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# Formation of Project Identity in a Multi-Project Environment

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Managing multiple projects concurrently is an effective way to handle modern business projects. However, management of project multiplicity is still a challenge in the construction industry, and the project identity is considered fundamental for success of a project. This study seeks to deepen the understanding of multi-projects and to outline key features that constitute the process of managing projects simultaneously in multi-project environments within project-based organisations. A case study with two renowned construction companies in Finland was undertaken to identify five processes that constitute project identity in a multi-project environment. These processes include: (1) articulating a multi-project environment vision and goals; (2) managing the allocated resources and schedule for a multi-project environment; (3) establishing adequate communication systems for a multi-project environment; (4) establishing stakeholders' management and paying attention to documentation details; and (5) providing adequate training and establishing an innovation-adaptive box. These results will assist project-based organisations in developing and managing projects concurrently in a multi-project environment.

*Keywords:* multi-project environment, project identity, organisational identity, management

## Introduction

### Background of the Study

Creating a project has nowadays been the most effective and suitable way of achieving the objectives of a given task, irrespective of the size and magnitude of said task (Ahola et al., 2013; Schipper & Silviu, 2018). More so, the increase of relational contracts and integrated project deliveries have raised great potential for innovations and improvements in performance, concerning the prosperity of the whole project. Usually, some projects are managed solely as a single project which is popularly known as single-project management (Patanakul & Milosevic, 2008), some are managed

as programmes, and others as multi-project environment. Programmes are groups of related projects that share a common goal, with strong inter-dependency, and with the focus on delivering a single product or service (Blismas et al., 2004; Patanakul & Milosevic, 2008).

Multi-project environment is an organisational setting constituted within an organisation for the purpose of simultaneously executing various projects that are or may be independent and have separate goals and deliverables (Engwall & Jerbrant, 2003). Projects are grouped under multi-project environment settings to effectively utilise resources and better management. At the executive level of an organisation, all projects in the multi-project environment are more often called project portfolio (Pennypacker & Dye, 2002; Patanakul & Milosevic, 2008)

The multi-project environment organisational setting has undeniably become the preferred project-based organisational model for executing multiple projects simultaneously (Spalek, 2012). It is a result of the increase of relational contracts and integrated project deliveries. Nevertheless, researching the management of multiple projects organisational setting is limited, as most research in the area of project management is heavily geared towards management of a single-project model (Payne, 1995; Elonen & Artto, 2003; Pennypacker & Dye, 2002; Yaghootkar & Gil, 2012).

However, the rate of simultaneous project management and the complexity of these projects have been increasing steadily for decades (Dye & Pennypacker, 2000). Many researchers have therefore become interested in Multi-Project Environment settings in particular and thus recognised the importance of managing multiple projects simultaneously (Payne, 1995; & Artto, 2003; Geraldi, 2008, 2009; Yaghootkar & Gil, 2012; Wang et al., 2017). But the research reveals the lack of concept that upholds managing multiple projects simultaneously (Spalek, 2012).

Besides, little existing literature on multi-project organisational settings focuses mainly on the planning and allocation of resources (Abdullah, 2009; Hans et al., 2007; Wang et al., 2017; Yaghootkar & Gil, 2012), although planning and allocation of resources are primary issues when multiple projects are executed simultaneously (Engwall & Jerbrant, 2003; Yaghootkar & Gil, 2012).

There is no doubt about this claim, yet there are still challenges concerning the management of multi-project organisational settings. But it is clear that creating project identity (Gioia et al., 2010; 2013; Hietajärvi & Aaltonen, 2018) in a multi-project environment plays a vital role here. Organisational identity is considered to be the basis for success. According to Gioia et al. (2013), in order to have a clear meaning and a deeper understanding of an organisation, the concept of identity is of key importance. It reflects and defines answers to questions such as 'who we are, what

we stand for, what's our future, what makes us stand out from other organisations and what are the things we have in common.' Organisational identity research is two-fold, related to permanent organisation on the one hand, and to temporal organisation (project identity) on the other. However, organisational identity research is dominated by permanent organisational identity. Research concerning project identity is very limited, especially that relating to project identity in a multi-project environment. Nevertheless, this research is focused on project identity.

According to Hietajärvi and Aaltonen (2018), project identity is defined as features of a project organisation that the members see as milestones of its character or true image that make the project organisation distinctive from other project organisations. Project identity can clearly be articulated in the project goals, values, working practices, signs, and symbols (Gioia et al., 2010; Walker & Lloyd-Walker, 2015).

Why the need for project identity in a multi-project environment and why is it considered fundamental for project success? Creation of project identity aims at getting project stakeholders to be committed, and even more at attracting the best talent to execute the project. According to Walker and Lloyd-Walker (2015), project identity is usually well articulated in the project goals and vision, but often ignored as well. This is not good since people do identify with the project they work for. When project members feel the purpose of the project they work for, it gives them a great sense of commitment and motivation that facilitates the success of the project.

In their publication, Christenson and Walker (2004) identified how project vision plays a vital role in project delivery success. The purpose of the project and the ultimate intention is to convey information about it, to put the project in a spotlight in order to gain assistance of stakeholders who might have influence on the project but are yet to be identified. However, project vision has a direct connection with the project identity concept (Walker & Lloyd-Walker, 2015).

The project identity in a multi-project environment seeks to outline the key features related with managing multiple projects simultaneously. Due to the importance of identity role relative to the success of an organisation, this paper seeks to deepen the understanding and outline the key features that constitute creation of project identity in a multi-project environment setting. As for the outlining key milestones, a project-based organisation has to address them adequately prior to executing a project in a multi-project environment. However, this paper utilised research on organisational identity to examine how project identity is created in a multi-project environment.

The above information may be condensed into the following research question:

What are the cornerstones for the identity formation in a multi-project environment and which levels of management are responsible?

This study addresses the research question in a qualitative manner both through literature and through the analysis of industry interviews. This research question was addressed by analysing two multi-projects in the Helsinki metropolitan area: Tripla by YIT, and the Western Metro underground excavation project.

Tripla by YIT is a construction multi-project, ongoing currently and estimated to continue for the next ten years. The project consists of a three-block complex including a shopping centre, a parking garage, and a public transportation hub. Additional housing, hotels, and offices are planned as well. The Western Metro underground excavation project is part of a larger project known as Western Metro. The Western Metro project is an extension of Helsinki metro line to Espoo; the new metro line is 13.9 kilometres long.

This paper contributes to research concerning organisational identity formation (Gioia et al., 2010, 2013; Schultz & Hernes, 2013; Hietajärvi & Aaltonen, 2018) as well as literature on multi-project environments (Payne, 1995; Elonen & Arrtto, 2003; Geraldi, 2009; Yaghootkar & Gil, 2012; Wang et al., 2017). The findings of this study point to an emergent research theme of both theoretical and practical interest.

## Literature Review

### *Multi-Project Environment*

Project management publications most frequently go hand-in-hand with either single-project management or multi-project management (Abdullah, 2009; Blismas et al., 2004). According to Evaristo and Fenema (1999), most of the existing research, both theoretical development- and practicality-centred, are heavily geared toward single-project management, while only a few are concentrated on multi-project environments. According to Turner (2009), the most vital characteristic of a single project is that all its integrated parts are almost interdependent and aim for the same goal. Thus, the single-project management practice contributes little in terms of managing multi-projects; in that sense, it has probed researchers' interest toward researching multi-project environments.

Although there may be some similar activities between single-project management and multi-project management, there are significant differences between the two (as their names imply). Considering the scope of this study, single-project management is a project-based organisation that manages only one specific project for a customer, and the project may be in a constrained geographical area. However, a multi-project environment is the situation in which a project-based organisation manages different



projects for two or more customers simultaneously in specific geographical areas (Turner, 2009; Blismas et al., 2004; Evaristo & Van-Fenema, 1999).

According to Geraldi (2009), managing multiple projects is accompanied by many challenges and, for that matter, the need for diverse degrees of flexibility within organisational structures. Firms that are involved with multi-project businesses face not only the differences between project phases, but also differences between projects in their portfolios, differences between project activities, differences between products or services, differences between potential partners, differences between various customers with different identities, and differences between geographical areas within which projects are executed.

Challenges that occur when managing multiple projects simultaneously make these types of projects more complex to manage than single projects. Management for multi-projects consists of unique problems, most commonly in terms of managerial aspects (Abdullah, 2009). Due to the uniqueness and complexity aspects regarding multi-project environments, organisational structures for managing single projects need to improve or develop to fit multi-project environment settings (Blismas et al., 2004).

According to Abdullah (2009), the complex nature of a multi-project environment team work activities creates a high level of office interdependence among team members. The management of multi-projects requires a wide range of participants. However, projects have to be achieved simultaneously by conducting the project activities with the same human resources department belonging to the multi-project organisation.

Traditionally, projects are managed by focusing on scope, planning, organisation, and control. The traditional project management aims to achieve a feasible objective within allocated budget, time frame, and quality specification. In the case of multi-project environments, every individual project retains its own scope and goals and all relevant team members then focus on the overall goal of the multi-project. The multi-project goal becomes the priority of both the multi-project manager and the entire project members. Involved members aim to achieve the multi-project task within a specifically defined budget, time frame, and quality specification (Abdullah, 2009; Turner, 2009).

## **The Origin of Project Identity**

### *Organisational Identity*

Organisational identity is said to be present at two levels of categories: organisational identity at the level of permanent organisation (Gioia et al., 2010), and organisational identity at the level of temporary organisation (project level) (Hietajärvi & Aaltonen, 2018).

Organisational identity is richly present in the literature on both theo-

retical and empirical data aspects over the last three decades (Gioia et al., 2013); this relative research was initiated after Albelt and Whetten published their book, *Organisational Identity* (1985). The book encouraged most researchers to dive more deeply into the study of organisational identity. According to Rutitis et al. (2012), practitioners that were involved in design activity during the early 1970s originally initiated organisational identity.

Organisational identity is both a managerial concept and a strategic tool that forms the fundamentals of a well-developed organisation (Albelt & Whetten, 1985). Organisational identity reveals more about the perception of the organisation members and the concept and strategies used to structure the said organisation. Constructing an organisation defines and highlights who/what the organisation is, what type of business is it in, how is it unique, and how is it different from other organisations in the industry.

Since its initiation, organisational identity has received various definitions from scholars and researchers, with a diverse mix of organisational structure and management approach practices. Rutitis et al. (2012), after having compared numerous definitions proposed by organisational identity scholars and researchers, defined organisational identity as various ways of making an organisation known to people, providing a way for people to describe it, and making people retain good memories associated with it.

According to Hietajärvi and Aaltonen (2018), even though definitions with regard to organisational identity vary as the years progress, the fundamental and outstanding definition of organisational identity is as follows: a system of claims that summarise what the organisation aims to maintain, be it their beliefs, uniqueness, or endurance. According to Rutitis et al. (2012), every corporation has its own identity that makes it different from all the many organisations within its competitive environment. Organisational identity is displayed through the name, ethos, aims, values, mission statement, goals, and symbols of an organisation.

According to Hietajärvi and Aaltonen (2018), most research on organisational identity is biased towards identity at the level of permanent organisation (operational) with very little concentration on the formation of organisational identity at the level that embodies characteristics such as uniqueness, budget constraint, and a defined beginning and end-that is, project identity.

### *Project Identity*

Creation of project identity aims at getting project stakeholders to be committed, and also to attract the best talents to execute the project. According to Walker and Lloyd-Walker (2015), project identity is usually well articulated in project goals and vision, but more often than not, the identity is ignored. This is not good, as people do identify with the project they work for. When

project members do feel the sense of purpose about the project they work for, it gives them a great sense of commitment and motivation that facilitates the success of the project.

Hietajärvi and Aaltonen (2018) defined project identity as features of an organisation that members of the project see as the heart of the organisation character or true image, and that distinguishes the project organisation from others. The project identity can be articulated through project goals, values, working practices, signs, and symbols. Additionally, project identity can very well be influenced by the stakeholders' image feedback based on the project surroundings.

Despite the lack of existing literature on the subject of project identity, there are a few works on the subject of project team identity and cohesion (the willingness of the project team members to remain on the team) as well as project risk identity. According to Hietajärvi and Aaltonen (2018), project identity shares the same philosophy as organisational identity—that identity is a continual element—which means that project identity is dynamic and vigorously active, but not fixed (Gioia et al., 2010, 2013).

### *Project Identity Formation in a Multi-Project Environment*

Formation of organisational identity has limited theoretical and empirical data concerning project identity, as most research conducted under this discipline has been concentrated on the organisational identity context and characteristics as well as its influential elements and change of identity.

Project identity, in the formation of a multi-project environment, is considered to be a process that leads organisations through the process of constituting and constructing structures for executing two or more projects simultaneously in specific geographic areas. Formation of project identity is assumed to commence at the beginning of the project stages—in other words, the earliest phases of the project (Kolltveit & Gronhaug, 2004)

Project identity formation occurs when all the project activities, goals, schemes, and directions are discussed for the purpose of strategising the shape of the project in the early stages of its lifecycle (Florice & Miller, 2001). This is the stage in which all stakeholders involved in the project build their understanding of 'who we are, in what kind of project we are in, and what do we want to be' (Hietajärvi & Aaltonen, 2018; Gioia et al., 2010, 2013).

### **Research Process**

This research aims to enhance the understanding of project identity in a multi-project environment. Existing research on this subject is scarce; for that matter, we chose to use a qualitative research method, namely a research methodology by which the researcher focuses on interpretation and

interception of the subject in question. Qualitative data is acknowledged in its richness and holistic qualities that reveal complexities about the nature of life (Miles & Huberman, 1994; Pekuri et al., 2015). The research question in this study is directed, as is the case in the selection of the qualitative research method, toward gathering an in-depth understanding of the research subject. Thus, in order to address the questions of ‘how’ and ‘why,’ we must first study this research.

### ***Case Study for Empirical Data***

Concerning this study, two renowned Finnish construction companies with specific case projects were chosen: Tripla by YIT in Helsinki, and Western Metro in Espoo. The reason these renowned companies and projects were chosen is their reputation in multi-project environments and project management. The selected projects offered the very best opportunity to deepen our understanding of project identity in a multi-project-project environment.

### ***Tripla by YIT Project***

YIT is a well-established construction company and a pioneer in the construction industry. YIT has been in existence for over a century and operates in several countries, such as Finland, Russia, the Baltic countries, Czech Republic, and Slovakia. YIT aims to create a better living environment within the jurisdiction in which it operates. Aside from the prosperity in above-mentioned countries, it is one of the largest housing and infrastructure developers in the construction industry. The company vision includes being a step ahead of its clients, competitors, and workers. YIT, in total, operates with more than 3,500 employees with a turnover in 2017 estimated at 3.8 billion euros.

Tripla by YIT is one of the case studies for this research. It is a currently ongoing multi-project that is estimated to continue for the next ten years. Tripla is located at Pasila in the Helsinki metropolitan area and is designed to comprise three city blocks with a total estimated area of 183,000 square metres. The objective of the project is to build a three-block complex that includes a shopping centre, a parking garage, and a public transportation hub as well as housing, hotels, and offices.

