching is twofold: not only is Agile theory and practice taught and practiced in class, but the teaching itself, and therefore the learning, has changed to suit shifting aims and priorities in each course edition. Making it project-based helps students to work on actual projects in collaborative and self-organizing teams, allowing them to learn Agile more successfully (Monett, 2013).

8. Implications of Agile culture in employee mental health

One paper provides empirical research that looks at the topic of software development team members' well-being (Syed-Abdullah et al., 2006). The topic at hand is whether an agile approach has any discernible

impact on software engineers' well-being. The motivation for addressing Agile teaching is twofold: not only is Agile theory and practice taught and practiced in class, but the teaching itself, and therefore the learning, has changed to suit shifting aims and priorities in each course edition. Initial findings revealed that an agile approach (XP) had a favorable impact on software engineers' excitement in the most active project (Syed-Abdullah & Holcombe, 2006). To explain why XP can increase enthusiasm, the data are evaluated with references to the cognitive, emotional, and management components of the activities investigated. More study is needed on the specific effects of each approach on the happiness and attitudes of Software Engineering (SE) teams (Syed-Abdullah et al., 2006).

Well-being is investigated in Charalampous' research (2020) in terms of five main aspects relating to (i) emotional, (ii) cognitive, (iii) social, (iv) professional, and (v) psy-chosomatic experiences in an agile working setting. The study investigates the five aspects of well-being in connection to the current literature on agile working methods, particularly in regard to 'always on' remote work (Charalampous, 2020). Agile working's favorable influence on employee happiness, dedication, and pleasant emotions is recognised, as are its possible disadvantages, such as social and professional isolation, and perceived risks to professional progress. There are several research flaws in regard to cognitive, professional, and psychosomatic variables. Following that, the implications for practice are explored, and suitable treatments and methods are recommended (Charalampous, 2020).

We currently live in a digital age, in which employment is increasingly organized around the use of information and communication technology (ICT) (Russell & Grant, 2020). As a result, the notion of agile working has evolved, which entails individuals being liberated from traditional forms of labor and is organized around four core tasks. To adapt dynamically to service and market demands and achieve both individual and organizational goals, they include increasing temporal and spatial flexibility, integrating resources, participating in inventive activity, and utilizing communication and digital technologies. The authors go through the four activities of agile working and how they affect people's performance and well-being in agile working, and how these aspects should be tackled (Russell & Grant, 2020).

Agile approach is focused on people (Mazni et al., 2015). However, there is little proof of the methodology's success in terms of humanistic characteristics. The extent to which the agile approach can have an influence on anxiety, satisfaction, sadness, and excitement levels within software engineering (SE) teams is measured. The authors' objective is to investigate

experimentally the influence of agile approach on software development teams' work-related well-being (Mazni et al., 2015). Comparative research was conducted in an academic context to attain this aim. The effect was investigated using a quantitative technique using statistical analysis. Agile does not appear to have a substantial impact on work-related happiness, according to the findings. Nonetheless, the team that was able to follow agile methods as closely as feasible during the software project had a greater degree of excitement. This research adds to the body of knowledge in software engineering research and practice, focusing on human factors (Mazni, et al., 2015).

Agile work techniques are becoming increasingly prevalent. Despite their enormous promise in terms of workplace happiness, rigorous scientific study on the subject is lacking. This study tries to describe the current situation by comparing high and low perceived agile work and evaluating the status of mental effort using physiological markers (Tuomivaara et al., 2017). The authors performed a baseline poll on how agile work was regarded in the team and took physiological measures three times throughout the course of a working day. The effects were studied using a repeated-measures method. The findings show that agile work may level out workload throughout the course of a working day, like keeping a steady pace. The outcomes of the low agile work matched the expectation that work would pile up at the conclusion of the time due to sloppy planning and infrequent inspection. As a result, deadline pressure put additional strain on workers (Tuomivaara et al., 2017).

Another recent report summarizes the most recent studies on how to use a competency-based strategy to help agile employees, their supervisors, and organizations achieve digital resilience (Grant & Clarke, 2020). Organizations must support and build agile worker capabilities for the twenty-first century, yet this is an issue that has received little attention in the literature. The creation of a digital resilience framework, based on new research, specifies the essential capabilities for long-term agile functioning. The chapter ends with an overview of how businesses may use this digital resilience architecture to promote agile working methods (Grant & Clarke, 2020).

At this point in time, there is an opportunity to influence the workplace's redesign, development, and implementation, as well as to report on the effects of what exists inside the worksite and its dynamic face.The venues in which work is done have evolved as the nature of work has changed. Part of the reason for this transition is the current trend of developing and managing energy-efficient green buildings. Because green

building standards require improvements to areas of interior environment quality, it is thought that green buildings improve the health, productivity, and comfort of its occupants. The current study was carried out as part of a preliminary investigation at a large South African company prior to their transfer to a new green building. The impact of several types of office layouts, such as agile workspaces, on employee comfort, health, and happiness is investigated in this study (Laughton & Thatcher, 2019).

Anxiety disorders and well-being were the most often seen mental health and well-being categories in another investigation, whereas conduct disorder and bipolar disorders were the least usually observed. The reason for using gamification to im-prove mental health and well-being was identified in 59 percent (41/70) of the articles and was roughly split into two themes: (1) increasing participation and (2) enhancing the desired benefits of an intervention (Cheng et al., 019). The current application of gamification to applications and technologies for promoting mental health and well-being, according to the findings, does not fit with the trend of positive reinforcement criticized in the larger health and well-being literature (Cheng et al., 2019). The authors also discovered that the most widely utilized gamification approaches and current behavior modification frameworks had some overlap. The findings also imply that health behavior change theory is not driving the use of gamification, and that many academics may regard gamification as a black box, ignoring its underlying processes. Authors advocate for more detailed and explicit definitions of how gamification is used, as well as the standardization of applied games language within and between domains (Cheng et al., 2019).

Long periods of continuous sitting time and less opportunities for physical movement are characteristics of many modern jobs, despite the fact that insufficient physical activity is a serious danger to both individual and organizational health (Thompson, 2020). The authors look at the problems and possibilities that agile employees con-front when it comes to sustaining appropriate amounts of physical exercise during the workday. The challenges that organizations have in encouraging their agile staff to be physically active are also discussed. Technology has the ability to be both a contributor and a solution to a problem (Thompson, 2020).

Self-organization is a trademark of agile software development (SD) teams and an antecedent of motivation and creativity at work, according to the Socio-Technical Design (STS) work design principles (Kakar, 2017). While self-organization is seen as a critical success factor in agile SD, previous research has revealed that self-organization is fraught with difficulties. However, no research has been done on the real amount of self-

organization used in agile teams. While the amount of self-organization varies among agile projects, the level of self-organization in agile teams was shown to be considerably greater on each of the nine criteria than those employing plan-driven techniques, according to the authors. Self-organization was also shown to have a beneficial impact on the motivation and inventiveness of SD teams (Kakar, 2017).

Agile working entails breaking free from established working practices, allowing the physical and temporal barriers between work and home to dissolve. Researchers have looked into how boundary management preferences for integration or segmentation, as well as the fit between these preferences and agile working modes, might affect work-life experiences and attitudes and well-being (Basile & Beauregard, 2020). Problems that agile working poses for boundary management, particularly in the context of an increasingly "always on" work culture are discussed together with remarks about what businesses can do to help workers manage their work-life balance in order to achieve sufficient levels of performance and well-being in each life area (Basile & Beauregard, 2020).

9. Conclusions and discussion

The data obtained in the theoretical narrative analysis reveal that the implementing agile methodologies have a direct impact on management style, on teams, on learning environments, and on employee's mental health. The purpose of this review is to delineate the trends in pre-pandemic agile work and link research conclusion to fu-ture trends in post-pandemic agile work.

Organizations have become increasingly agile in their structures, business processes, and information systems in order to create greater perceived value and proximity to their customers and markets, identifying areas of inefficiency and inefficiency in terms of value creation with their clients (internal / external) and markets. Delivering high-quality software on time has become a big problem for the software industry, and more companies are turning to agile techniques to improve their products' quality.

Agile arose from the necessity to adapt to changing client requirements driven by shifting market conditions. Most IT companies' survival depends on their ability to adapt to changes in micro and macro settings. Customers' expectations might change in a couple of weeks if someone has a fresh concept or discovers something new. This might have been avoided if due diligence had been conducted prior to signing off on requirements in the first place. Changing consumer demands, along with the

quick rate of technical obsolescence, can lead to an existential crisis among IT workers, who see their current jobs being phased out in the near future. People seek significance in nature because they want to make a difference and leave their mark. However, it's worth considering if most requirement changes are caused by changing surroundings or by our business stakeholders' inability to make up their minds. Have they skipped a thorough analysis from the start? A comprehensive grasp of this will assist the business stakeholders in holding the supplied user stories more responsible. After developing the base solution and receiving business input, it may be prudent to take a break before moving on with the development of additional features. You can even warn the company that future changes to the underlying solution, although possible, may be dangerous.

The agile technique was created to satisfy business demands while also stream-lining the development process. However, the influence on IT personnel' mental health can be negative and must be addressed. Extreme cooperation, short sprints, dependency on external teams, less documentation, a plethora of meetings, and constant change are the main agile components contributing to increased stress among tech employees. Some businesses have also implemented agile without considering their business or market demands, making the negative effects of agile even more agonizing for employees. Employers must prioritize employees' well-being and mental health in addition to guaranteeing economic stability, according to a growing agreement. COVID-19 appears to have acted as a powerful accelerator in this case. The epidemic caused major disruptions in our daily life. Some people are struggling to make ends meet, fearful of losing their jobs or houses. Others have felt alone and their social lives have been frozen. Others are dealing with physical health concerns, fear about their loved ones, and are dealing with extra care work as a result of shuttered kindergartens and schools.

While we must take these issues seriously, we must not forget that, prior to COVID-19, a large number of individuals were already struggling, with major negative consequences for their life - and, as a result, costs for their employers and society. Mental health concerns, which frequently progress to mental illness if not addressed early on, have a substantial economic impact. These statistics, all gathered before COVID-19, show that, independent of the present epidemic, mental health issues are a major problem that companies must address immediately. Businesses should care not just because they are harmed monetarily, but also because it is their responsibility to do so from a Corporate Citizenship standpoint.

There may still be those who believe that mental health should not be mentioned at work; that it is a private problem that is unaffected by work environments. However, as the statistics above demonstrate, this is simply not the case. Furthermore, the stigma associated with nearly all mental health issues and disorders inhibits people from seeking help. Those who are impacted may be concerned that others will no longer regard them as resourceful. They might think "Who would promote someone who has recently gone through a burnout episode?" All of these anxieties are perfect fuel for a vicious cycle, with those afflicted refusing to open up, delaying getting treatment, and devoting a significant portion of their already depleted energy to con-cealing their mental condition and concerns. People who do not feel free to express themselves and their feelings will get disengaged and lose ties to their teams and organizations. This will not assist them in their recovery; on the contrary, it will hinder them. As a result, the overriding issue for organizations seeking to make a genuine contribution to people's mental health is to foster a culture that avoids such vicious cycles from forming. Culture can be defined in a variety of ways. Values, real work practices, and leadership styles combine to form culture. It would be useful to deter-mine what qualities a health-conscious culture would require – and to find a source of significant inspiration inside the Agile Manifesto. The Agile Manifesto was first published in 2001 as a framework for effective software engineering. Agile ideas have recently shown to be beneficial in situations other than software development. However, from our perspective, it also includes a lot of mental health wisdom.

One of the most effective methods to support people's mental health is to ensure that their work - or some aspect of their daily routine - is meaningful and purposeful. Because of the mission they fulfill, organizations as a whole can offer significance (non-profits and social organizations may have starting advantage here). For such an organization, traditional administrative labor might have a lot of value. However, a sense of significance may manifest itself in a variety of ways, such as when people believe they have made a significant contribution to their clients or when they get a genuine thank you from a colleague. As a result, the agile manifesto's emphasis on value creation may lead to a sense of purpose.

Traditional project management reasoning implied that rigorous adherence to a plan equated to project mastery. This viewpoint overlooks the fact that modifications in plans are unavoidable. What does this have to do with mental health? For example, a significant portion of the stress experienced during COVID-19 stems from the loss of the sense of control. Imagine if your everyday work encourages a mentality in which change is a

natural aspect of life. Fortunately, a person's mindset remains constant. As a result, becoming really tolerant to change in the workplace may be linked to overall resilience (a composite of self-esteem, optimism, and perceived control), which has been linked to mental health issues in the past.

The idea of the principle of delivering working software on a frequent basis, with a preference for shorter timelines, allows you to make continuous progress and deliver value in smaller packages, step by step, rather than a final package at the end of a project. From a mental health standpoint, incorporating this idea has two significant ad-vantages: delivering value in tiny doses allows for human connection and, of course, allows for minor victories to be celebrated. Also, large tasks may be intimidating, so breaking them down into smaller portions might help individuals make them more doable.

Agile teams are made up of people with a wide range of backgrounds and skills. As a result, we may expect teams who have adopted this idea to be more prone to dealing constructively with personality and behavior variance.