Currently, 500 people are working on the project, including sub-contractors, and that number is expected to rise to 1,000 in the future. The overall cost estimate of the project is 1 billion euros. Tripla, when completed, will become the new centre of Helsinki, as it will be three times bigger than the current city centre of Helsinki. There will be several new transportation connections to various destinations within Helsinki, such as a new ring rail line to the Helsinki airport, a connecting rail line to the Metro, and the western extra rail track. Tripla will transform Pasila into an ultramodern city and will

be one of the most beautiful and unique cities in Finland. Upon completion, the new city will provide 400 residential homes with approximately 7,000 job prospects. In addition, another housing project is planned beside Tripla; it will consist of roughly 4,600 homes.

### **Western Metro Underground Excavation Project**

Lemminkäinen has been in existence since 1910, driven by the purpose to provide services to construction companies. The company's main focus of operations, in the beginning, was bitumen works and concrete manufacturing products. Using its competences, the company manoeuvred and widened, bit-by-bit, its net of operation by venturing into other construction activities such as road surfacing, transport infrastructure, civil engineering, rock engineering, and construction building. The company has grown into an international company and currently operates in nine countries: Finland, Denmark, Estonia, Latvia, Lithuania, Norway, Poland, Russia, and Sweden. The company currently operates with 4,700 employees and had a net sale of 1.7 billion euros in 2016.

The Western Metro underground excavation project is the second case project analysed in this study. Lemminkäinen Oy is the main construction company executing this project, followed by Länsimetro Oy, a company owned by the city of Espoo and Helsinki, who oversees the construction operations of the Western Metro project. The Government of Finland, Helsinki, and Espoo are the sponsors for this project. The Western Metro project is an extension of the Helsinki metro line to Espoo, and the new metro will run through many parts of Espoo.

The Western Metro is an underground metro line of approximately 13.9 kilometres and is estimated to transport roughly 30,000 travellers daily. The Western Metro has two parallel new lines with a strong transport connection from the southern part of Espoo through Lauttasaari that ends in the city centre of Helsinki.

### **Data Collection**

We used semi-structured interviews to gather primary empirical data. Table 1 provides an overview of case companies and interview details. We interviewed a total of five key executives and project managers who are at the forefront of executing the case projects. Additionally, we collected some information from the company websites and public presentation materials. The interviews serve as a primary source of data collection. The questionnaire covered general themes related to multi-project management, project identity, and project identity in multi-project management.

Taylor and Bogdan (1984) elaborated upon the importance using interviews as a means of collecting primary data; thus, the interviews serve as

**Table 1** The Overview of Case Companies and Interviewees

Case company	Project	Number of interviewees	Date & interview duration	Position of interviewees	External document & information
YIT	Tripla by YIT	4	6 March 2017, 2 h	Project Eng., Project Manager, Quality Manager, Project Director	Project website: <a href="https://tripla.yit.fi/en">https://tripla.yit.fi/en</a> Workshops & trainings: Confidential materials
Lemmin-käinen	Western Metro	1	7 December 2016, 1.5 h	Project Manager	Project website: <a href="https://lansimetro.fi/en">https://lansimetro.fi/en</a> Workshops & trainings: Confidential materials

an effective tool for dialoguing cases that have not been observed. Furthermore, interviewing the participants directly with regard to a particular matter provided us with a thorough understanding of their views and knowledge specific to our research topic.

All the interviews were conducted at our interviewees' worksites, inside common spaces on the premises of each of the ongoing projects. The interviews were recorded digitally and transcribed later. However, to maintain validity, the interviewers took notes during the interviews as a backup method. The tapes and notes facilitated the analysis of the qualitative data gathered.

The researchers first started the analysis by identifying the relevant themes from the interview transcript with regard to creating project identity in a multi-project environment. Interviews were then condensed to assist the researchers in gathering the relevant, common information for the formation of project identity in a multi-project environment. Selected evidence from condensed data was put together to research empirical data, enabling the researchers to crosscheck our interpretation and boost our confidence in the research findings. Based on the analyses, five processes that affect creating project identity in a multi-project environment formation were identified.

Firstly, the interview with the Western Metro underground escalation project members was conducted during the first week of December in 2016. The interview lasted for about an hour and a half, involving two researchers and our correspondent, the latter being the underground excavation manager. The correspondent has worked for the company for several years and has played several managerial roles in numerous projects. He was also a participant in the first alliance project in Liekki, Finland, namely renovation of a 90 km-long railway line (Hietajärvi & Aaltonen, 2018). Based on the correspondent's experience in project management, his involvement provided a great opportunity for the researchers to acquire necessary information

that facilitated answering of the research question. Besides the interview, workshops, training and other project confidential materials were provided to help in the analysis.

The second interview was conducted with Tripla by YIT members on March 6, 2017. The interview lasted for almost two hours and was administered to four members who currently play a very important role in the Tripla project. These members hold the following positions: director of project development and design, quality and development manager, project manager, and project engineer. The interview was conducted in a group, with all the members together, and every interviewee had the freedom to answer a given question based on their experience, knowledge, and competence with regard to project identity in a multi-project environment. The interviewees have worked with YIT for several years and have gained extensive experience. This experience provided the great opportunity for the researchers to acquire necessary information that facilitated the answering of the research question.

### **Identity Formation in Case Projects**

The empirical data is in total support of the definition of ‘project identity’ in a multi-project environment—that is, the features that are central to the project-based organisation’s character that differentiate the organisation from other project organisations when executing multiple projects concurrently (Albert & Whetten, 1985; Hietajärvi & Aaltonen, 2018). The following five findings based on the empirical data are central for managing project identity in a multi-project environment:

1. Formulating and articulating a multi-project environment vision and goals;
2. Establishing adequate communication systems for a multi-project environment;
3. Managing allocated resources and schedule for a multi-project environment;
4. Establishing stakeholders’ management and paying attention to documentation details;
5. Providing adequate training and establishing an innovation-adaptive box.

### **Formulating and Articulating a Multi-Project Environment’s Vision and Goals**

Articulating a multi-project environment vision involves creating a formula for said vision and setting individual project goals when managing more than one project in parallel. Our respondents commented about how pursuing

such a vision aligns the multi-project vision to the organisational value of the project:

In my opinion, the first and foremost things to consider in such projects (multi-project), per my experience, is to bear in mind the project concept where the project ideas are conceived. This makes you visualize what entails in the project.

The multi-project environment's goals and vision should be clear and made a priority by all project workers. Within a multi-project environment, every individual project retains its own scope and goals, and all team members then focus on the overall goals of the multi-project environment. The multi-project environment goal then becomes the priority of the multi-project manager and the entire project crew. They aim to achieve the multi-project task within a specifically defined budget, time frame, and quality specification. One interviewee commented about this structure:

With this kind of project (multi-project), delivery of the overall goal of the projects then becomes our target. There may be individual goals within the different sections, but at the end of it all, we are looking at the multi-project goal, and this makes me feel is one project even though for different clients. It elevates some burden on you as project manager because you know someone is at your back. It makes you feel we are in this together.

Agreeing on one common goal and vision is reminiscent of consensual identity within a multi-project environment.

One crucial aspect of managing multi-projects are the processes, such as the project initial processes, planning processes, executing processes, monitoring and controlling processes, change control processes, and closure processes. Currently, all these processes are mainly designed for managing a single project. One interviewee recalled,

The very thing that makes a multi-project environment quite difficult is the fact that project management processes are designed for single-project management. Single-project management processes exist, and that makes it easy in managing single projects. Therefore, for one to successfully undertake a multi-project environment, these processes must be carefully designed to fit multi-project environment context.

Due to the uniqueness and complexity aspects associated with managing projects concurrently, organisational structures for managing single projects cannot be directly utilised for managing multi-projects. This calls for



unique approaches, techniques, and tools when managing multi-projects. As one interviewee said,

I do not think it is possible to execute multi-projects by using the same organisation structure for managing single projects. This consist of different projects, which belong to different clients, and executing concurrently. Therefore, there is the need to design an organisation structure that fits for multi-projects as we have done for this project.

A new organisation structure has been designed for the Tripla project, which makes the project unique. The organisational structure then plays a vital role in managing the multi-project.

### **Managing Allocated Resources and Schedules for Multi-Project Environments**

The interviewees agreed that planning a multi-project and organising its allocated resources is at the heart of multi-project environment processes, as stated in the literature review. They elaborated upon the fact that, since it consists of identifying the portfolio of projects in the multi-project, defining the scope of work and schedule for the multi-project, indicating the milestones, and determining the total budget needed for the entire multi-project is of utmost significance. One interviewee commented,

It's true we encounter problems, especially concerning human resource allocation, most often because we (the project managers) all draw our workers from one big pool. It becomes a challenge when you need a certain project worker for an activity to be fixed and this same person is working on another project. When these challenges happen, you have nothing to do than to wait until he/she is done.

As for empirical data, the number of project workers estimated to work on the multi-project increases when the actual work is initiated. One interviewee commented,

The number of project workers estimated keeps increasing as we proceed; as it is now, I am preparing to recruit new project workers even though this was not part of our initial plan.

### **Establishing Adequate Communication Systems for Multi-Project Environments**

Empirical data shows that means of communication play an important role in a multi-project environment. Thus, highly developed communication plans as well as robust and inquisitive lines of communication must be created

between the customer or the customer's consultant and the required multi-project team in order to execute successful multi-projects. One interviewee indicated,

Communication, I may say, is very important in terms of this kind of project (multi-project). Communication is an aspect of project management that cuts across every activity concerning the project. Not only the project workers it has effect on, it affects all stakeholders, such as customers, customers' consultants, city authorities, city planning authorities, and community dwellers as a whole.

The mode of communication is an issue for the correspondents, as they continue to express the need to consider selecting the right communication media to communicate required information among participants. There exists a strong need to utilise current communication technologies in order to communicate effective information. Other interviewees elaborated on the communication issue, one of whom stated:

We have come a long way as a company, and we have realised how communication plays an important role in project management, especially when managing multi-projects. Therefore, we make use of modern technologies for communications. Aside from the traditional means of communication, such as phone calls, video calls, e-mails, and memorandum, we also use social media platforms and customized software for communication. Besides, our webpage also provides information to both internal and external stakeholders.

Empirical data indicate alternative ways of eliminating the risk involved with communication as well as determine effective ways for delivering information within a multi-project environment. As stated by one interviewee,

Communication is one of the issues that faces multi-project environments, but we try to control that by meetings. I think a regular meeting among the perspective section is one of the best ways of handling this now, by having meetings on a weekly basis, some in two weeks, and monthly. In some cases, when the need arises, there can be an emergency meeting as well, to address important issues.

### ***Establishing Stakeholders' Management and Paying Attention to Documentation Details***

One of the key multi-project environment identities, according to empirical data, is external stakeholders' management. Considering projects as Tripla and Western Metro that involve several entities, such as city authorities, city planners, and the entire public, it is necessary for the project-based organisations to factor in good external stakeholders' management, which is the

appropriate means for reaching a consensus or conforming and agreeing with the project stakeholders. As one interviewee said,

In such a kind of project (multi-project), a lot of interaction goes on between the project companies, the public, city authorities. The project must conform to environmental regulation and as well conform to city planning. However, we try to discuss them at the top management level to make sure there is mutual understanding among each party.

Tripla is currently in the process of becoming one of the best ultra-modern facilities in the Helsinki metropolitan area. People living nearby are inquisitive about project updates, therefore the project organisation should keep the public updated on its progress. Another interviewee makes it known that

We try to communicate intensively with the public through our website and our social media handles, such as Facebook and Twitter. We particularly have two persons in charge of our publications concerning Tripla, to make sure the public is updated on any issue concern to the project.

According to empirical data, some project managers have indicated the importance of mutual understanding between customers' consultants and project organisations, as well as the need to pay critical attention to and monitor the individual project documentation before and during project execution. One interviewee stated,

The individual project documentation is also a key. One thing to consider when it comes to project documentation is to build trust between the customers' consultant and the project organisation. The whole thing is based on trust.

### ***Providing Adequate Training and Establishing an Innovation-Adaptive Box***

After documentation has been thoroughly studied and clearly understood, one of the most significant aspects that help managing a successful multi-project is the project managers' management of specific, various roles. When selecting a leader for the multi-project, the project manager must first consider the overall objective and goals of the multi-project, and collaborate with all other leaders to execute the project successfully.

The leaders are all drawing from one pool of resources, and therefore some project workers may engage in certain activities when other project managers need them elsewhere. In such cases, the collaborative attitude must be a factor. One interviewee stated,

We make sure renowned project managers with the capability and ability to collaborate and work together are selected, because all the various project managers need to come into conscientious to achieve the multi-project goal.

The empirical data indicates how much is necessary to provide adequate training for project workers before and during the entire project lifecycle. The project organisation selects and prepares the appropriate project workers whose involvement will be necessary for the execution of a successful multi-project. The required training will therefore enable individual and various project teams to clearly identify their roles and responsibilities specific to the multi-project. According to one interviewee comment,

We provide required training for every project worker before they start working at the site. We give training to individuals and groups depending on when and where to start working. The training helps the project workers to fulfil their roles and responsibility in executing the required task given.

Our data also indicates one vital educational aspect that the project organisation is always keen on when executing multi-projects: safety training, which emphasises how project management prioritises working in an environmentally sound and safe environment. The appropriate measures are in place to make sure all project workers undergo a well-planned safety training session that reduces the risk of accidents. One interviewee indicated,

We make sure all our project members have the required safety training before starting work at the site. We are very much concerned about safety, and I believe it is one of our records of accomplishment. Even with the sub-contractors we work with, we make sure they fully abide by the safety rules and regulations.

Innovative adaptation plays a vital role in achieving quality management aims. It is by its virtue of enhancement that innovative adaptation continues improving performance. Innovative adaptation achieves quality goals when tools and methods such as benchmarking, quality auditing, and scorecard balancing are deployed to adapt innovative practices within the internal and external parameters of an organisation.

Improving operation of an organisation has always been the motive for continuous improvement. Therefore, project organisations need to upgrade to current best practice within the industry. In this sense, areas that need to be improved are adequately identified, and the project organisation may gain more innovation advantages.

## Discussion

This paper contributes to the research concerning organisational identity formation (Gioia et al., 2010, 2013; Schultz & Hernes, 2013; Hietajärvi & Aaltonen, 2018), as well as literature on multi-project environments (Payne, 1995; Elonen & Arrtto, 2003; Geraldi, 2009; Yaghootkar & Gil, 2012; Wang et al., 2017). The findings of this study point to an emergent research theme of both theoretical and practical interest.