Face-to-face communication is the most efficient and effective way of delivering information to and within a development team, according to the idea. Interaction, ide-ally face-to-face, is at the heart of agile working. Social engagement with a functional team is crucial for mental wellness. Emails can't replace face-to-face conversation. Chances to meet people in real life are restricted at COVID-19. Turn on the camera, though, so you can interpret each other's subtle signs. This will make routine talks easier, but it may also provide a space for people to express personal sentiments.

The leadership style that is used in the organization has a big impact on the culture. In terms of mental health, the servant/transformational leader promoted in an agile context has a positive position description: Servant and transformational leaders have a clear grasp of delegating authority to their teams. They utilize their own authority, influence, and time to remove barriers to the team's and individuals' work. This involves assistance with both personal and interpersonal issues. By default, teams and team members are trusted to get the task done. They feel valued and empowered. This has an effect on their self-efficacy, which is linked to motivation, productivity, and belonging. Micromanagement and authoritarian leadership styles, on the other hand, diminish trust, motivation, and self-confidence.

The concept of sustainable development refers to keeping a project functioning while utilizing the existing resources. Tasks are prioritized using the Kanban technique, while resources (people's available time) are held

against that. It is the responsibility of individuals to indicate when their desks are filled. New tasks should only begin after the previous ones have been completed or when time resources are available. People that follow this concept realize that their leaders recognize that there is a limit to how much work they can do. It also helps individuals say "no" to a new assignment and/or communicate that they need to deprioritize something else in order to finish the work. Transparency and regular communication on this topic, for example, may reduce the possibility of overburdening at work as a cause of burnout. We live in a culture that celebrates accomplishments and is eager to share standout moments.

The goal of these sessions is to improve content and social processes over time. Supervisors may apply agile reasoning to their everyday work with teams and individuals. We know that individuals seek advice and input, even when they have been given a lot of responsibility. Taking time on a regular basis shows that leaders are concerned — as long as they do not confuse this with micromanagement. By establishing team spirit, or within a dyad, interpersonal ties between supervisor and employer, a topic that has its own place by default, supervisors will be able to be trusted when things truly go wrong, or will know their workers well enough to recognize if they are not feeling well.

From a preventive standpoint, we believe that the concept of agile may have a good influence on people's mental health if implemented with compassion. A healthy work life might contribute to overall happiness. Work and other more personal elements of life, such as relationships, family, hobbies and interests, leisure, and sleep, must, nevertheless, be balanced. Creating a work-life balance does not imply reverting to the conventional 9-5 office culture; rather, it entails allocating sufficient time to all parts of life – and new methods of working, along with contemporary technology, can actually assist in achieving a better work-life balance.

Although one of the critiques leveled at the growth of 'agile' has been that work might intrude on personal life, this can be prevented by defining limits. For example, employees working from home can set a cut-off time of 7pm after which they will not respond to business-related emails until the next day.

On the other hand, fee-earners who are able to take advantage of agile working will have more time to spend with themselves and their families, which may increase their overall feeling of wellbeing.

Technology may aid in the facilitation of agile working, resulting in a better work-life balance. Over-empathizing has been linked to burnout in a number of studies (particularly among healthcare professionals). Humans are

designed for empathy, and caring for others may be emotionally and physically draining.

Performance management is challenging enough in traditional businesses; success in agile organizations necessitates three changes. The evidence is clear: a small set of essential behaviors distinguishes between an effective and equitable performance-management plan and one that falls short. Organizations that link employee objectives to business aims, invest in managers' abilities, and differentiate incentives for outstanding performance are 84% more likely to use performance-management approaches that their employees regard and accept as fair (Hancock et al., 2018). Furthermore, these strategies reinforce one another: excellent implementation of one practice can increase the performance of others, which leads to improved individual and organizational performance, which drives firms to attain competitive advantages. Agility will be here to stay, and it can assist traditional organizations in im-proving their performance management systems. Almost every firm, for example, understands the need for more regular input. Working in agile sprints of a few weeks duration each provides a pace that allows for both collective and individual contribution. Similarly, a more independent and risk-taking culture helps individuals to grow, take on more responsibility, and learn how to grow quickly. To make the guidelines successful in the agile business model, agile firms must modify each of the three fundamental performance-management approaches.

Agile working approaches involve linking workers' goals to company goals clearly and maintaining a high level of flexibility. They're also necessary if employees want to feel like their work has meaning and purpose. However, agile businesses may be worried about how the emphasis on individual goals will interact with the autonomous teams that characterize agility. Three approaches can help agile businesses adjust and ensure that goals remain relevant and connected to business demands.

Agility necessitates empowered and self-sufficient teams. Agility necessitates empowered and self-sufficient teams. As a result, controlling performance alone or largely on an individual basis is difficult.

In order to encourage ownership, effective agile companies typically allow teams to establish their own goals when it comes to creating targets and assessing performance. For example, performance objectives may contain a mix of team goals, individual contributions to the team, competency in competencies required at the job level, and congruence between professional behaviour and the company's values. The relevance of these elements varies depending on the profession, with experts placing a larger priority on cooperation to encourage collaboration.

Agile businesses have teams that work autonomously and quickly, with a clear focus on production. They follow general directions and strategic priorities rather than particular, top-down commands. Agile businesses usually rely on a carefully controlled procedure, including a regular performance evaluation, to ensure harmony among autonomous teams. Every semester, a precise cascade from strategic goals to team targets is developed, and performance versus important results is addressed in a trans-parent manner. To accommodate for altering priorities as a consequence of the Quarterly Business Review, team and individual objectives must be dynamic rather than set in a once-a-year exercise (QBR).

Setting objectives as a group can provide extra benefits, especially in terms of engagement and ambition. Unsurprisingly, devotion to one's own goals is typically greater than commitment to goals set for one by others. Because agile businesses are decentralized, there is a risk that decentralization and empowerment will devolve into chaos. One way to avoid this is to make goals and performance highly transparent. This type of transparency has several benefits, including showing interdependencies among teams and divisions, creating momentum and mindshare, and supporting the nonhierarchical culture and attitude that agile businesses have.

Individuals in agile organizations, like those in any other company, improve by receiving feedback and being exposed to possibilities for advancement. In successful agile organizations, feedback is at the heart of a culture of taking risks, failing fast, and pursuing continual personal growth at all levels. Employees at these firms are motivated to solicit and offer feedback regularly. This is not always easy to achieve. Executives and nonmanagers alike may need to overcome mental and ability barriers in order to offer and receive feedback more frequently, not just vertically and horizontally on the hierarchy, but also to coworkers.

Agile companies require rigorous processes for collecting feedback and evaluating performance on a regular basis. Traditionally, the line manager has been the conduit for all information regarding the employee. This necessitates a single person gathering information on an individual from a variety of sources, synthesizing it, and collabo-rating with other peers to ensure that evidence and choices are harmonized. When outcomes are differentiated, especially at the two extremes of performance, employees are more likely to see their performance management strategy as fair. In some respects, this is more challenging in agile companies, as collaborative and highly interconnected teams make it difficult to link individual contributions to outcomes.

Successful agile companies embody agile methodologies and working styles that are genuine and visible in day-to-day work. Culture, or the strong, shared ideas, mind-sets, and behaviors that underpin and allow those techniques and ways of working, is a less visible but crucial stable practice of agile businesses. Individual performance is measured and controlled in successful agile businesses not just against explicit goals, but also by how effectively the individual has exhibited and articulated the desired outcomes, attitudes, and behaviors. These objectives should be carefully connected to possible rewards or consequences. In general, salespeople are paid based on their ability to achieve individual and team goals, as well as how well and frequently they educate and mentor their teammates. These efforts should be carefully documented and recognized since they both motivate individuals and serve as a draw for the next opportunity. Organizations, on the other hand, should make clear decisions with workers who do not actively embody and show the intended values, mindsets, and behaviors, simply by letting go of individuals who do not comply with the organization's fundamental cultural values and categorized behaviors. Work at the majority of successful agile businesses is characterized by a sense of accomplishment and exciting, it is typical to hearing employees express how their everyday activity does not seem like work. Employees remain because they care about their jobs and the company's culture.

While people expect to be fairly compensated for their contributions, flexible benefits allow agile organizations to place a higher focus on intrinsic motivation and frequent nonfinancial incentives such as innovative initiatives, opportunity to showcase outwardly or participate in special events, high recognition in the work environment, and space for charitable projects. Performance management cannot be ignored by organizations embarking on agile transitions. Even pilot teams must be separated from traditional techniques to guarantee that agile practices and mindsets may proliferate and are suitably acknowledged and rewarded.

When done correctly, performance management that is tailored to an organization's agile goals and environment will enable full capture and sustainability of the advantages guaranteed by agility.

Understanding the concepts and characteristics of an agile organization design, as well as the methods required to put them in place, is a critical management requirement. Traditional designs are ill-equipped to deal with the present environment's volatility, unpredictability, and complexity. Most people agree that there aren't enough agile companies, and the facts shown here and, in our study, back up that assertion. Agile organization design elements are usually present to some level, with only a

few outliers. Only one of the organizations we evaluated consistently ranked themselves as somewhat agile. Given the fast-changing global business environment, this confirms the opinion that there are too few agile businesses. To raise that number, it will be necessary to accept that not all businesses can or should be agile, and that not all businesses will define agility in the same manner. Furthermore, it is critical to recognize that the redesign process will be both more challenging and distinct from typical con-versions. It's tempting to say that all businesses should be agile when it comes to the first two concerns. Being an agile company is a true instance of organization development in terms of the transformation process. Every business has some agile features, and the evaluation usually leads to a discussion about what the next, greatest, and most important characteristics are to handle.

The most likely explanation for the lack of more agile companies is the difficulty of transforming current organizations. It is far easier to build new adaptive organizations than it is to modify an existing organization. The first stage is diagnosis, which entails determining which aspects of the organization promote agility and which do not. The agility evaluation revealed a positive and fruitful redesign approach that might result in a more agile company over time. Multiple aspects of the organization will need to be altered, and further evaluations will be required if this redesign is to be effective. Because it differs from transitioning from one stable state to another, the change to an agile organization is difficult. Transparency, rapidity, high participation, and adaptability are all characteristics of agility that should be reflected in the change process. Organizations, in general, begin with the planning process. Organizations must have a strong future focus capacity in order to raise awareness of and prepare for various environmental changes. Similarly, they can generally include the concept of a flexible strategic intent into their strategic thinking. Adoption of an alternate economic rationale and the harmonization of the firm's identity are more difficult obstacles to overcome. Most managers and executives see the need for more agility, but they reject the notion that change, rather than efficiency, distinctiveness, or growth, is the competitive edge.

Furthermore, determining the firm's identity takes time and might lead to a range of results. If the organization's identity is resistant to change, it will be necessary to make judgments on how to proceed. One ray of optimism is that design modifications are arguably the most effective method to alter one's identity. The creation or strengthening of the organization's change/learning capacity is the third most typical phase in a transformation to agility. Not only will the company require a change

capacity to coordinate the move from a traditional to an agile organization, but it will also require a proven ability to repurpose resources, assets, people, budgets, systems, and procedures in order to approach change as normal. Many of these changes will be opposed since they threaten many people's old power bases and may result in short-term performance declines. Under any circumstances, transforming companies to agile forms would be difficult, but the alignment of this form with future environ-mental needs makes the practice and growth valuable.

In our opinion, very soon academia will also face this huge challenge of being agile, and soon Universities will adopt new Agile performance management protocols, like in all other living and breathing organizations.

References

Almeida, F., & Espinheira, E. (2021). Large-Scale Agile Frameworks: A Comparative Review. *Journal of Applied Sciences, Management and Engineering Technology, 2*(1), 16-29. http://dx.doi.org/10.31284/j.jasmet.2021.v2i1.1832

Arrova, D. D., & Mohana, M. (2014). The Agility of Agile Methodology for Teaching and Learning Activities. In IEEE (Ed.), *2014 8th. Malaysian Software Engineering Conference (MySEC)* (pp. 255-259). IEEE. https://doi.org/10.1109/MYSEC.2014.6986024

Ayed, H., Vanderose B., & Habra, N. (2012). A Metamodel-Based Approach for Customizing and Assessing Agile Methods. In IEEE (Ed.), *2012 Eighth International Conference on the Quality of Information and Communications Technology* (pp. 66-74). IEEE. https://doi.org/10.1109/QUATIC.2012.11

Balaji, M., Velmurugan, V., & Subashree, C. (2015). TADS: An assessment methodology for agile supply chains. *Journal of applied research and technology, 13*(5), 504-509. https://doi.org/10.1016/j.jart.2015.10.002

Balijepally, V., Mahapatra, R., & Nerur, S. (2006). Assessing personality profiles of software developers in agile development teams. *Communications of the Association for Information Systems, 18*, 4. https://doi.org/10.17705/1CAIS.01804

Basile, K. A., & Beauregard, T. A. (2020). Boundary Management: Getting the Work-Home Balance Right. In C. Grant, & E. Russell (eds.), *Agile Working and Well-Being in the Digital Age* (pp. 35-46). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-60283-3_3

Bion, W. (1992). *Experiences in groups: And other papers*. Routledge.