The study has identified five processes that affect project identity in a multi-project environment formation. We have identified these five processes to be central for the identity formation process in a multi-project environment. They are necessary and must be addressed prior to the execution of concurrent projects. Figure 1 provides a clear picture of the processes involved in project identity within a multi-project environment, including: (1) articulating a multi-project environment vision and goals; (2) managing the allocated resources and schedule for a multi-project environment; (3) establishing adequate communication systems for a multi-project environment; (4) establishing stakeholders' management and paying attention to documentation details; and (5) providing adequate training and establishing an innovation-adaptive box. Based on empirical data provided within this study, these five formation processes take place at three levels within the project-based organisation. Processes 1 and 2 are identified in the organisation strategy and are most frequently the responsibility of the organisation's executive management (top management), while processes 3 and 4 are primarily roles of middle managers (project managers), and process 5 is the role of project members who are on the forefront of project execution. These findings, to a certain degree, go hand-in-hand with Hietajärvi and Aaltonen (2018) study of formation processes of collaborative project identity in the Finnish first alliance project.

As Gioia et al. (2010) mentioned, the first and foremost step in formulation of identity processes involves formulating and articulating the ultimately intended vision of the organisation, which is executed by the organisation management. This phenomenon is in line with the first findings; the first step the executive managers of a project-based organisation must take when executing multi-projects is the formulation and articulation of the multi-project vision and goals while considering solutions for the how, what, why, and where questions. Indeed, this finding testifies that formulating and articulating the intended multi-project vision and goals set the roadmap for the entire lifecycle of the project.

The second finding identifies communication of effective information as a vital role in establishment of a shared understanding in a multi-project environment; there is a need for proper means of communication among

project workers. However, many researchers emphasise communication in project management in general as an important instrument, although it becomes more difficult in a multi-project environment (Fox, 2009; Abdullah, 2009; Goodman-Deane et al., 2016). This finding not only acknowledges the existence of challenges encountered among project organisations regarding communication, but also provides practical solutions that are being implemented by project-based organisations in practice.

The third finding acknowledges that management of allocated resources and schedule in a multi-project environment plays a vital role in management of multi-projects and has to be identified at the early stage of a project; for this reason, an adequate planning process is required for the allocation of provided resources. As stated by Abdullah (2009), planning a multi-project and organising its allocated resources lie at the heart of multi-project environment processes; in other words, planning and allocation of resources are the prime challenges during the processes. This finding confirms that in practice, project-based organisations are faced with many challenges concerning resource management and project scheduling.

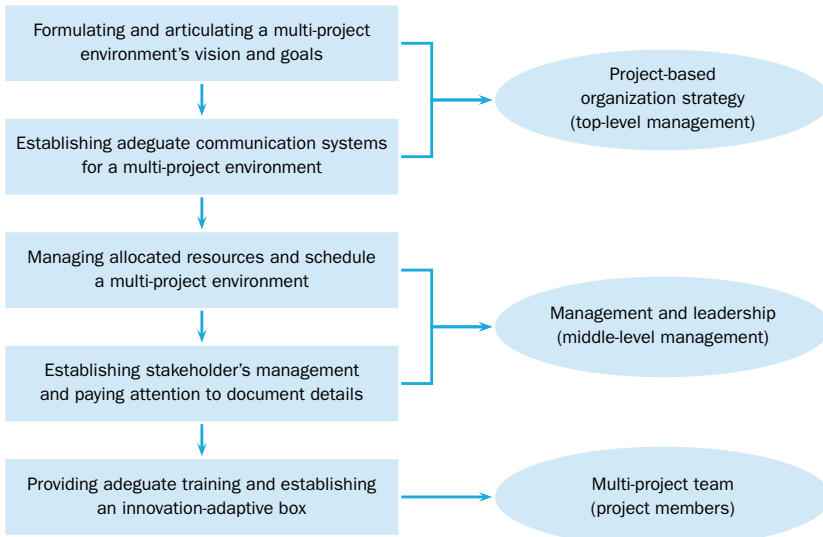
The fourth finding concerns identification of stakeholders' involvement and project documentation in a multi-project environment. It is therefore relevant for project organisations to come to a consensus about the key stakeholder's competitive claims concerning the project. This finding conforms to existing studies, such as Kinnunen et al. (2014), and Ronald et al. (1997). The voluminous nature of multi-projects calls for an appropriate method for handling project documentation.

The fifth finding is the means of providing adequate training either prior or during implementation of the project. This training enhances the understanding that project members are supposed to have of the project design details, which encourages the achievement of the project goals and objectives. Establishing an innovation-adaptive box allows members of the multi-project environment to provide innovative ideas gained during the project execution. The collected ideas are then implemented through the next project (Sun, 2010; Maire et al., 2008; Smandek, 2010; Gunawan, 2015).

A well-planned and collaborative team is key to a successful multi-project environment. Nevertheless, it is sometimes not clear who is responsible for certain roles. Based on our empirical data, as illustrated in Figure 1, the managerial levels responsible for each of the five cornerstones for the identity formation process in a multi-project environment have been addressed.

## Conclusions

This paper sought to provide insight into project identity specific to a multi-project environment, and by doing so, aimed to answer the question: 'What are the cornerstones for the identity formation process in a multi-project en-



**Figure 1** The Five Cornerstones and the Organisational Management Responsible for the Identity Formation Process in a Multi-Project Environment

environment and which levels of management are responsible?’ Project-based organisations have to adequately address the key features prior to executing projects in a multi-project environment. Although studies regarding organisational identity are currently booming among organisational theories (Gioia et al., 2010, 2013; Schultz & Hernes, 2013; Hietajärvi & Aaltonen, 2018), research concerning project identity in a multi-project environment is still scarce, almost non-existent. This research question was explored and examined through conducting interviews with two construction project teams in the Helsinki metropolitan area (Tripla by YIT and Western Metro).

Through empirical data analysis, five cornerstones for the identity formation in a multi-project environment have been identified and further explored. Based on empirical data, these five key formation processes take place at three levels within the project-based organisation. Processes 1 and 2 are identified within the organisation strategy and are most frequently the responsibility of the executive management (top management) of the organisation, while processes 3 and 4 are primarily the roles of middle managers (project managers), and process 5 is the role of the project members who are on the forefront of the project execution.

**Managerial Implications**

The imperial study was conducted with the motive to identify the effect of a project identity in multi-project environment formation. The findings clearly

indicate that the five processes for the formation of project identity in a multi-project environment are central for managing the project identity in a multi-project environment and should be addressed prior to execution of multi-projects. Therefore, the findings will both assist project-based organisations in identifying key features that are central in the management of project identity in a multi-project environment and help the organisations address these key features adequately prior to a project execution.

### **imitations and Further Research**

Our empirical analysis introduced five cornerstones for the identity formation process in a multi-project environment. These findings represent a broader and more complex insight in comparison to the pre-existing literature. However, this study limits its empirical findings to only two constructions within the multi-project environment. Notable similarities were observed in case projects, which calls for recommendation of conducting further studies in order to research whether or not similar results would occur within other organisations. Future research concerning concepts of the multi-project environment will also help improve the framework for the multi-project environment.

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# Organisational Challenges for School Development and Improvement: The Obstructing Role of Sub-Groups and an Overly Positive School Culture

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The purpose of this study has been to identify and analyse obstacles embedded in the school organisation that impede organisational development and improvement. The general findings show that the school structure comprised sub-groups and had characteristics of a diversified organisation. This led to dysfunctional discussions that challenged school development and improvement. Second, the findings revealed that the nature of the school culture may challenge school development processes. Positive features of the school culture, such as engagement, good relationships and high self-esteem might deter the effectiveness of the schools, e.g. the schools' ability to prioritise and improve the pupils' academic achievements.

*Keywords:* school development, management, school improvement, organisation, challenges, sub-groups, school culture, learning

## Introduction

There is an explicit expectation that schools should continuously improve the functionality of their internal structures and dynamics. Hence, a considerable amount of international research focuses on school development with a view to identifying obstacles and suggesting improvements (Dolph, 2017; Donaldson & Weiner, 2017; Feldhoff et al., 2016; Tuytens & Devos, 2017). However, school improvement is actually a complex research area comprising multiple processes and factors that might impede the prospects of developing a satisfactory educational learning environment for all involved actors. For example, school dynamics might be affected by the existence of multiple types of pressure promoting different interests that affect the outcomes, including the tensions between problem orientation and learning orientation, leadership and development issues, individualism and collectivism, and unprofessionalism and professionalism (Liljenberg,

2015). Other obstacles relating to school development and improvement might be embedded in school structures. Research suggests that schools do not seem to realise the potential that already exists within them with respect to resources and various types of data that can be used to achieve informed decision-making. It appears that energy and efforts are frequently used to develop the school from an accountability perspective, while there is a lack of knowledge and skills relating to how to use data to improve instruction and set learning targets (Schildkamp et al., 2017). For example, Murray (2014) concludes that the existing resources and pupil achievement data should be user-friendly to allow educators to make use of this information in their daily work. However, to promote this type of school advancement, Murray (2014) also suggests that all school representatives should be educated in how to utilise the existing data and other available information.

In the process of developing and improving school, as well as any other organisation, it is also useful to consider where the locus of causality for desired change is situated. It is fair to say that initiatives to develop and improve schools often originate with the education authority in the municipal administration. Some empirical findings suggest that school development might fail if it is not embedded in the school organisation. For example, Pollock and Winton (2012) found conflicting demands between the local school focus and the district and regional focus when it came to priorities and development. Similarly, Adolfsson and Alvunger (2017) found that great resource investment on the part of the central authorities in the school organisation did not necessarily lead to changes in teaching practice. All this suggests that top-down initiatives are not likely to succeed if the main obstacles that impede the school organisation are not identified.

Dalin and Kitson (2004) describe that the school organisation consists of five main dimensions: surroundings, relations, values, structures and strategies. The dimension 'surroundings' includes the local community and the society at large, consisting of both people and organisations that might help schools to do their work. Examples of topics that schools must take a position on regarding their surroundings are transparency, openness and the way of creating a constructive relationship to the surroundings. The dimension 'relations' refers to human relations in the informal school organisation, e.g. individual and group norms, power, influence and interactions contributing to the school climate and the quality of human relations (Dalin & Kitson, 2004). Such norms govern people's perceptions, attitudes, feelings, and behaviour and are context-dependent, fluid and capture the group in the context of other groups (Hogg & Reid, 2006). 'Values' is a term referring to the basic values in the school ideologies, ceremonies and symbols, including both formally expressed objectives and informal values

(Dalin & Kitson, 2004). Values contribute to the organisational culture as a 'pattern of development reflected in a society's system of knowledge, ideology, values, laws, and day to day ritual' (Morgan, 1998, p. 112). 'Structure' refers to questions of who is making decisions and what they make decisions about (Dalin & Kitson, 2004). The final dimension that describes the school as an organisation is 'strategies,' which refers to the question of how the school is run, e.g. mechanisms and methods for developing schools, solving problems and making decisions (Dalin & Kitson, 2004). It is important to note that these five dimensions are overlapping and mutually interdependent, implying that school organisations can only be understood by analysing all the processes that comprise all the above-mentioned dimensions.

Using the above-mentioned dimensions as our point of departure, the purpose of the present research was to analyse obstacles embedded in the school organisation that represent an impediment to organisational development and improvement. In the following we use qualitative data from four schools in the Norwegian education system. Each school was approached and analysed as a case study where potential aspects of school organisations were examined. The data from all four schools were initially analysed and subsequently compared. The analysis across five dimensions of school organisation revealed the presence of two prominent processes that represent a typical challenge for school development: sub-cultures in the organisation and challenges with the school culture.

### **Methodological Approach**

The basic methodological approach in the present research project was a case study where each institution represented one case (Yin, 2009). The data material was collected by two researchers who were assigned two institutions each. Two of the institutions were primary schools and the other two were lower secondary schools, all located in the same relatively large Norwegian city. The schools were purposefully sampled (Patton, 2002) and selected from a large quantitative study where the aim was to map the general school learning environment. The schools were selected according to the principle of maximum variation, representing both the upper and lower results from this study.

While collecting data we adopted several techniques within the realm of qualitative methodology: individual interviews with four participant groups (head teachers, deputy head teachers, teachers and parents), observation of the classroom climate in four school subjects (mathematics, native language, foreign language and physical education), observations of children and adults and their interaction during the breaks, spontaneous situational conversations with various actors and our impression of the institutions

as a whole. Triangulation of the sources provided us with better insight into the inner workings of each school organisation. In the present study we report findings based solely on the data collected from the individual interviews with the head teachers, deputy head teachers, teachers and parents. However, it is important to note that our general understanding of the school organisation in the selected schools is most likely influenced by these additional means of collecting data. For example, our approach included situational conversations that spontaneously emerged during our visits. These conversations were approached in an informal manner and were not planned, but of course had the purpose of the study in mind. The researchers' behaviour during these informal observations (e.g. during breaks in the staff room or random conversations in the hallway) was more active in nature as opposed to mere observation. Nevertheless, in all these settings we were aware of our outsider perspective and we actively attempted to preserve this role (Patton, 2002).

To obtain variation in the present data and gain better insight into the school organisation from different perspectives, we conducted interviews with four participant groups in each of the four schools: the head teacher, the deputy head teacher, two teachers and two parents; a total of 24 interviews. The informants were purposefully sampled where the institutions were asked to choose information-rich informants (i.e. informants who presumably have an opinion about the school and credible grounds for that specific view, see Patton, 2002). The informants represented both genders and varied in age.

The data collection was based on a pre-developed interview guide. The interviews were semi-structured with open-ended questions covering a wide range of topics about the school, such as experience of the school leaders, how the teachers related to the pupils, the nature of relationships in the school, the nature of cooperation, identification of challenging processes, how the pupils thrived at school and so on. Both researchers conducted interviews and worked closely to coordinate and adjust the content of the interview guide during the data collection. The interview guide was naturally somewhat different from one informant group to the next.

All the interviews were recorded and transcribed. Both researchers analysed the data-material, focusing on the two institutions where they conducted the interviews. We used NVivo 10 to conduct an in-depth study of these texts. The first step in the analysis was to read thoroughly through the interview transcriptions. During this step the authors summarised the findings at each institution into the categories 'what functions well' and 'what is challenging.' In the present article we report findings from the latter category. The analytical approach resembled an open coding process (Strauss & Corbin, 1998). By continuously asking the basic question 'What challenges



does the school have?’ several codes emerged during the subsequent review of the material. The researchers then agreed on the most prominent codes. Considering that many codes revolved around the same process, we started to cluster them into more overarching categories in accordance with Miles & Huberman’s (1994) descriptions. During this additional analysis it became apparent that two distinct themes emerged and dominated the collected data material: challenges with sub-groups in the organisation and challenges with the school culture. The last step in the analysis was to return to the data material and point out relevant findings within each of these topics. Below, these findings are both summarised and presented as extracted quotations.