Campanelli, A. S., Bassi, D., & Parreiras, F. S. (2017). Agile Transformation Success Factors: A Practitioner's Survey. In E. Dubois, & K. Pohl (eds.), *Advanced Information Systems Engineering. CAiSE 2017. Lecture Notes in Computer Science*, vol. 10253 (pp. 364-379). Springer, Cham. https://doi.org/10.1007/978-3-319-59536-8_23

Campanelli, A. S., & Parreiras, F. P. (2015). Agile methods tailoring – A systematic literature review. *Journal of Systems and Software, 110*, 85-100, https://doi.org/10.1016/j.jss.2015.08.035

Charalampous, M. (2020). A Review of the Agile Working Literature in Relation to Five Facets of Well-Being. In C. Grant, & E. Russell (eds.), *Agile Working and Well-Being in the Digital Age* (pp. 93-105). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-60283-3_7

Cheng, V. W. S., Davenport, T., Johnson, D., Vella, K., & Hickie, I. B. (2019). Gamification in Apps and Technologies for Im-proving Mental Health and Well-Being: Systematic Review. *JMIR Mental Health, 6*(6), e13717. https://doi.org/10.2196/13717

Chun, A. H. W. (2004). The Agile Teaching/Learning Methodology and Its e-Learning Platform. In W. Liu, Y. Shi, & Q. Li (eds.), *Advances in Web-Based Learning – ICWL 2004. ICWL 2004. Lecture Notes in Computer Science*, vol 3143 (pp. 11-18). Springer. https://doi.org/10.1007/978-3-540-27859-7_2

Coelho, I., Ventura, P., & Reis, L. (2020). Design of Model and Application Development for Agile Practices Assessment. In IEEE (Ed.), *2020 15th Iberian Conference on Information Systems and Technologies (CISTI)*, (pp. 1-5). IEEE. https://doi.org/10.23919/CISTI49556.2020.9140849

Cram, W. A., & Newell, S. (2016). Mindful revolution or mindless trend? Examining agile development as a management fashion. *European Journal of Information Systems, 25*(2), 154-169. https://doi.org/10.1057/ejis.2015.13

Crowder, J. A., & Friess, S. (2015). The Psychology of Agile Team Leadership. In J. A. Crowder, & S. Friess (Eds.), *Agile Project Management: Managing for Success* (pp. 9-25). Springer.

De Souza Bermejo, P. H., Zambalde, A. L., Tonelli, A. O., Souza, S. A., Zuppo, L. A., & Rosa, P. L. (2014). Agile principles and achievement of success in software development: A quantitative study in Brazilian organizations. *Procedia Technology, 16*, 718-727. https://doi.org/10.1016/j.protcy.2014.10.021

Dingsøyr, T., Nerur, S., Balijepally, V., & Moe, N. B. (2012). A decade of agile methodologies: Towards explaining agile software development. *Journal of Systems and Software, 85*(6), 1213 – 1221. https://doi.org/10.1016/j.jss.2012.02.033

Dingsøyr, T., & Lindsjørn, Y. (2013). Team performance in agile development teams: Findings from 18 focus groups. H. Baumeister, & B. Weber (eds.), Agile Processes in Software Engineering and Extreme Programming. XP 2013. Lecture Notes in Business Information Processing, vol 149 (pp. 46-60). Springer. https://doi.org/10.1007/978-3-642-38314-4_4

Dyba, T., & Dingsoyr, T. (2008) Empirical Studies of Agile Software Development: A Systematic Review. *Information and Software Technology, 50*, 833-859. http://dx.doi.org/10.1016/j.infsof.2008.01.006

Eilers, K., Simmert, B., & Peters, C. (2020). Doing Agile vs. Being Agile - Understanding Their Effects to Improve Agile Work. In J. F. George, P. Souren, De' Rahul, E. Karahanna, S. Sarker, & G. Oestreicher-Singer (Eds.), *International Conference on Information Systems (ICIS 2020)* (pp. 1-17). ICIS Proceedings. https://www.alexandria.unisg.ch/261157/1/JML_806.pdf

Feldt, R., Angelis, L., Torkar, R., & Samuelsson, M. (2010). Links between the personalities, views and attitudes of software engineers. *Information and Software Technology, 52*, 611-624. https://doi.org/10.1016/j.infsof.2010.01.001

Gamble, R. F., & Hale, M. L. (2013). Assessing individual performance in Agile undergraduate software engineering teams. In IEEE (Ed.), *2013 Frontiers in Education Conference (FIE)* (pp. 1678-1684). IEEE. https://doi.org/10.1109/FIE.2013.6685123

Gandomani, T. J., Zulzalil, H., & Nafchi, M. Z. (2015). Agile Transformation: A Multi-Dimensional Process. *Jurnal Teknologi, 77*(9), 89-96. https://doi.org/10.11113/jt.v77.6188

Grant C., Clarke C. (2020). Digital Resilience: A Competency Framework for Agile Workers. In C. Grant, & E. Russell (eds.), *Agile Working and Well-Being in the Digital Age* (pp. 117-130). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-60283-3_9

Grant, C., & Russell, E. (2020). *Agile working and well-being in the digital age*. Springer International Publishing AG.

Gren, L., Goldman, A., & Jacobsson, C. (2020). Agile ways of working: a team maturity perspective. *Journal of Software: Evolution and Process, 32*(6), e2244. https://doi.org/10.1002/smr.2244

Gren, L., Torkar, R., & Feldt, R. (2015). The prospects of a quantitative measurement of agility: A validation study on an agile maturity model. *Journal of Systems and Software, 107*, 38-49. https://doi.org/10.1016/j.jss.2015.05.008

Gren, L., Torkar, R., & Feldt, R. (2017). Group development and group maturity when building agile teams: A qualitative and quantitative investigation at eight large companies. *Journal of Systems and Software, 124*, 104-119. https://doi.org/10.1016/j.jss.2016.11.024

Hancock, B., Hioe, E., Schaninger, B. (2018). *The fairness factor in performance management*. McKinsey Quarterly. https://www.mckinsey.com/business-functions/organization/our-insights/the-fairness-factor-in-performance-management

Harvey, V. S., & Prager, R. Y. (2021). Developing Learning Agile Behavior. In V. S. Harvey & K. P. De Meuse (Ed.), *The Age of Agility: Building Learning Agile Leaders and Organizations* (pp. 145-156). Oxford University Press. http://doi.org/10.1093/oso/9780190085353.003.0006

Hennel, P., & Rosenkranz, C. (2020). Investigating the "Socio" in Socio-Technical Development: The Case for Psychological Safety in Agile Information Sys-

tems Development. *Project Management Journal, 52*(1), http://dx.doi.org/10.1177/8756972820933057