## Findings and Discussion

### Challenges with Sub-Groups

The first category that emerged from the data analysis representing an obstacle to school organisation and its development was related to the existence of sub-groups in the teacher faculty. Two distinct types of sub-groups were identified. First, people tend to form groups according to rather informal criteria, meaning here such categorisations as age, gender and professional/dispositional characteristics of the teachers in the schools. In School 1, when the head teacher was asked to describe the relations between teachers and the teacher faculty in general, the grouping and the criteria for the description of variations between teachers are described in this manner:

We have some older teachers and some [...] younger teachers. And we have teachers who are quite decisive, and some teachers who are more like [...] easy-going, who take things as [...] open [...] and come up with new proposals and ideas. Some teachers are [...] not directly old-fashioned, but they have their own ways when it comes to teaching, while some others are more active in terms of differentiating the instruction for each pupil [...] In addition, some teachers are like ‘I need a little help’ when it comes to teaching and differentiated instruction. It’s my responsibility, as a head teacher, to help all teachers in the school. [...] I think that this is quite normal for a school.

In the extract above, it is clear that the head teacher is describing a diverse faculty. It is interesting that the head teacher simultaneously conveys two somewhat opposing views: (1) acknowledging that this diversity might create tensions, and (2) perceiving tensions as ‘normal.’ The head teacher’s descriptions of the sub-groups in the school are strikingly echoed and reaffirmed by his deputy head teacher:

It's not easy to talk about teachers (in our school) as a unified group, considering that they are very different [...] Not all of them are pre-occupied with the rules [...] I don't have problems with any teacher in the school but there is a difference in enthusiasm amongst them [...] it's rather common I suppose in schools. But there are some who are more passionate about matters than others [...] while others merely want to do their own thing in their own way without contributing when it's necessary. But this is to be expected, people are in different phases in their lives.

In their interviews, both the head teacher and the deputy head teacher describe an organisation consisting of informal groups with older and younger teachers, strict and lenient teachers, traditional and modern teachers, passive and ambitious teachers, dependent and independent teachers, rule-oriented and relationship-oriented teachers, and community-oriented and self-oriented teachers. The head teacher in School 1 explains that there might be tensions between these groups and that is why they put teams together meticulously. The head teacher describes the difference in the 'pupil perspective' as being the biggest challenge for the teacher faculty. This is then confirmed by what the deputy head teacher says: the informal groups represent a challenge and there are teachers who do not want to work together due to differences in the 'pupil perspective.' According to these informants, this difference is seen in a group of teachers who believe that rules govern pupils' activities and a group of teachers who believe that the way they interact with the pupils matters. Thus, it seems as if the groups are only loosely coupled together and that the difference in the way they perceive the pupils might be a symptom of a diversified organisation where the existence of informal groups is dominant. It is unclear, however, when it comes to the degree to which the tensions between these informal groupings impede school development and improvement and create potential obstacles to innovation. On the one hand, the divisions in a faculty into informal groups is unavoidable, not necessarily negative and accepted as 'normal,' as suggested by the school leaders in the interviews. However, it is also clear that the existence of latent diversification in the organisation might be costly and has the potential to discourage innovation (Mintzberg, 1989). In a school, the way pupils are perceived is a key feature of its culture. Differences in how pupils are perceived might create tensions in several settings and confirm the differences between the informal groups. Bear in mind that standardisation of norms might be a coordinating mechanism that contributes to everyone functioning according to the same set of beliefs and helps to hold an organisation together (Mintzberg, 1989).

Second, in addition to these informal divisions of their organisations,

the schools were also characterised by divisions based on predefined structures. These formal groups, formed by the school leaders, were embedded in structural groupings according to the different study groups in the given schools. One of the teachers in School 4 describes the institution as follows:

Like many other schools, our school is almost three schools in one. You have year eight, year nine and year 10. There are big differences between these three-year levels. And this is not visible when you examine one particular school. You need to see the school as a whole, then separate the year levels, and only then will you begin to see it.

This informant feels that there are virtually three schools under the same roof. These separations are based on the structures embedded in each year level and corresponding teaching teams. During our visits it was also relatively visible that the physical surroundings were arranged according to the year groups. The head teacher explained that when the school was renovated their plan was to facilitate for cooperation between the teachers, between teachers and pupils, and between pupils in the same year. According to the headmaster, they prioritise continuity in these teams and only replace a teacher for special reasons. She points out that a new teacher in the team may be positive, but that 'one must not change so much that it destroys the good relations and routines we have.' Thus, the school administration, the physical surroundings and the organisational structure are pulling in the same direction because the school has been organised to facilitate for these functional teams. One teacher describes how this structure impacts everyday life:

I have my shifts there. I have my lessons there. I have subjects there. I know their names. We have common rules that we have agreed upon. We have offices there. So, we're all teachers together at this year level. And I have more influence here. So, I know less what is going on in the school, I must admit.

The teacher explains that membership in the team impacts what she feels responsible for, her daily routines and who she is acquainted with, both when it comes to the pupils and teachers in the school. We are certainly not sceptical about this way of doing things. It is logical to prefer to establish a team of teachers to promote the school's tasks in general and to relate to and educate the pupils. However, the findings in this study reveal that such teams also might represent challenges for school development and improvement. For example, several informants in School 4 explain that the pedagogical beliefs are different within the teams, with different pedagogical ideas about how one sees the pupils and enforcement of the rules

(e.g. using written reprimands). This is the reason why the head teacher plans to develop a common educational platform for the whole school. She explains that she wants the team working with relationship-oriented classroom management to function as a driving force when she initiates a process where the entire faculty is to develop a common ideological approach with the same set of beliefs. However, the diversification of an organisation might be costly and discourage innovation (Mintzberg, 1989). This is demonstrated in the findings in this study when Teacher 2 describes how the sub-groups in the school organisation impact discussions within the faculty in a negative manner and complicate the process the organisation is trying to agree on to establish a common educational platform:

[S]o, they feel that their efforts are not appreciated and that the school leaders and others do not perceive them as competent. What you get is the group of teachers in your section who are very demotivated, even frustrated [...]. Dealing with new ideas is not a problem, but we're forced to put aside everything we're working on just to start doing something new. It's not surprising that people are feeling underappreciated, if you have done something over many years and had the impression that you have been doing a pretty good job. Then someone comes along and informs you that what you're doing doesn't work, research shows that you're doing it all wrong. Now you're going to do it [...] like this. It's quite offensive for someone who has given so much of him- or herself to the job.

The teacher explains that dealing with new ideas is not a problem *per se*. Nevertheless, she also points to the differences between the teams as challenging, even employing a war metaphor when talking about future educational discussions, calling them 'minefields.' Correspondingly, when faculty groups holding opposing attitudes about their work are placed in a relation of dependence, the organisations may have trouble dealing with a type of subcultural warfare; different norms and attitudes may create hard to handle dysfunctional situations (Morgan, 1998). As this informant says, the presence of opposing educational views that are developed in 'isolation' might result in frustrated co-workers and colleagues who do not feel appreciated, both within and between the teams.

These challenges might be especially accentuated if the head teacher chooses to use the group with relationship-oriented educational ideology as a driving force to develop a common ideology. Group norms are best captured in relation to other groups (Hogg & Reid, 2006) and using one of these teams as a driving force might increase the risk of 'warfare' in faculty discussions. When asked directly about what is problematic with these discussions, Teacher 2 answers that some teachers might feel that

what is being communicated is that ‘either you’re a good teacher who does this [i.e. acting on relationship-oriented classroom management] or you’re a bad teacher who doesn’t.’ This informant seems to suggest that when the school leaders initiate discussions to develop a common ideology in the school, some of the teachers feel that the underlying message is that what you have been doing has not been good enough. As noted in conversation analysis, one should not only analyse the content of the participants’ utterances, but also what the participants are implicitly saying (Schegloff, 2007).

In this school the presence of different ideologies between the sub-groups seems to leave some teachers feeling degraded when the faculty is discussing the possibilities of developing a common ideology. The findings point out that school development is sensitive to the value-loaded positions in any given sub-group in the organisation. The identification and analysis of the communicative dynamic in these latent divisions seem to be highly important for any organisation aiming to develop a common educational platform. Developing a common ideology in the school might enhance the sense of uniform belonging in the organisation. As noted by Mintzberg (1989), the standardisation of norms may infuse the work so that the organisation functions according to the same set of beliefs, acting as the glue that holds the organisation together.

All in all, ‘challenges with sub-groups’ relates to both the informal and formal divisions in an organisation. Our data indicate that in spite of some advantages, these groupings might lead to tensions when it comes to organisational development.

### **Challenges with the School Culture**

The second category that appeared in the data material relating to school organisation is focused on the nature of the dominant school culture in the selected schools.

In School 2 the informants described the effect of the school culture as: ‘it’s like coming into a warm place’ and that ‘it’s nice to come to school where you’re noticed.’ This was also reflected in the personal commitment of the faculty, where engagement was identified as a vital feature in the school culture. The head teacher stated: ‘engagement was the first thing I noticed when I started to work here’ and she continues:

[A]ll this can be seen in the work effort, the willingness to initiate efforts, handling situations and the way of addressing the pupils. Passionate engagement for our kids is what characterises daily life in the school.

The teachers’ engagement is also noticed by the parents: ‘it’s communi-

cated very clearly, they're (teachers) concerned about the pupils, [...] perhaps more than is expected.' But note that while the head teacher describes engagement as unilaterally positive, this parent remarks that the teachers are perhaps committed to their work beyond what should be expected. This is elaborated on in the following extract:

[A]nd some are so enthusiastic that it becomes too much concern about particular pupils, seems almost like they have difficulties letting it go because they are so concerned that pupils should not fail. It seems like some teachers are exhausted in getting some pupils to progress through school levels. They get so personally involved. But when all is said and done, it's just a job.

Thus, 'the extra engagement' mentioned as unilaterally positive by the headmaster is questioned by parents who have an outside perspective. Systems have their own agenda, often with unspoken implicit goals (Senge, 2006) and values in the school organisation are not always clear and explicit. The difference in the descriptions of the teachers' engagement, between an outside and inside perspective gives reason to speculate whether there is an unspoken norm in the school culture that personal commitment beyond what is expected from a teacher is highly appreciated in this school. The parents who see the school organisation from the outside suspect that this personal commitment and engagement might cause some teachers to be exhausted. This points out how important Morgan's (1998, p. 90) statement is about evolution in an organisation needing to be guided 'as much by the avoidance of noxiants as the pursuit of desired ends.' Thus, development of the ideology in School 2 must be guided by the goal to maintain engagement as a dominant norm in this organisation, but also by the goal to develop attitudes and introduce measures that prevent a potentially negative aspect of engagement, namely teacher burnout. However, if norms are implicit and not identified, this may impede the advancement of such goals.

In School 3 the school culture is also positively described, both by the parents and the school representatives. The school leaders describe the relationship between the teachers and between teachers and pupils as good and close. The head teacher uses the hyperbole 'insanely good' and Parent 1 says 'I think this is the best junior high school my children could attend.' However, the school leaders explain that the schools' academic achievements are not good enough compared to other schools in the community and that in the time ahead they want to prioritise the development of the pupils' academic achievements. Of course, there can be any number of reasons why the school does not score high on the academic achievement scale compared to other schools, but rather unexpectedly the data material suggests that some of the explanation might be found in the school cul-

ture. The findings reveal that when the head teacher talks about the need to develop the pupils' academic achievement, he routinely seems to add a 'but':

[S]o that we'll remember to focus on reading or arithmetic while we're working with the other material and relations. Because we have to bring all the things we are good at with us further. [...] but we have to work with 'how much can we expect, how much can we demand so we get a better outcome?' But then we have to be smarter when it comes to relations [...].

Thus, his choice of words seems to suggest that academic performance has second priority:

[W]e're not managing to transform ourselves, as much as we wanted, the emotional support for the instrumental aspect, by that I mean formal competencies [...] And I think the reason is that we put too much emphasis on the relational and emotional aspect at the expense of the instrumental aspect.

This extract shows that the informant perceives academic achievement as 'instrumental,' describing academic achievement with a slightly negative connotation. A concept has political capacities and 'is not simply indicative of the relations which it covers; it is also a factor within them' (Koselleck, 2004, p. 86). Accordingly, the choice of words in itself might imply that the teachers at this school prioritise good relationships at the expense of academic performance, consequently impeding the school from prioritising academic development. Thus, the utterances in the data material give reason to question whether the head teacher is giving ambiguous and possibly conflicting signals about the school culture and that because of this academic development has second priority. This is a mechanism that has been described by Mintzberg (1991): when an organisation has to make a fundamental change, an ideology that has been necessary for the effectiveness of the organisation might become a problem and be a force for maintaining the status quo. Similarly, when the school leaders want to prioritise the improvement of the pupils' academic performance in this school, positive features of the school culture appear to rather contribute to maintaining the current situation.

Additionally, another feature of the school culture seems to contribute to maintaining the status quo and obstructing the possibilities of developing and improving the pupils' academic performance in this school. The head teacher describes the school's position in the municipality in the following way:

I think about [the school name] like a school that follows the dictates of the local education authority, but at the same time we follow our own path, a bit ahead of other schools, by emphasising relations, it's well known that we're good at that.

As we can see, the head teacher explains that the way they work with relations in the school is ahead of other schools. Similarly, the deputy head teacher refers to results in a national survey where the school scores better than other lower secondary schools within the municipality on pupil satisfaction. He continues to explain that they have 'worked at and worked at' building the school's learning environments and have become very good at this. He claims 'we don't have one single pupil who it is not included in school' and that they have less conflicts between the pupils than other schools, even though they have a high rate of parents with low socio-economic status in the school's catchment area. Likewise, in the following extract he gives an example of how well they work at this school:

About the parent meeting that we had. It was new for me to do that. They put a team together and worked with the issue. It was fantastic.

As we can see, from the head teacher's point of view, the planning and implementation of a parent-teacher meeting deserves top marks. Thus, he describes the school in a very positive manner by explaining that the school works hard on issues. This might be the case and the background for the high self-esteem that characterises the school culture.

The point here is not to dispute that School 3 is a good and well-functioning school. The findings indicate, however, that the high self-esteem that characterises the culture in this school might contribute to 'the school' not being aware of the need to improve. The following extract from the interview with the deputy head teacher reveals that one consequence of the school's high self-esteem may be the inability to act on feedback from external sources:

[W]hen we say that we're not satisfied with the pupils' performances and knowledge, in any way that these competencies that are assessed by PISA and other national tests, we feel that we have a potential for improvement. We can actually get better on everything. It's that simple. But if you ask if we're very good at everything [...] or at least in many things, the answer is 'yes.' Guaranteed very good and very loyal to each other.

The deputy head teacher thus reflects over the school's PISA results. He acknowledges the school's need to improve the academic performance, but it must also be noted that he states 'we're very good at everything [...]



or [...] many things' and concludes with the assurance that the school is 'guaranteed very good.' This train of thought might indicate a belief that the school organisation does not need to develop and change, as also noted by Parent 2:

The school is very good [...] at boasting that everything is going well. It's a good thing, but can be sometimes [...] I'm afraid that sometimes we're not able to see things that don't work well [...] think it's a bit scary if we proclaim: 'here all pupils are enjoying themselves' and 'here there is no bullying,' and so on.