Hong, W., Thong, J. Y., Chasalow, L. C., & Dhillon, G. (2011). User acceptance of agile information systems: A model and empirical test. *Journal of management information systems, 28*(1), 235-272. https://doi.org/10.2753/MIS0742-1222280108

Huck-Fries, V., Prommegger, B., Wiesche, M., & Krcmar, H. (2020). Agile and Overworked? The Role of Work Overload and Psychological Detachment in Agile Information Systems Development Projects. In C. Maier, D. Beimborn, & S. C. Srivastava (Less) (Eds.), *Proceedings of the 2020 on Computers and People Research Conference* (pp. 133-134). https://doi.org/10.1145/3378539.3393835

Hulshult, A., & Woods, D. M. (2020). Applying Agile across the IT Curriculum. *Information Systems Education Journal, 18*(1), 14-21. https://isedj.org/2020-18/n1/ISEDJv18n1p14.html

Iivari, J., & Iivari, N. (2011). The relationship between organizational culture and the deployment of agile methods. *Information and Software Technology, 53*(5), 509–520. https://doi.org/10.1016/j.infsof.2010.10.008

Jalali, S., & Wohlin, C. (2012). Systematic literature studies: database searches vs. backward snowballing. In P. Runeson, M. Höst, E. Mendes, A. Andrews, R. Harrison (Eds.), *Proceedings of the ACM-IEEE international symposium on Empirical software engineering and measurement (ESEM '12)* (pp. 29–38). Association for Computing Machinery. https://doi.org/10.1145/2372251.2372257

Kakar, A. K. (2017). Assessing Self-Organization in Agile Software Development Teams. *Journal of Computer Information Systems, 57*(3). 208-217, https://doi.org/10.1080/07362994.2016.1184002

Krehbiel, T. C., Salzarulo, P. A., Cosmah, M. L. Forren, J., Gannod, G., Havelka, D., Hulshult, A. R., & Merhout, J. (2017). Agile Manifesto for Teaching and Learning. *Journal of Effective Teaching, 17*(2), 90-111. https://uncw.edu/jet/articles/vol17_2/krehbiel.html

Krishnamachariar, P. K., & Gupta, M. (2018). Swimming Upstream in Turbulent Waters: Auditing Agile Development. In M. Gupta, R. Sharman, J. Walp, & P. Mulgund (Eds.), *In-formation Technology Risk Management and Compliance in Modern Organizations* (pp. 268-300). IGI Global.

Lalsing, V., Kishnah, S., & Pudaruth, S. (2012). People factors in agile software development and project management. *Inter-national Journal of Software Engineering & Applications, 3*(1), 117. https://airccse.org/journal/ijsea/papers/3112ijsea09.pdf

Laughton, K. A., & Thatcher, A. (2019). Health and Wellbeing in Modern Office Layouts: The Case of Agile Workspaces in Green Buildings. In S. Bagnara,

R. Tartaglia, S. Albolino, T. Alexander, Y. Fujita (eds.), *Proceedings of the 20th Congress of the Inter-national Ergonomics Association (IEA 2018). IEA 2018. Advances in Intelligent Systems and Computing*, vol 825 (pp. 831-840). Springer. https://doi.org/10.1007/978-3-319-96068-5_89

Lee, P. (2015). A *study of human resources practices within agile organizations* [Unpublished doctoral dissertation]. Pepperdine University.

Lenberg, P., Feldt, R., & Wallgren, L.-G. (2015). Behavioral software engineering: A definiton and systematic literature review. *Journal of Systems and Software, 107*, 15-37. https://doi.org/10.1016/j.jss.2015.04.084

Leppänen, M. (2013). A Comparative Analysis of Agile Maturity Models. In R. Pooley, J. Coady, C. Schneider, H. Linger, C. Barry, & M. Lang (Eds.), *Information Systems Development* (pp. 329-343). Springer. https://doi.org/10.1007/978-1-4614-4951-5_27

Lundqvist, K., Ahmed, A., Fridman, D., & Bernard, J. (2019). Interdisciplinary Agile Teaching. IEEE (Ed.), *2019 IEEE Frontiers in Education Conference (FIE)* (pp. 1-8). IEEE. https://doi.org/10.1109/FIE43999.2019.9028544

Luong, T. T., Sivarajah, U., & Weerakkody, V. (2021). Do agile managed information systems projects fail due to a lack of emotional intelligence?. *Information Systems Frontiers, 23*(2), 415-433. https://link.springer.com/article/10.1007/s10796-019-09962-6

Mäkiö, J., Mäkiö-Marusik, E., & Yablochnikov, E. (2016). Task-centric holistic agile approach on teaching cyber physical systems engineering. IEEE (Ed.), *IECON 2016 - 42nd Annual Conference of the IEEE Industrial Electronics Society* (pp. 6608-6614). IEEE. https://doi.org/10.1109/IECON.2016.7793806

Marder, B., Ferguson, P., Marchant, C., Brennan, M., Hedler, C., Rossi, M., Black, S., & Doig, R. (2021). 'Going agile': Exploring the use of project management tools in fostering psychological safety in group work within management discipline courses. The In-ternational. *Journal of Management Education, 19*(3), 100519. http://doi.org/10.1016/j.ijme.2021.100519

Marques, R., Mira da Silva, M., & Ferreira, D. R. (2018). Assessing Agile Software Development Processes with Process Mining: A Case Study. IEEE (Ed.), *2018 IEEE 20th Conference on Business Informatics (CBI)* (pp. 109-118). IEEE. https://doi.org/10.1109/CBI.2018.00021

Masood, Z., Hoda, R., Blincoe, K. (2018). Adapting agile practices in university contexts. *Journal of Systems and Software, 144*, 501-510, https://doi.org/10.1016/j.jss.2018.07.011

Mazni, O., Abdullah, S., & Lailee, S. (2015). The Impact of Agile Methodology on Software Team's Work-Related Well-Being. *International Journal of Software Engineering and Its Applications, 9* (3), 123-136. https://doi.org/10.14257/ijseia.2015.9.3.13

McDonald, S., & Edwards, H. (2007). Who should test whom?. *Communications of the ACM, 50*(1), 66–71. http://doi.org/10.1145/1188913.1188919

Meier, A., Kropp, M., & Perellano, G. (2016). Experience Report of Teaching Agile Collaboration and Values: Agile Software Development in Large Student Teams. IEEE (Ed.), *2016 IEEE 29th International Conference on Software Engineering Education and Training (CSEET)* (pp. 76-80). IEEE. https://doi.org/10.1109/CSEET.2016.30

Melnik, G., & Maurer, F. (2006). Comparative analysis of job satisfaction in agile and non-agile software development teams. In P. Abrahamsson, M. Marchesi, G. Succi (Eds.), *International conference on extreme programming and agile processes in software engineering* (pp. 32-42). Springer.