Thus, the school's high self-esteem is noticed by the surroundings and is not seen as unilaterally positive. Parent 2 also says 'I would like to hear a bit more humility occasionally. Acknowledgment that things occasionally are not so easy.' Similarly, Parent 1 characterises the school as self-righteous and somewhat arrogant, and when asked about the parents' possibilities to have influence he answers:

I don't think so, in fact. Because, I have a feeling that they are so satisfied with themselves that they don't want to change anything.

Thus, Parent 1 has noticed that the school is pleased with itself and argues that this may mean that it has no desire to change. The findings reveal that School 3 seems to have characteristics of what Mintzberg (1991) calls a missionary organisation where the ideology plays a key part. The ideology reflects the school culture, and in this school, it seems to override the need to prioritise other significant tasks in the school. The ideology implies that the school leaders send ambiguous messages about the need for the school to improve the pupils' academic achievement by emphasising the importance of good relationships. Moreover, high self-esteem is a prominent feature of the school culture that seems to prevent the school from developing new organisational goals. The ideology is unique for each organisation and binds the members to it (Mintzberg, 1989, 1991) and it might be challenging for members of an organisation to discover that positive features of their prevalent ideology might undermine the possibilities to develop and improve.

All in all, this section demonstrates that the school cultures in both School 2 and School 4 are characterised by positive features, such as engagement, good relations and high self-esteem. The findings reveal, however, that these positive features of the school culture might also detrimentally impact developmental processes in the school organisation. By allowing these features to dominate, the school leaders might overlook the need to introduce measures that could block a potentially negative aspect of engagement that sends conflicting messages about the need for the

school to improve the pupils' academic achievement and could lead to a state of inertia, i.e. they are less inclined to change and develop. Development in educational institutions depends on several underlying processes that support schools in motion (Kovač et al., 2018)). The findings in this study reveal that school development also depends on having insight into such underlying organisational processes.

## Conclusion

The purpose of the present research has been to identify and analyse obstacles embedded in school organisations that are potential impediments to organisational development and improvement. The findings demonstrate that especially at two of the schools the faculty was split into sub-groups, thus having characteristics of a diversified organisation. The identified problem for the school organisation was that these groups, predominantly informal in one school and predominantly formal in the other, contributed to dysfunctional discussions that clearly challenged innovative processes and development.

Thus, the findings from this study support the notion suggesting that levels of fragmentation or integration have a decisive influence on the organisation's ability to deal with challenges (Morgan, 1998) and might in turn discourage innovation (Mintzberg, 1989). In addition, and rather unexpectedly, the findings also reveal that some positive features of the school culture, such as engagement, good faculty relations and high institutional self-esteem might in fact impede school development and improvement. It is clear that while the ideological school culture can get in the way of organisational change, it also represents a driving force behind organisational effectiveness (Mintzberg, 1991). This idea of the 'double-edged sword' is supported in our data where we find that a school culture imbued with a positive and strong ideology might in fact prevent school organisations from developing and improving. This agrees with what Mintzberg (1989, p. 229) has presciently noted: 'The missionary organization is more inclined to change the world than to change itself.'

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# Influence of Leadership on Innovation Efficiency in Manufacturing Firms in Kenya

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The purpose of this paper is to determine the influence of leadership on Innovation Efficiency (IE) in manufacturing firms in Kenya. A mixed research methodology was used and cross-sectional design was applied. The target population was 2484 leaders and multi-stage sampling was used to sample 345 respondents. Primary data was collected. The results revealed that leadership has a significant influence on IE. It is concluded that management should practice and encourage creativity, exploration, inspiration, exploitation and entrepreneurial mindset to promote IE. Further research should be conducted to find out how leadership should balance the trade-off between risk management and IE.

*Keywords:* leadership, innovation efficiency, exploration, entrepreneurial mindset

## Introduction

The emerging strategic intent of firms is to expand their growth opportunities by optimising their capacities. Leadership has therefore been tasked with the responsibility of utilising the resources efficiently for the attainment of current and future goals. Visser et al. (2010) contend that firms should not only be adaptable to current but also future business (structural ambidexterity) for sustainability. This calls for leadership to focus on Innovation Efficiency (IE) for sustained performance improvement.

The global market has been characterised by a turbulent and highly competitive environment. The scenario has been brought about by the rapidly changing technology, customers' needs and environmental concerns. Innovation efficiency has however greatly impacted the growth of emerging economies such as China (Luo et al., 2011). This is contrary to countries in Africa, especially sub-Saharan Africa, which rely on exhaustible natural resources and are involved in primary and extractive activities whose outputs

are semi-finished products used as raw materials in developed economies. Sustainable performance in manufacturing firms in Kenya has remained elusive for decades. Several manufacturing firms are struggling to stay afloat; others have closed down while others have relocated to other countries in search of competitive advantage.

The growth in the manufacturing sector in Kenya has been dismal, lagging behind the overall economic growth rate and its contribution to the exports has declined as a result of low competitiveness. The low competitiveness is evidenced by the country's low Competitive Industrial Performance (CIP) index of 0.011, which is below the world average of 0.079 while other middle-level industrial countries such as South Africa, South Korea and India are above the world average (Kenya Institute of Public Policy Research and Analysis, 2018). The sector's low competitiveness is manifested in the declining growth rate and its contribution to the Gross Domestic Product (GDP).

The dismal performance in the sector is attributed to its decelerating growth rate. The World Bank (2018) report on Kenya's economic update shows that the growth rate in the sector has been declining from 3.6% to 2.7% and 0.2% in 2015, 2016 and 2017 respectively. The situation is further worsened by the fact that the last six years have also been characterised by a downward trajectory in terms of the sector contribution to GDP. The manufacturing sector contribution to GDP has been declining from 11%, 10.7%, 10%, 9.4%, 9.1% and 8.4% from 2012 to 2017 respectively against the target of 15% as stipulated in vision 2030 (Kenya National Bureau of Statistics, 2018). The low GDP contribution has put the country at a disadvantage with peer countries from other fast-growing low middle-income economies due to lack of competitiveness, which emanates from low IE. The situation has been brought about by the failure of incorporating local knowledge in the innovation process (Sambuli & Whitt, 2017). This implies that leadership has not harnessed their exploratory and exploitative capacity to utilise the resources at their disposal.

There are few studies of IE at the micro-level as most of them have focused on the macro level. The purpose of this paper was therefore to determine the influence of leadership on innovation efficiency in manufacturing firms in Kenya. The objective of the study was evaluated through testing of hypothesis. The null hypothesis in this case was; leadership has no significant influence on IE in manufacturing firms in Kenya. The alternative hypothesis is that leadership has a significant influence on IE.

### **Literature Conceptual Underpinning**

The exploration of sustained growth can be addressed by firms aligning themselves with the changing market trends. Improved IE can enhance sus-

tained growth. Innovation efficiency has been defined as the capacity for transforming innovation inputs into outputs; it is the ratio between education investment in innovation and output (Hollanders & Esser, 2007). Innovation efficiency can, therefore, be defined as the effectiveness of converting innovation inputs into outputs.

Innovation efficiency is important in several ways. It helps in identifying the best innovation practices, which can be used for benchmarking. It is also important in developing innovation policy (Hollanders & Esser, 2007). This is crucial in evaluating the value of the key players in the innovation systems. It also focusses on the commercialisation and the economic benefits of innovation activity (Wang et al., 2016). Commercialisation help firms to develop a new approach of consolidating the local markets while at the same time regionalising and globalising the market niche to gain access to the larger customer base for greater sales. Innovation efficiency, therefore, enables a firm to value the economic importance of innovation activities.

There are several methods of measuring IE. They include Stochastic Frontier Analysis (SFA), Data Envelopment Analysis (DEA) and Two-Stage IE Non-Radial DEA model. The SFA is a parametric analysis which assumes a particular relationship between innovation inputs and outputs, but not suitable when dealing with multiple outputs (Wang et al., 2016). Outputs for innovation are numerous because they include new products, patents acquired, innovation process, new enterprises and new markets. This approach of measuring IE is not suitable for this study.

The second method is DEA, which is an improvement of SFA. It utilises data from multiple inputs and outputs with no prior specification format (Guan & Chen, 2012). However, it does not capture the operations, internal systems and processes involved in IE (Wang et al., 2013). This study utilised the operations, internal systems and processes hence DEA is not appropriate in this case.

The third approach, which is the two-stage DEA, model built on the second method. The approach involves the optimisation of resources (Wang et al., 2016) and has been used in the manufacturing sector (Bian et al., 2015). The method is of two types; radial and non-radial DEA. Radial DEA does not account for inefficiencies in inputs and output (Wang et al., 2016). The study accounted for the inefficiencies, thus this approach is not appropriate in this case. Non-radial DEA provides for optimisation of strategies and is therefore relevant to this study. The approach recognises innovation input as comprising human, financial and material resources, while the output is the commercialisation of innovation in terms of the market value and profits (Wang et al., 2016). The model, therefore, captures the resources at the disposal of a firm as the input of determining the IE. These resources

are under the stewardship, discretion and utilisation of the firm leadership. Leadership is therefore a critical component in IE.

Leadership can influence how resources are applied and is thus viewed as one of the core drivers of IE. The appropriate leadership fosters well-thought decisions and strategic alliances that promote robust plans, development and execution, business intelligence and value creation leading to an improved IE (Murray & Greenes, 2006). The right leadership can, therefore, transform the way an organisation is governed, leading to high levels of IE. Creative leadership develops human and social capital while operational leadership explores new growth paths (Makri & Scandura, 2010). Vaccaro et al. (2012) found that transactional leadership is more beneficial to small firms while transformational leadership is beneficial to large firms. Transformative leadership enhances creativity, adaptability and interactive technologies that can derive value from networking, however further clarity and refinement is required (Desai, 2010). The study interrogated this assertion to verify it and possibly develop a new model. Green and McCann (2011) proposed a different leadership model to combat uncertainties and address the new economic revolution. Nevertheless, transformational leadership can inspire an organisation to greater heights of IE.

Leadership that transforms the mindset is directly related to organisational learning and innovation culture which ultimately influences IE in manufacturing firms, but the complexity of collecting data from multiple information should be re-examined (Sattayaraksa & Boon-itt, 2018). The steps of transformational leadership include; re-imagining customer experience, reducing business ecosystems, promotion of networking and revitalising the innovation governance which can be achieved through accelerating new opportunities, breaking cultural barriers, embracing innovative behaviors and adopting a global mindset (Ikeda et al., 2016). Leadership, therefore, plays a critical role in creating an environment that promotes IE by harnessing knowledge creation, flow and utilisation.

There are various approaches for measuring leadership that has been advanced by different scholars. The key set of actions that determine effective innovative leadership is re-imagining customer experience, redefining the business ecosystem, promoting ecosystem connectivity and revitalization of innovation governance (Ikeda et al., 2016).

Re-imagining customer experience can be measured through production of definitive blueprints, piloting and building foundations of capabilities, programs for innovation and launches, new expertise, new focus and new ways of working. Redefining the business ecosystem can be measured by identifying opportunities to collaborate and participate in an ecosystem and also the development of the capacity to create value for the ecosystem. Promotion of ecosystem connectivity can be measured by networking efficiency,



ecosystem innovation, displacement of value chains and value creation. Revitalisation of innovation governance can be measured by structures that are open for new ideas, dedicated teams to prioritise agility and secure stable innovation funding and quantitative evaluation of innovation initiatives. Kuratko et al. (2011) measured leadership in terms of nourishing entrepreneurial capacity and linking entrepreneurship to strategy. The study improved on these parameters to measure the leadership variable by incorporating the extent of nourishment of entrepreneurial capacity, linking entrepreneurship to strategy, protection of disruptive innovations, an opportunity for developing creativity, questioning of the dominant logic and the level of inspiration provided by leaders. This criterion is more comprehensive and is anchored on the premises of an entrepreneurial mindset that is crucial in driving IE. These attributes of leadership have been linked to IE in this study.

Different researchers have attempted to demonstrate the relationship between Leadership and IE. Oke et al. (2009) found that leadership has a significant influence on exploratory and exploitative innovation that has an impact on IE. Exploratory innovation is derived from strategic alliances while exploitative innovation comes from alignment with the market trends. Noruzi et al. (2013) found that leadership releases social capital that neutralises the tension between innovation and risk management, thus promoting IE. The social capital empowers innovation teams to be more creative and productive. Leadership helps a firm to adapt to changes faster, balance time, cost and value which leads to enhanced IE (Lindgren & Abdullah, 2013). Leadership is therefore a catalyst for IE.

There are two theories on which the study was anchored. The first one is the (Graen & Uhl-Bein 1995) theory of leader-member exchange. The theory underscores the significance of leadership in determining the output of followers, but it does not recognise the dynamics involved in entrepreneurial and innovation context (Surie & Hazy, 2006). The theory is also prone to subjectivity, which can bring about favourism in the leader and the follower relationship, which may alienate other team members and cause counter-productivity. The weaknesses of the theory can be addressed in the Gleick (1987) complexity theory.

The theory is cognizant of the complex context in which leadership finds it and innovation thrives. The complex nature of IE requires to be matched with a complex leadership approach (Rosing, 2015). The theory is relevant in this study because it recognises the dynamics involved in leadership and IE. These aspects of the interrelationship between leadership and IE led to the development of a conceptual framework that captured leadership as the independent variable and IE as the dependent variable. The antecedents of leadership that lead to IE as developed in the literature



**Figure 1** The Conceptual Framework

review are; entrepreneurial capacity, entrepreneurial strategy, exploitation, creativity, exploration and inspiration. The measure of IE is market value and profits as indicated in Figure 1.

The conceptual framework is an improvement of the two-stage non-radial DEA model. Leadership provides crucial input in the innovation process, therefore it is captured as the independent variable of this study. Innovation Efficiency is the output of effective leadership and hence it is captured as the dependent variable.

### Methodology

Mixed-method research was used to gain a more comprehensive insight into leadership and IE. The research design that was used is a cross-sectional design to allow for observations on characteristics that exist within the manufacturing sector and make a comparison within the subsector.

The target population was the heads of departments in operations, innovation and marketing of each firm in the 828 manufacturing firms that are registered with Kenya Association of Manufacturers' (KAM) across the country as of the year 2018. The total target population was therefore  $(828 \times 3)$  2484.

A multi-stage sampling strategy was used because the sampling procedure included several steps. The steps included purposive sampling, stratified random sampling purposive sampling once more and simple random sampling. Purposive sampling was first employed to select the seven major industrial counties from the forty-seven counties in the country. The major industrial counties sampled through this procedure are Nairobi, Mombasa, Kisumu, Nakuru, Kiambu, Machakos and Uasin Ngichu.

The total number of firms sampled using this procedure is the total sum of numbers from the selected counties, which were 780 out of a total number of 828 firms in the country. The second step was stratified random sampling. The procedure was used to sample firms from the seven selected counties in the first step. This was done to provide a proportionate representative sample of the firms from the selected counties relative to the total number of firms per county. The stratified random sampling led to a sample size of 115 firms that were proportionally distributed in the major industrial countries. This was done to eliminate bias in selecting firms from the same area.

The third step was to select the respondents. Purposive sampling was used to sample 3 respondents from the management of each of the 115 firms. The 3 respondents selected were the heads of operations, innovation and marketing because these are the key personnel who have the responsibility of knowledge management, promotion of innovation efficiency in their firms. This brought the total respondents to  $(3 \times 115)$  345.

The final step was simple random sampling. This was done to select firms from the different manufacturing sub-sectors in order to obtain the number of firms per sector and to keep them proportional relative to the size of the 12 sub-sectors. The number of firms sampled was therefore 345 from the major industrial counties and the various sub-sectors.

Primary and secondary data, both quantitative and qualitative, was collected using a semi-structured questionnaire, interview schedule and checklist. The measuring scales were in line with the literature and pre-testing of the research instruments was done through piloting. Correlation and linear regression analysis were used to examine the relationship between leadership and IE. Reliability was tested through internal consistency technique that showed the extent to which the procedures assessed the same characteristics. Prior arrangements were made with management to discuss the best time the respondents would be available to minimise work interruptions.

### Findings and Discussions

The questionnaires received and filled up were 295 against 345 issued representing a response rate of 86% from respondents and 101 firms out 115 firms representing 88% of the firms sampled. The male respondents constituted the majority at 58%, which implied that the perspectives expressed are from a male more than from a female point of view. It means that more men than women work as head of operations or production, innovation and marketing in manufacturing firms within the country.

The respondents were also asked to indicate the total sales for each of the past three years. They were also required to indicate the portion of sales attributed to innovation. The proportion of sales attributed to innovation formed the percentage sales growth rate brought about by innovations for the last 3 years as a result of new products, patents acquired, new processes and new enterprises. The sales growth rate brought about by innovations was then computed as sales emanating from innovation activities divided by total sales for a similar period multiplied by 100 to make it a percentage. This constituted innovation efficiency.

The distribution of innovation efficiency across the manufacturing firms for the last three years was also examined. This was done by use of range and standard deviation. The mean innovation efficiency was 0.2971, the

**Table 1** Innovation Efficiency Distribution across the Manufacturing Firms

Item		(1)	(2)	(3)	(4)	(5)
N	Valid	101	0	0	101	101
	Missing	0	0	0	0	0
Mean		0.2971	-0.0006	0.0192	0.2591	0.3348
Stdandard error of mean		0.0194				
Stdandard deviation		0.1950	-0.0007	0.0074	0.1794	0.2084
Variance		0.0380	0.0000	0.0030	0.0320	0.0430
Skewness		-0.3030	0.0020	0.1650	-0.6550	0.0200
Stdandard error of skewness		0.2400				
Range		0.5400				

**Notes** Column headings are as follows: (1) statistics, (2) bias, (3) standard error, (4) lower 95% confidence interval, (5) upper 95% confidence interval.

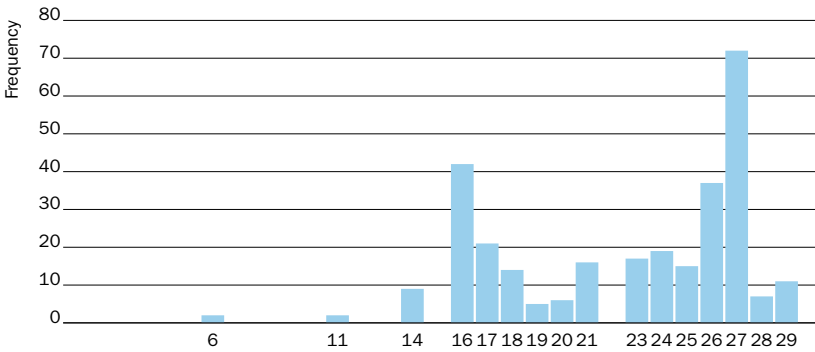
range was between zero and 0.54 and the standard deviation was 0.19499 as indicated in Table 1.

The mean of 0.2971 implies that on average, each firm had approximately 30% innovation efficiency. This means that the innovation activities in manufacturing firms contributed to about a third of sales per firm on the average. The range implies that the innovation efficiency across manufacturing firms varied from zero to 0.54. This means that the lowest IE was zero and the highest at 0.54. The standard deviation of 0.195 implies that there was a small spread within the sample. This means that there was a high degree of uniformity in innovation efficiency across manufacturing firms and thus a high level of homogeneity in the sample.

The parameters for measuring the latent variable of leadership were the extent of nourishment of entrepreneurial capacity, linking entrepreneurship to strategy, protection of disruptive innovations, an opportunity for developing creativity, questioning of the dominant logic and the level of inspiration provided by leaders. The responses were captured on a Likert scale which had six items with a scale of 1 to 5 and thus the expected maximum score was 30. The score on each of the items was then added up to form the composite value of leadership in each firm.

The scores of leadership were ranked in terms of their frequency of occurrence. The highest frequency of leadership is a score of 27 as indicated in Figure 2.

This implies that most firms had leadership that promotes innovation. It meant that the nourishment of entrepreneurial capacity, linking entrepreneurship to strategy, protection of disruptive innovations, provision of opportunity to develop creativity, questioning of the dominant logic and acceptable level of inspiration was provided by leaders which promoted innovation activities.



**Figure 2** The Distribution of Leadership Score in Manufacturing Firms in Kenya (mean = 22.49, standard deviation = 4.885,  $N = 295$ )

The mean, range and standard deviation were used to analyse the trend of leadership in the manufacturing sector. The mean score for leadership was 22.5149, the minimum score was 15, the maximum was 28 giving a range of 13 and the standard deviation was 4.885.

The mean score of 22 generally implies that manufacturing firms had the right leadership to nurture a culture of innovation. However, the minimum score of 15 implies that some firms did not have the right leadership to encourage innovation. The standard deviation of 4.5 implies that there was a wide variance in terms of leadership across the firms. It meant that there was a low degree of uniformity in leadership across manufacturing firms and therefore a low level of homogeneity in the firms under review. The computed standard error on leadership and confidence intervals levels ranged from 0 to 2.4 and confidence intervals levels were computed at 95% as indicated in Table 2. This implies that the data collected was not biased. This led to a further analysis of how the various subsectors performed in terms of leadership.

The comparison of how the different subsectors performed was carried out. The subsector that showed a high level of variance on leadership score was paper and board. This implies that there was indifference as to whether leadership promoted innovation in the firms within the paper and board subsector. It means that leadership that promotes innovation was encouraged in some firms while it was not the case with others within the subsector.

The respondents were then invited to list the factors that affect leadership concerning IE. The main factors were training, openness to new ideas, partnership and networking abilities, strategy, management style and resource provision in descending order. The other factors that were raised include proactiveness, knowledge management, provision of a conducive working environment, communication skills, organisation culture, level of experience, working teams, ability to implement agreed issues, staff en-

**Table 2** The Distribution of Leadership Score in Manufacturing Firms in Kenya

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6.00	2	0.7	0.7	0.7	0.0	0.5	0.0	1.7
11.00	2	0.7	0.7	1.4	0.0	0.5	0.0	1.7
14.00	9	3.1	3.1	4.4	0.0	1.0	1.4	5.1
16.00	42	14.2	14.2	18.6	0.0	2.1	10.2	18.3
17.00	21	7.1	7.1	25.8	0.0	1.5	4.4	10.2
18.00	14	4.7	4.7	30.5	0.0	1.2	2.4	7.5
19.00	5	1.7	1.7	32.2	0.0	0.8	0.3	3.4
20.00	6	2.0	2.0	34.2	0.0	0.8	0.7	4.1
21.00	16	5.4	5.4	39.7	0.0	1.3	3.1	8.1
23.00	17	5.8	5.8	45.4	0.0	1.3	3.4	8.8
24.00	19	6.4	6.4	51.9	0.0	1.5	3.7	9.5
25.00	15	5.1	5.1	56.9	0.0	1.3	2.7	7.8
26.00	37	12.5	12.5	69.5	-0.1	1.9	9.2	16.6
27.00	72	24.4	24.4	93.9	0.0	2.4	20.0	29.2
28.00	7	2.4	2.4	96.3	0.0	0.9	0.7	4.4
29.00	11	3.7	3.7	100.0	-0.1	1.1	1.7	5.8
Total	295	100.0	100.0		0.0	0.0	100.0	100.0

**Notes** Column headings are as follows: (1) score (2) frequency, (3) percent, (4) valid percent, (5) cumulative percent, (6) bias, (7) standard error, (8) lower 95% confidence interval, (9) upper 95% confidence interval.

agement, flexibility, generation gap, risk management, level of technology savviness, competence, monitoring and evaluation ability. It was observed that firms with clear evidence of corporate learning, open channels of communication and an operation strategic plan had high levels of IE.

The measures of each of the parameters of leadership were first tested for reliability to determine the scale stability in providing similar outcomes in repeated trials. This was done through a scale reliability analysis. The result was a Cronbach's Alpha of 0.905. The value is above 0.7, which is above the recommended threshold of 0.7. It means that the scale used to measure IE is reliable and can be replicated in other trials with similar outcomes. This is consistent with Alegre et al. (2006) who found that the Cronbach's alpha of the measures of the latent variable should be more than 0.7.

The next step was to find the Multicollinearity between the leadership and IE. This is important because Multicollinearity weakens the precision power of a statistical regression model. The Multicollinearity test was conducted through the application of the Variance Inflation Factor (VIF) and the level of tolerance. The results produced the highest VIF of 2.793 and the highest tolerance value of 0.535 as indicated in Table 3.

**Table 3** Multicollinearity Test between Measures of Leadership and IE

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(Constant)	-0.454	0.032		14.305	0.000		
Entrepreneurial capacity nourished	0.005	0.011	0.024	0.474	0.636	0.426	2.35
Protection of disruptive innovation	0.031	0.010	0.158	2.956	0.003	0.380	2.629
Leadership encourages creativity	0.075	0.009	0.359	7.972	0.000	0.535	1.870
Dominant logic questioned	0.031	0.011	0.149	2.702	0.007	0.358	2.793
Leadership provide motivation to innovate	0.007	0.011	0.034	0.623	0.534	0.367	2.722
Activities linked to strategy	0.053	0.011	0.268	4.903	0.000	0.363	2.751

**Notes** Column headings are as follows: (1) *B*, (2) standard error, (3)  $\beta$ , (4) *t*, (5) significance, (6) tolerance, (7) VIF.

**Table 4** Correlation between Leadership and Innovation Efficiency

Item		Innovation efficiency	Leadership
Pearson correlation	Innovation efficiency	1.000	0.806
	Leadership	0.806	1.000
Significance (1-tailed)	Innovation efficiency		0.000
	Leadership	0.000	
<i>N</i>	Innovation efficiency	295	295
	Leadership	295	295

The values of VIF for each of the measures of leadership are less than the cut-off point of 10 and fall between 1 and 3 implying a moderate Multicollinearity that does not require corrective action. The tolerance values of each of the measures of leadership were greater than the required minimum threshold of 0.10 indicating the absence of Multicollinearity. The findings are in tandem with Suki & Suki (2015) who found that a VIF of less than 10 and a tolerance value of between 0 and 1 does not warrant any action.

Bivariate correlation between leadership and IE was then conducted to determine their relationship. This was done by running a linear regression that provided a Pearson correlation coefficient (*r*); the value was 0.806 as indicated in Table 4.

The Pearson correlation value between leadership and IE was 0.806, which is near one, implying that a strong relationship between the two variables exists. The value is also positive, implying that leadership and IE move in the same direction hence they are correlated. It means that as leadership improves so does IE and vice versa among manufacturing firms.

**Table 5** The Linear Regression between Leadership and Innovation Efficiency

Item	(1)	(2)	(3)	(4)	(5)
Regression	7.754	1	7.754	543.273	0.000
Residual	4.182	293	0.014		
Total	11.935	294			

**Notes** Column headings are as follows: (1) sum of squares, (2) degrees of freedom, (3) mean square, (4) *F*, (5) significance.

The findings are in tandem with (Desai, 2010) who found that leadership is related to IE.

The linear regression between leadership and IE was also conducted to test for the study hypothesis. The null hypothesis stated that leadership does not influence IE in manufacturing firms in Kenya. The results showed that the *P* value was zero as indicated in Table 5.

The *P*-value was zero, which is less than 0.05. This led to the rejection of the null hypothesis and acceptance of the alternative hypothesis. It, therefore, means that leadership has a significant influence on IE in manufacturing firms in Kenya. This implies that leadership is crucial in determining the levels of IE and is consistent with Oke et al. (2009) who found that leadership has a significant influence on IE.

The extent to which leadership influenced IE was also determined. This was done by observing the value of *R* square in the linear regression analysis. The value of *R*<sup>2</sup> was 0.650, which is equivalent to 65%. This implies that 65% of a unit change in IE can be explained by a unit change in leadership. It means that leadership is a major determinant of IE. This concurs with Noruzy et al. (2013) who found that Leadership promoted IE. It has therefore been found that leadership is directly related to IE and has a significant influence on it.

The findings indicate that leadership has a significant influence on IE in manufacturing firms in Kenya. Results are obtained in tandem with Xenikou and Simosi (2006) who found that leadership, especially transformational one, is directly related to IE. This concurs with Simons and Sower (2012) who found that good leadership is paramount for enhancing IE. The findings also concur with Ikeda et al. (2016) who found that transformational leadership has a significant influence on innovative behaviours, thus impacting on IE. The findings are also consistent with Jia et al. (2018) who found that transactional leaders inhibit knowledge entrepreneurship while transformational leadership enhances IE. The findings are also consistent with Sattayaraksa and Boon-itt (2018) who found that good leadership transforms the mind-set, thus influencing IE in manufacturing firms. This concurs with Naqshbandi et al. (2019) who found that leadership that empowers employees promotes knowledge entrepreneurship which has a positive in-



fluence on IE. Sufficient evidence, therefore, abounds on the relationship between Leadership and IE.

However, other scholars found otherwise. Prajogo et al. (2007) found that leadership does not necessarily influence IE. It is therefore observed that the type of leadership in manufacturing firms matters in promoting IE. The study found that a specific type of leadership that contributes to IE is the one that nurtures creativity encourages exploration, provides inspiration and promotes exploitation. This can be achieved by promoting entrepreneurial capacity and strategy, protection of disruptive innovations, encouraging the questioning of the dominant logic by leaders.

It has a significant influence on the market value of a firm and its profits that comprise the IE in the manufacturing sector in Kenya. It is therefore concluded that transformation leadership natures KE which in turn influences IP.

### Conclusions and Recommendations

The study concludes that the various aspects of leadership that nurture creativity, exploration, inspiration and exploitation have a significant influence on IE. These aspects are the basis of transformational leadership. Transformational leadership should, therefore, be encouraged in the manufacturing firm to improve on IE that plays a key role in enhancing competitiveness.

It is recommended that management should practice and encourage creativity, exploration, inspiration, exploitation and entrepreneurial mind-set for higher IE, high innovation performance and ultimately to improve their competitiveness. Further study should be conducted on how leadership should balance the trade-off between risk management and IE.