Melnik, G., & Maurer, F. (2006). Comparative analysis of job satisfaction in agile and non-agile software development teams. In P. Abrahamsson, M. Marchesi, & G. Succi (Eds.), *Extreme Programming and Agile Processes in Software Engineering* (pp. 32–42). Springer.

Moe, N. B., Dingsøyr, T., & Røyrvik, E. A. (2009). Putting Agile Teamwork to the Test – An Preliminary Instrument for Empir-ically Assessing and Improving Agile Software Development. In P. Abrahamsson, M. Marchesi, F. Maurer (Eds.), *Agile Processes in Software Engineering and Extreme Programming. XP 2009. Lecture Notes in Business Information Processing*, vol 31 (pp. 114-123). Springer. https://doi.org/10.1007/978-3-642-01853-4_14

Monett, D. (2013). *Agile project-based teaching and learning*. The Steering Committee of The World Congress in Computer Science, Computer Engineering and Applied Computing (WorldComp).

Muhammad, U., Nazir, T., Muhammad, N., Maqsoom, A., Nawab, S., Fatima, S.T., Shafi, K., & Butt, F. S. (2021). Impact of agile management on project performance: Evidence from I.T sector of Pakistan. *PLoS ONE 16*(4), e0249311. https://doi.org/10.1371/journal.pone.0249311

Noll, J., Beecham, S., & Richardson, I. (2010). Global software development and collaboration: Barriers and solutions. *ACM Inroads, 1*, 66–78. https://doi.org/10.1145/1835428.1835445

O'Connor, R.V., & Duchonova, N. (2014). Assessing the Value of an Agile Coach in Agile Method Adoption. In B. Barafort, R.V. O'Connor, A. Poth, R. Messnarz (Eds), Systems, Software and Services Process Improvement. EuroSPI 2014. Communica-tions in Computer and Information Science, vol 425 (pp. 135-146). Springer. https://doi.org/10.1007/978-3-662-43896-1_12

Oliva, F. L., Couto, M. H. G., Santos, R. F., & Bresciani, S. (2019). The integration between knowledge management and dynamic capabilities in agile organizations. *Management Decision, 57*(8), 1960-1979. https://doi.org/10.1108/MD-06-2018-0670

Ozcan-Top, O., & Demirörs, O. (2013) Assessment of Agile Maturity Models: A Multiple Case Study. In T. Woronowicz, T. Rout, R.V.O'Connor, A. Dorling (Eds), *Software Process Improvement and Capability Determination. SPICE 2013. Communications in Computer and Information Science*, vol. 349 (pp. 130-141). Springer. https://doi.org/10.1007/978-3-642-38833-0_12

Ozcan-Top, O., & Demirörs O. (2015). A Reference Model for Software Agility Assessment: AgilityMod. In T. Rout, R. O'Connor, & A. Dorling (Eds), *Software Process Improvement and Capability Determination. SPICE 2015. Communications in Computer and Information Science*, vol 526. Springer, Cham. https://doi.org/10.1007/978-3-319-19860-6_12.

Petersen, K., & Wohlin, C. (2010). The effect of moving from a plan-driven to an incremental software development approach with agile practices. *Empirical Software Engineering, 15*, 654-693. https://doi.org/10.1007/s10664-010-9136-6

Rad, D., & Rad, G. (2021). Theory of Change and agile community digital psychological interventions. *Technium Social Sciences Journal, 20*(1), 632–642. https://techniumscience.com/index.php/socialsciences/article/view/3516

Russell, E., & Grant, C. (2020). Introduction to Agile Working and Well-Being in the Digital Age. In C. Grant, E. Russell (Eds.), *Agile Working and Well-Being in the Digital Age*. Palgrave Macmillan. https://doi.org/10.1007/978-3-030-60283-3_1

Ruyle, K. E., De Meuse, K. P., & Hughley, C. W. (2021). Becoming a Learning Agile Organization. In V. Schmidt Harvey & K. P. De Meuse (Eds.), *The Age of Agility: Building Learning Agile Leaders and Organizations* (pp. 345-364). http://doi.org/10.1093/oso/9780190085353.003.0014

Santos, M., Bermejo, P., Oliveira, M., & Tonelli, A. (2011). Agile Practices: An Assessment of Perception of Value of Professionals on the Quality Criteria in Performance of Projects. *Journal of Software Engineering and Applications, 4*(12), 700-709. https://doi.org/10.4236/jsea.2011.412082

Sarpiri, M., & Gandomani, T. (2017). How agile managers affect the process of software development. *International Journal of Computer Science and Network Security, 17*(5), 283-286. http://paper.ijcsns.org/07_book/201705/20170538.pdf

Schmidt, T. S., & Paetzold, K. (2017). Maturity assessment of teams developing physical products in an agile manner. In IEEE (Ed.), *2017 International Conference on Engineering, Technology and Innovation (ICE/ITMC)* (pp. 351-360). IEEE. https://doi.org/10.1109/ICE.2017.8279907

Seger, T., Hazzan, O., & Bar-Nahor, R. (2008). Agile orientation and psychological needs, self-efficacy, and perceived support: A two job-level comparison. In IEEE (Ed.), *Agile Conference 2008* (pp. 3–14). IEEE. http://dx.doi.org/10.1109/Agile.2008.27

Serrador, P., & Pinto, J. K. (2015). Does Agile work? - A quantitative analysis of agile project success. *International Journal of Project Management, 33*(5), 1040-1051. https://people.eecs.ku.edu/~hossein/Teaching/Sp17/811/Papers/Agility/does-agile-work.pdf

Serrador, P., & Turner, R. (2015). What is enough planning? Results from a global quantitative study. *IEEE Transactions on Engineering Management, 62*(4), 462-474. https://doi.org/10.1109/TEM.2015.2448059

Sharp, J. H., & Lang, G. (2018). Agile in teaching and learning: Conceptual framework and research agenda. *Journal of In-formation Systems Education, 29*(2), 45-52. https://eric.ed.gov/?id=EJ1182634

Sidky, A., Arthur, J., & Bohner, S. (2007). A disciplined approach to adopting agile practices: the agile adoption framework. *Innovations in Systems and Software Engineering, 3*, 203–216. https://doi.org/10.1007/s11334-007-0026-z

Soundararajan, S., & Arthur, J. D. (2011). A Structured Framework for Assessing the "Goodness" of Agile Methods. In IEEE (Ed.), *2011 18th IEEE International Conference and Workshops on Engineering of Computer-Based Systems* (14-23). IEEE. https://doi.org/10.1109/ECBS.2011.26