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# Rise of Intellectual Workers and Intellectual Work

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This paper seeks to answer the questions What is human intelligence? How does human intellect evolve? How does intellectual worker differ from knowledge worker? How does intellectual work differ from knowledge work? As a synthesis of the literature review, the ‘rise of human intellect’ framework is presented. The novelty of the paper is in proposing to change the ‘knowledge worker’ and ‘knowledge work’ concepts introduced by Peter Drucker in the 1950s to ‘intellectual worker’ and ‘intellectual work’ because they seem to be more appropriate terms with the move from the knowledge economy to the creative and mind economy.

*Keywords:* creative and mind economy, human intelligence, intellectual worker, intellectual work, knowledge and knowing

## Introduction

This viewpoint paper is motivated by the recent enormous interest in developing machine intelligence to replicate human intelligence (HI). Is artificial intelligence (AI) a threat or opportunity for humans? Will AI replace HI? Can AI make ethical decisions? The importance of these questions is demonstrated by the largest single donation of GBP 150 million from Mr Schwarzman to Oxford University in June 2019. The purpose is to establish a new institute to study the ethics of AI. Mr Schwarzman raised important questions ‘Why are we here? What are our values? How does technology deal and interact with that?’ He also said that it was ‘important for people to remember what being human is’ (Jeffreys, 2019). This paper focuses on what human intellect is and how it is evolving.

This paper is further motivated by another, more general, emerging trend, namely by the continuing integration of natural sciences (i.e., mathematics, statistics, chemistry, physics, biology, bioengineering, bionics, engineering, robotics, etc.) and social sciences (i.e., history, anthropology, philosophy, sociology, psychology, economics, education, management, leadership, etc.). Boutellier et al. (2011, p. 2) write that natural sciences seek to discover the laws that rule the world, and they focus on ‘the natural and not on the social world.’ They refer to Ledoux (2002, p. 34) who defines natural sciences as ‘disciplines that deal *only* with natural events’ (emphasis added). The author of this paper, however, disagrees with this definition

because natural sciences are increasingly turning towards understanding human beings in the social world in order to create humanoid robots and to replace parts of human work. Further, Boutellier et al. (2011, pp. 3–4) argue that the difference between natural and social sciences lies in their subject of study. According to them, social sciences focus on individuals, groups, society, social interactions and coexistence. The author of this paper argues that social sciences has started to move toward subjects typical for natural sciences, i.e. to explore how AI can replicate the features of HI. In brief, social sciences focus on what it means to be human, on understanding HI, on finding out *what* features of HI can be imitated and replicated by AI. Natural sciences on the other hand, nowadays increasingly focus on *how* to imitate and replicate features of HI by AI. To conclude, the author of this paper argues that in the creative economy, the subject of study (i.e., HI) in natural and social sciences is converging, which makes the topic of this paper interesting, contemporary and needed.

Additionally, there is a need for this paper because of the proliferation of AI. It seems paradoxical that people design AI without knowing precisely what HI is. 'AI systems have yet to demonstrate the kind of flexible intelligence that enables humans to reason, plan, and act in many different domains' (Strickland, 2019, p. 4). Flexibility of human reasoning is underlined by McAfee and Brynjolfsson (2017, p. 71), arguing that 'the cognitive work that we humans do to navigate so easily through so many thickets of rules is an ongoing demonstration of Polanyi's Paradox, the strange phenomenon that we know more than we can tell.' Similarly, this paradox is expressed in the Oxford Economics publication (2019), where on the one hand Mr Cooper (p. 3) sustains that AI and the robotics revolution 'will transform the capabilities of robots and their ability to take over tasks once carried out by humans.' On the other hand, the report (p. 7) admits that 'it will be difficult for machines to replace humans in service sector occupations that demand compassion, creativity, and social intelligence.' Compassion, empathy, emotional intelligence, and creativity are ingenious human qualities that will be difficult to perform even by AI-enhanced robots. Therefore, this paper seeks to explore contemporary questions: What is human intelligence? How does human intellect evolve? How does intellectual worker differ from knowledge worker? How does intellectual work differ from knowledge work?

The paper has five sections. The introduction establishes why the topic is interesting, contemporary and needed. The literature review discusses points and counter-points related to HI. Next, the proposed model of 'rise of human intellect' is presented. Section four argues why the intellectual worker and work concepts should replace the knowledge worker and work concepts in the creative and mind economy. Here, also the differences between intellectual worker and knowledge worker and between intellectual

work and knowledge work are distinguished. Finally, the limitations and novelty contributions of the paper are discussed.

### What is Human Intelligence and How Does It Evolve?

In the fourth industrial revolution (Schwab, 2016), in the age of digitalisation and computerisation, robots, AI, Internet of Things (IoT), smart phones, smart cars, smart clothes, smart watches are complementing and helping human life and work. They are integral parts of our lives and everyday practices. Even if it is unimaginable to live without technology, the human intellect, HI, human knowledge, human creativity, human-to-human interactions, social intelligence (Albrecht, 2006; Goleman, 2006) and emotional intelligence (Goleman, 1996) have started to play an exceedingly important role in the creative economy.

In the creative economy, skills related to HI will be in high demand. According to the *The Future of Jobs Report 2018* (World Economic Forum, 2018, p. 12), in 2022 the top ten most demanded skills will be analytical thinking and innovation, active learning and learning strategies, creativity, originality and initiative, technology design and programming, critical thinking and analysis, complex problem-solving, leadership and social influence, emotional intelligence, reasoning, problem-solving and ideation, and systems analysis and evaluation. This list of future skills also demonstrates that skills are needed from both the natural and social sciences. Similarly, based on research from LinkedIn Learning (Charlton, 2019), the most demanded soft skills will be creativity, persuasion, collaboration, adaptability, and time management; and the most demanded hard skills will be cloud computing, artificial intelligence, analytical reasoning, people management, and user experience (UX) design. In brief, HI requires different, soft and hard skills in order to operate successfully.

Human intelligence is multi-dimensional. Gardner (2006) argues that multiple intelligences exist simultaneously. He outlines the five complementary dimensions of mind such as disciplined, synthesising, creating, respectful, and ethical minds. He emphasises the role and responsibility of education in cultivating all five kinds of minds because none of them is superior to the other. 'The five kinds of minds can and should work synergistically' (Gardner, 2008, p. 166). Gardner's theory about the multiple features of the mind is similar to Edward de Bono's concept presented in his classical book, 'Six Thinking Hats' (2000). De Bono assigns colours to different types of thinking such as white – neutral and objective, red – emotional, black – cautious, careful, yellow – sunny, positive, green – creativity and new ideas, and blue – control and organisation. His goals are 'to simplify thinking by allowing the thinker to deal with one thing at the same time' and 'to allow a *switch* in thinking' (de Bono, 2000, p. 176).

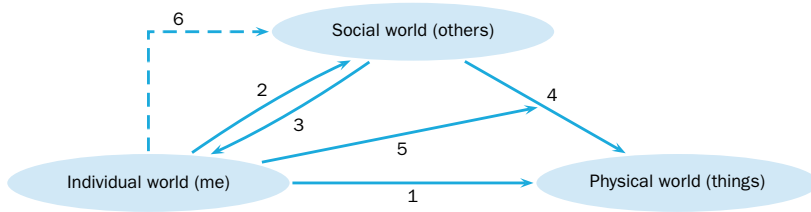
Lateral thinking (de Bono, 1990) is about how to use the mind to handle information, to generate new ideas, to look for new and creative ways of thinking. 'Lateral thinking develops as an attitude of mind' (p. 12). The role of lateral thinking increases when innovation is the driver in the mind economy. He asks an important question 'What is a beautiful mind?' (de Bono, 2004). 'The beautiful mind [...] is a mind that can be appreciated by others [...] usually through conversation' (p. 2). The beautiful mind best shows in our relationship with the social world. In the mind economy, the need for a better understanding of mind, knowledge, knowing, thinking, intellect, and creativity is essential.

Drawing on the theory of multiple intelligences of Gardner, Albrecht (2006, p. 9) identifies six categories of intelligence such as abstract, social, practical, emotional, aesthetic, and kinaesthetic intelligence. Albrecht uses the ASPEAK acronym to help to remember these six intelligences. He also refers to Goleman (1996) who identifies self-awareness, self-regulation, motivation, empathy, and relationships as five dimensions of emotional intelligence. Goleman (1996) in his theory of emotional intelligence strongly builds on Salovey and Mayer (1990) who first identified the five domains of emotional intelligence such as knowing one's emotions, managing emotions, motivating oneself, recognising emotion in others, and handling relationships. Building on both Goleman's and Gardner's theories, Albrecht concludes that the main factors in social intelligence are situational awareness, presence, authenticity, clarity, and empathy. The author of this paper argues that in the mind economy, where the driving force of value creation is creativity and innovation, there is a need for a deeper understanding of HI formation and intellectual work.

How does human intellect evolve? In the fourth industrial revolution, where computerization, AI, and human robotics are essential parts of our lives, there is an even greater need for social connections and social life in developing HI. Hobson (2004) explores how the human mind and thinking develop. His point is that the mind develops through social and emotional engagement with each other. Hobson (2004, p. xv) even argues that, 'If computers want to think, they had better get a social life.' Furthermore, Hobson (2004, pp. 107–108, pp. 271–272), with a relatedness triangle model, explains how the social intellect of an infant develops. Figure 1 is a modified model of Hobson's triangle.

Social intellect develops on the one hand during the individual, the 'me' relatedness to the physical world, to 'things' (1), to the place, which directly relates to life. It could be, for example, a person's country, city, district, street, workplace (building, infrastructure, etc.). On the other hand, individuals also relate to 'others,' to their social world (2) such as family members, community, friends, neighbours, fellow citizens, and colleagues





**Figure 1** Social Intellect Development Model (adapted from Hobson, 2004, p. 107)

at work. In brief, individuals relate to physical and social worlds at the same time. Therefore, the ‘me’ has a physical and an emotional engagement. The relationship of the individual to the social world is a two-way relationship because ‘others’ connect to the individual (3) too. Others have their own relationship to the physical world (4). Individual intellect and thoughts develop when the ‘me’ experiences and feels how the ‘others’ relate to ‘things’ (5), and by internalising, understanding, and by taking others’ attitude, the ‘me’ develops its own attitude and becomes cognitively engaged with the social world (6).

Summing up, on the one hand Hobson (2004) focuses only on the relationships of ‘me’ to ‘others’ (i.e., to social world) and to ‘things’ (i.e., to the physical world) (Figure 1). Both the ‘others’ and ‘things’ are external worlds to the individual. What is missing in Hobson’s arguments is opening up the internal processes of thoughts, namely the connections 5 and 6 in Figure 1. It is not clear *how* the ‘me’ understands the ‘others’ relations to the physical world and *how* the ‘me’ develops his/her own attitude when cognitively engaging with the social world.

How human thoughts and thinking develop is an eternal problem of philosophy, psychology, sociology, and education. Weed (2003, pp. 166–179) proposes the processes of x and y thinking. She concludes that an x-type thinking process aims to understand and make sense of the direct experience. The direct experiences are experiences in physical and social external worlds (Figure 1). On the other hand, the y-type of thinking process deals with standardising, interrelating, and conceptualising thoughts. This process relates to the internal world, to the sense-making process of a person. Weed focuses on the internal world when discussing the two types of thinking processes and seems to ignore the relationships to the external worlds. Furthermore, the author of this paper does not agree with Weed’s saying that ‘the x- and y-type thinking processes are [...] *autonomous* of each other [...] the connection between the x- and y-type thinking processes *might* occur’ (Weed, 2003, p. 166, emphasis added). Weed admits though that ‘Both are needed for human thinking to take place, and *most* cases of human thinking are a mixture of both’ (Weed, 2003, p. 165, emphasis

added). However, it could be argued that the x- and y-type of thinking processes cannot be autonomous of each other as they are happening at the same time and place. They must be in unity.

Similarly to Weed, Kahneman (2011, pp. 20–21), drawing on the latest achievements in cognitive and social psychology, presents his view on how the mind works. He uses the terms fast and slow thinking. He identifies fast thinking as *system 1* that ‘operates automatically and quickly, with little or no effort and no sense of voluntary control,’ and slow thinking as *system 2* that ‘allocates attention to the effortful mental activities that demand it, including complex computations. The operations of *system 2* are often associated with the subjective experience of agency, choice, and concentration.’ Importantly, Kahneman, in contrast to Weed, does not separate the two systems of the working mind. He argues that decision-making, and judgments require unity of both systems, i.e., ‘How do I feel about it?’ and ‘How do I think about it?’ (p. 139). His thoughts concur with Goleman (1996, pp. 32, 49), who writes that ‘in a sense, we have two brains, two minds – and two different kinds of intelligence: rational and emotional [. . .] a person has both cognitive and emotional intelligence.’ Moreover, according to Goleman, these are the qualities of emotional intelligence that make us more fully human.

There must be a unity not only between emotional and cognitive intelligence, but also between the external world and internal world when thoughts, social intellect and human thinking develop. Goleman (2006, p. 84) argues that social intelligence, as one aspect of emotional intelligence, has two broad categories, namely ‘social awareness, what we sense about others – and social facility, what we then do with that awareness.’ Primal empathy, attunement, empathic accuracy, social cognition are parts of social awareness. Synchrony, self-presentation, influence, and concern are elements of social facility. Rogers et al. (1992, pp. 297–298) call for more research in this area because ‘little attention has been paid to the way in which individuals interact with external representations or each other when immersed in a cognitive activity’ and there is a need ‘to develop accounts of cognition that are more “situated” in the context in which they occur.’ The author of this paper concurs with these concerns, which she aims to address in this paper.

The unity of the external and internal words when knowledge, knowing and HI arise is illustrated by the ‘becoming to know’ model (Jakubik, 2011a, p. 391, 2011, p. 61). Jakubik argues that her model demonstrates the becoming epistemology that is ‘both an engagement (actions and interactions) with the *real world* in a living present and *making sense* of the experience’ (Jakubik, 2011a, p. 391, emphasis added). The need for this unity corresponds with the thoughts of Spinoza who argued for the unity of mind and

matter and for the unity of external and internal worlds. Spinoza wrote ‘The body cannot determine the mind to thought, neither the mind determine the body to motion [...] the mind and the body are one and the same thing’ (Spinoza, 2001, p. 100). ‘The power of the mind [...] is determined by intelligence alone, we shall determine by the knowledge of the mind alone’ (Spinoza, 2001, p. 229). Durant (1954, p. 187) refers to Spinoza when he writes that ‘The greatest good is the knowledge of the union which the mind has with the whole nature.’ The ‘becoming to know’ model also shows how ontological and epistemological chains link to each other in a specific context and time. Intellect arises when learning and knowing interact during the ‘becoming to know’ process.