Soundararajan, S., Arthur, J. D., & Balci, O. (2012). A Methodology for Assessing Agile Software Development Methods.In J. Gensel, D. Josselin, & D. Vandenbroucke (Eds.), *Agile Conference, 2012* (pp. 51-54). IEEE. https://doi.org/10.1109/Agile.2012.24

Soundararajan, S., Balci, O., & Arthur, J.D. (2013). Assessing an Organization's Capability to Effectively Implement Its Selected Agile Method(s): An Objectives, Principles, Strategies Approach, 2013. In D. Vandenbroucke, B. Bucher, & J. Crompvoets (Eds.), *Agile Conference, 2013* (pp. 22-31). IEEE. https://doi.org/10.1109/AGILE.2013.9

Stavru, S. (2014). A critical examination of recent industrial surveys on agile method usage. *Journal of Systems and Software, 94*, 87-97. https://doi.org/10.1016/j.jss.2014.03.041

Steghöfer, J. P, Knauss, E., Alégroth, E., Hammouda, I., Burden, H, & Ericsson, M. (2016). Teaching Agile: addressing the conflict between project delivery and application of Agile methods. In L. Dillon, W. Visser, & L. Williams (Eds.), *Proceedings of the 38th International Conference on Software Engineering Companion (ICSE '16)* (pp. 303–312). Association for Computing Machinery. https://doi.org/10.1145/2889160.2889181

Stettina, C.J., & Heijstek, W. (2011). Five Agile Factors: Helping Self-management to Self-reflect. In R.V. O'Connor, J. Pries-Heje, R. Messnarz (Eds.), Systems, Software and Service Process Improvement. EuroSPI 2011. Communications in Computer and In-formation Science, vol 172 (pp. 84-96). Springer. https://doi.org/10.1007/978-3-642-22206-1_8

Stojanov, O., Turetken, J., & Trienekens, J. J. M. (2015). A Maturity Model for Scaling Agile Development. In IEEE (Ed.), 2015 41st Euromicro Conference on Software Engineering and Advanced Applications (pp. 446-453). IEEE. https://doi.org/10.1109/SEAA.2015.29

Sutherland, J., & Schwaber, K. (2011). *The Scrum Guide The Definitive Guide to Scrum: Rules of the Game*. Scrum. http://www.scrum.org/Portals/0/Documents/Scrum%20Guides/Scrum_Guide.pdf

Syed-Abdullah, S., Holcombe, M., & Gheorge, M. (2006). The Impact of an Agile Methodology on the Well Being of Development Teams. *Empirical Software Engineering, 11*, 143–167. https://doi.org/10.1007/s10664-006-5968-5

Thompson, A. (2020). Physical Activity and Sedentary Behaviour in the Digital Workspace. In C. Grant, & E. Russell (Eds.), *Agile Working and Well-Being in the Digital Age* (pp. 107-116). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-60283-3_8

Tolfo, C., & Wazlawick, R. (2008). The influence of organizational culture on the adoption of extreme programming. *Journal of systems and software, 81*(11), 1955–1967. https://doi.org/10.1016/j.jss.2008.01.014

Tolfo, C., Wazlawick, R., Ferreira, M., & Forcellini, F. (2011). Agile methods and organizational culture: Reflections about cultural levels. *Journal of Software Maintenance and Evolution: Research and Practice, 23*(6), 423–441. https://doi.org/10.1002/smr.483

Tuncel, D., Körner, C., & Plösch, R. (2021). Setting the Scope for a New Agile Assessment Model: Results of an Empirical Study. In P. Gregory, C. Lassenius, X. Wang, P. Kruchten (Eds.), *Agile Processes in Software Engineering and Extreme Programming. XP 2021. Lecture Notes in Business Information Processing*, vol. 419 (pp. 55-70). Springer. https://doi.org/10.1007/978-3-030-78098-2_4

Tuomivaara, S., Lindholm, H., & Känsälä, M. (2017). Short-Term Physiological Strain and Recovery among Employees Working with Agile and Lean Methods in Software and Embedded ICT Systems, International *Journal of Human–Computer Interaction, 33*(11), 857-867. https://doi.org/10.1080/10447318.2017.1294336

Vansteenkiste, M., Ryan, R., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions". *Motivation and Emotion, 44*(1), 1-31. https://doi.org/10.1007/s11031-019-09818-1

Wendler, R. (2014). Development of the organizational agility maturity model. IEEE (Ed.), *2014 Federated Conference on Computer Science and Information Systems* (pp. 1197-1206). IEEE. https://doi.org/10.15439/2014F79

Wheelan, S. A. (2005). *Group processes: A developmental perspective* (2nd ed.). Allyn and Bacon.

Wheelan, S. A., & Kesselring, J. (2005). The link between faculty group development and elementary student performance on standardized tests. *The Journal of Educational Research, 98*(6), 223–230. https://doi.org/10.3200/JOER.98.6.323-330

Wheelan, S. A., Murphy, D., Tsumura, E., & Kline, S. F. (1998). Member perceptions of internal group dynamics and productivity. *Small Group Research, 29*(3), 371–393. https://doi.org/10.1177%2F1046496498293005

Wheelan, S. A., & Tilin, F. (1999). The relationship between faculty group development and school productivity. *Small Group Research, 30*(1), 59–81. https://doi.org/10.1177/104649649903000104

Wheelan, S. A., Burchill, C. N., Tilin, F. (2003). The link between teamwork and Patients' outcomes in intensive care ynits. *American Journal of Critical Care, 12*(6), 527–534. https://doi.org/10.4037/ajcc2003.12.6.527

Worley, C. G., & Lawler, E. E. (2010). Agility and organization design: A diagnostic framework. *Organizational Dynamics, 39*(2), 194-204. https://doi.org/10.1016/J.ORGDYN.2010.01.006

Yürüm, O. R., Demirörs, O., & Rabhi, F. (2018) A Comprehensive Evaluation of Agile Maturity Self-assessment Surveys. In I. Stamelos, R. O'Connor, T. Rout, & A. Dorling (Eds.), *Software Process Improvement and Capability Determination. SPICE 2018. Communications in Computer and Information Science*, vol. 918 (pp. 300-315). Springer. https://doi.org/10.1007/978-3-030-00623-5_21.

Žužek, T., Gosar, Ž., Kušar, J., & Berlec, T. (2020). Adopting Agile Project Management Practices in Non-Software SMEs: A Case Study of a Slovenian Medium-Sized Manufacturing Company. *Sustainability, 12*, 9245. https://doi.org/10.3390/su12219245