There has been an ongoing debate and different views about HI and knowledge ever since Socrates, Plato and Aristotle. Throughout the history of philosophy, different views have developed about what knowledge is and how we know what we know. John Locke (1632–1704) argued that experience and sensation are fundamental in knowing and all human knowledge is based on experience. As a contra argument, Immanuel Kant (1724–1804) maintained that not all knowledge is based on our senses. The mind transforms the sensations to ideas, i.e., transforms ‘perceptual’ knowledge into ‘conceptual’ knowledge. ‘Sensation is unorganized stimulus, conception is organized perception, science is organized knowledge, wisdom is organized life’ (Durant, 1954, p. 271).

The father of dialectical idealism Georg Wilhelm Friedrich Hegel (1770–1831) brought an important contribution to the development of thinking, namely the movement, progression, the interplay of being and becoming. As a counterpoint to Hegel’s philosophy, Arthur Schopenhauer (1788–1869) emphasised the role of will in the development of mind and thinking. He wrote that ‘The will is the only permanent and unchangeable element of mind [...] gives unity to consciousness and holds together all its ideas and thoughts’ (Durant, 1954, p. 313). This concurs with Benedict de Spinoza (2001, pp. 88–89) who writes in *Ethics*, first published in 1677, that ‘the will and the intellect are one and the same.’ Russell (1954) in presenting the French philosopher Henri Bergson’s (1859–1941) thoughts about instinct (i.e., intuition) and intellect concluded that ‘Intellect is the power of seeing things as separate one from another, and matter is that which is separated into distinct things. In reality there are no solid separate solid things, only an *endless stream of becoming*’ (Russell, 1954, p. 822, emphasis added). Spatial intuition plays an important role in both inductive and deductive reasoning. Intellect becomes in a specific place, space and time.

Summing up, the integrative and theoretical literature review of this section illustrates the ongoing interests, discussions, and debates about what HI is, what skills and attributes contribute to HI, how human thinking devel-

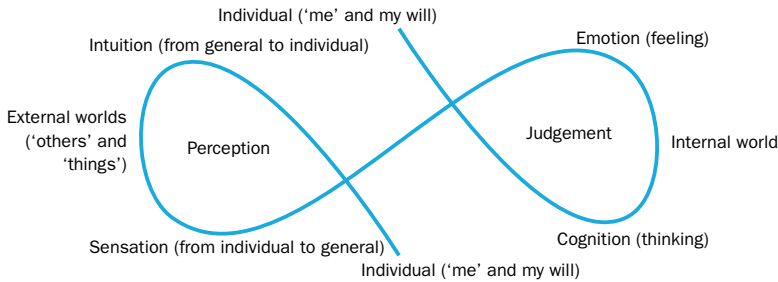
ops, and how the human brain works. These discourses of social scientists are especially important nowadays when, with the help of technology and natural sciences, we want to create robots enhanced with AI that can replicate HI. The aim of this critical theoretical literature review and the critical discussion of relevant existing models about HI development was to show the main concepts as building blocks of the proposed framework of this paper. The literature review also establishes the arguments and the needs for a new framework and new insight on HI, which is presented next.

### **Rise of Human Intellect Framework**

This section presents the 'rise of human intellect' framework (Figure 2). This is the main outcome or synthesis of the different points and contra points, different views about the rise of human mind, human thoughts and thinking, social intellect, and knowing in the reviewed literature.

According to Bergson, the beauty of the human intellect development is that it is in a constant flux, it is evolving and becoming during the whole life (Russell, 1954, p. 822). In this process, the interplay between perceptions and judgments is crucial (Goleman, 1996; Kahneman, 2011). The interplay between the external and internal worlds (Goleman, 2006; Jakubik, 2011b) is the driver of the development of something new (e.g., feelings, understanding, attitude, action, and knowledge). How individuals sense their external worlds (physical and social) and develop intuitions about these worlds and then how they make sense of all their perceptions through emotional and cognitive judgments lead to new thinking, new thoughts, and to new knowledge of the intellect. Building on these thoughts the 'rise of human intellect' is presented in Figure 2, which shows the synthesis of these thoughts in a simplified way. There is the conscious and/or unconscious will, and the thoughts and objectives of the individual (i.e., 'me') to engage in the worlds of 'others' and 'things' in a specific time and place. While experiencing the external worlds through learning, actions and interactions, perceptions develop through intuitions and sensations. Simultaneously, the 'me' internalises these perceptions and develops emotional and cognitive judgements. In conclusion, the new knowing, thoughts, knowledge, and intellect of the 'me' are formulated by judgements of perceptions. The idea of becoming is a change from being in a specific time and place and moving to another time and place, to another living moment. That is called 'becoming to know,' when the 'me' becomes a new 'me.' Thoughts and intellect arise this way.

In brief, human thinking and intellect development requires physical, emotional, cognitive, behavioural, and social engagements with *both* the social and the physical world. The rise of human intellect is inseparable from its contexts (i.e., place, space, time). In this mutual interconnectedness,



**Figure 2** Rise of Human Intellect

the human intellect forms its context, and at the same time it is formed by its context. Human intellect develops in everyday actions and interactions, in work practices. Because of the technological development, the world of work has changed and new ways of working have emerged.

There are studies that aim to understand the new ways of working, their impacts on communication, leadership, and collaboration (Hesse, 2018, pp. 54–78). While digitalisation is transforming businesses and ways of working, there is little attention paid to how it transforms the actors themselves, the human beings, and the human intellect. Sternberg (2018) argues that from research on intelligence the sociocultural aspects are ignored. Therefore, it needs to be explored who the actor (i.e., intellectual worker) is and what the actor does (i.e., intellectual work) in these new contexts of the mind economy. This is the focus of the next section.

**Intellectual Workers and Intellectual Work versus Knowledge Workers and Knowledge Work**

Already in the 1960s, Peter Drucker (1966, 1969, 2001, 2008) coined the terms ‘knowledge worker’ and ‘knowledge work’ to differentiate them from the physical worker and manual work of the industrial economy. ‘The terms *knowledge industries*, *knowledge work* and *knowledge worker* are nearly fifty years old. [...] Knowledge has become the key resource and the only scarce one.’ Knowledge workers are professionals. ‘The knowledge society is a society of seniors and juniors rather than of bosses and subordinates.’ (Drucker, 2016, p. 38–39) However, this paper argues that, in the creative or mind economy, it would be more appropriate to change these terms to ‘intellectual worker’ and ‘intellectual work.’ The arguments are that human intellect is more than knowledge, intellectual worker is more than knowledge worker, and intellectual work is more than knowledge work.

Table 1 shows the similarities and differences between knowledge workers, knowledge work of the knowledge economy and intellectual workers and intellectual work of the creative and mind economy. In the creative econ-

**Table 1** Knowledge versus Intellectual Workers and Knowledge versus Intellectual Work

Questions*	Knowledge workers	Intellectual workers
Who am I?	Knowledge workers identify themselves mainly by their profession (e.g., lawyer, teacher, knowledge technologist). They are professionals and specialists of their fields of knowledge acquired in formal and continuing education.	Intellectual workers identify themselves mainly by their interest in a specific field (e.g., doing art, playing music, doing science, social work).
What are my strengths?	Knowledge workers ask and seek for feedback from others to know their strengths.	They receive feedback, appreciation from others based on what they strengthen in their personal traits.
How do I work?	They prefer to work independently and autonomously with no control and supervision. They seek to solve problems with applying their specialized knowledge. They are result-oriented, they apply substantial theoretical knowledge in their work.	They seek to find big, general, urgent, important problems that matter not only for their organisation but also for the whole community and society (e.g., climate change, wars, social injustice).
Where do I belong?	Belonging to a professional community is more important for knowledge workers than belonging to an organisation. They decide where they want to belong. They are highly mobile.	They want to belong to an organisation, community whose values and ethical principles do not contradict with theirs.
What is my contribution?	They want to contribute quality and quantity by solving tasks assigned to them, by acting upon their knowledge. They thrive for performance and achievements not primarily for money.	The main objective for intellectual workers is to contribute with creative new ideas, innovation to solving problems they perceive significant in physical and social worlds.
What are my relationship responsibilities?	Knowledge workers take the responsibility for their work. They are not subordinates but specialists and associates. They do not need bosses to manage them. They need colleagues who trust them.	Intellectual workers not only take responsibility for their relationships but they are continuously seeking to improve these relationships.
How to plan for the second half of my life?	Knowledge workers think about their future, they are ready to start a new career, to move to another organization, they are 'knowledge nomads,' mobility within their special field is important for them. They care about their own success.	Intellectual workers think about finding joy, happiness, and satisfaction in their own work and at the same time, they help others to flourish and succeed.

*Continued on the next page*

omy, value is created through innovation, imagination, new ideas, and new thoughts of intellectual minds. Nevertheless, applying existing knowledge and developing knowing will continue to play important roles in the future.

**Table 1** *Continued from the previous page*

Questions*	Knowledge work	Intellectual work
What is my task at work?	Knowledge workers can define and perform the tasks at work.	Intellectual workers not only are able to define for themselves what the task/work is but they have arguments for <i>why</i> the task is important.
How do I manage myself at work?	Knowledge workers are not subordinates. They are specialists, professionals who can manage themselves.	Intellectual workers are able of leading themselves and have an impact on 'others' and 'things' in their work.
Do I have autonomy at work?	Knowledge workers need autonomy and trust to conduct their work, to make their decisions.	Intellectual workers achieve autonomy in their work and make decisions by considering 'others.' They want others to follow them for what values they have and for what they did for others.
Do I continuously innovate in my job?	They aim to continuously innovate in their work, find solutions for the problems.	Creativity and innovation are their everyday practices.
Do I learn and teach continuously?	Continuous learning and teaching have to be built into their job. It is not training but learning that drives them.	They continuously learn, develop themselves, and care about others' learning.
Do I contribute not only quantity but quality as well in my work?	They are accountable firstly for quality and then for quantity contributions. They want to demonstrate their own contributions to the organisation.	They consider ethical values, quality, and quantity in their work contributions. They thrive in sharing their expertise with others.
Does my organisation treat me as an asset rather than a cost?	Knowledge workers are loyal not to their organisations but to their knowledge area.	Intellectual workers look for joy and happiness in their work, they are loyal to their profession and field of expertise.

**Notes** \* Proposed by Drucker (2001, pp. 131–159, 2008).

Additionally, there will be a great need for emotional and social intelligence (Albrecht, 2006; Goleman, 1996, 2006; Sternberg, 2018) that will promote the move from knowledge toward wisdom. Indeed, there is a need to move away from a more egocentric ('me') view toward an altrocentric ('others') perspective in feeling, thinking and in behaving. For intellectual workers it is important that they contribute to making the world a better place for all.

Both knowledge and intellectual workers have strong intrinsic motivation. Knowledge workers seek not only financial recognition but also appreciation at work. Knowledge workers apply their theoretical knowledge at work. Intellectual work is hard work, and as a continuous struggle it is an attitude. It will not necessarily lead to fast success and appreciation. Therefore, intel-

lectual workers need more persistence, determination, patience, and support from others. They need to be fully (i.e., emotionally, mentally, socially and physically) engaged in what they do.

### **Conclusion**

This paper aims to address important questions about the creative and mind economy, such as: 'What is human intelligence? How does human intellect evolve? How does intellectual worker differ from knowledge worker? How does intellectual work differ from knowledge work?' By examining the arguments and counter-arguments about human mind, thoughts, thinking, knowing and intellect development in the literature, the 'rise of human intellect' framework (Figure 2) is created. This framework shows, in a synthesised form, the interplay of the physical ('things') and social ('others'), external and internal worlds of the individual ('me') in a living moment and place. It also demonstrates how the perceptions develop through intuition and sensation, how these perceptions are judged emotionally and cognitively (i.e., system 1 and system 2, cf. Kahneman, 2011), and how they become integral parts of the individual intellect. Human intellect formation is a continuous movement from states of being to becoming (Russell, 1954). The author of this paper concurs with McAfee and Brynjolfsson (2017, p. 120) who argue that 'for a long, long time to come, people will still have a large role to play in creative work, even as technology races ahead.' They further argue that being creative 'requires that the creator be living in that world, and computers are not "living" in ours in any real sense of the word.' The proposed framework of this paper therefore facilitates a more enlightened understanding of HI development.

Answers to questions How does intellectual worker differ from knowledge worker? How does intellectual work differ from knowledge work? are presented in Table 1. Moreover, the paper argues that, in the creative and mind economy, it would be more appropriate to use the concepts of 'intellectual worker' and 'intellectual work' rather than knowledge worker and knowledge work that were appropriate in the knowledge economy (Drucker, 2001, 2008).

Main limitations of this paper are that it explores only a limited range of literature and that human intellect is approached here from one, mainly social sciences' perspective. These limitations, however, offer areas for further research. The rise of intellect needs to be explored more from the educational, sociological, and other social science viewpoints, as well as from the natural sciences' perspectives. Strickland (2019, p. 4) argues that 'everybody thinks that [...] AI will transform society from top to bottom – yet no one knows when AI agents will be smart enough to really shake things up.' As further research, it would be an interesting topic to research



the conditions of joy, happiness and pleasure from intellectual work and to study the wellbeing of intellectual workers.

Creative, intellectual work gives moments of satisfaction when feelings and thoughts are united. How to be happy and intelligent, and how to be happy through intelligence are concepts not easy to determine, but are linked with the outcome of hard work, the continuous struggle to achieve a goal or vision. It could be argued whether the vision and goal are fixed or move during the intellectual journey, yet they do emerge along the way. Bertrand Russell (1954) provides the following analogy for the process of intellectual work when he writes that ‘first walking all over the mountain in a mist, until every path ridge and valley is separately familiar, and then, from a distance, seeing the mountain whole and clear in bright sunshine’ (Russell, 1954, p. 145).

Regardless of its limitations, this paper offers a new, original framework for a better understanding of the ‘rise of human intellect’ (Figure 2). It has also novel suggestions (Table 1) for using the concepts of *intellectual worker* and *intellectual work* that seem to be more appropriate in the creative and mind economy than the *knowledge worker* and *knowledge work* of the knowledge economy. Although this paper may be imperfect, in Durant’s words, ‘we may be forgiven if we advanced the matter a little, and have done our best’ (1954, p. xv).

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# Investment Behaviour and Firms' Financial Performance: A Comparative Analysis Using Firm-Level Data from the Wine Industry

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This paper assesses the role of financial performance in explaining firms' investment dynamics in the wine industry from the three European Union (EU) largest producers. The wine sector deserves special attention to investigate firms' investment behaviour given the high competition imposed by the late-comers. More precisely, we investigate how the capitalisation, liquidity and profitability influence the investment dynamics using firm-level data from the wine industry from France (331 firms), Italy (335) firms and Spain (442) firms. We use data from 2007 to 2014, drawing a comparison between these countries, and relying on difference- and system-GMM estimators. Specifically, the impact of profitability is positive and significant, while the capitalisation has a significant and negative impact on the investment dynamics only in France and Spain. The influence of the liquidity ratio is negative and significant only in the case of Spain. Therefore, we notice different investment strategies for wine companies located in the largest producer countries. It appears that these findings are in general robust to different specifications of liquidity and profitability ratios, and to the different estimators we use.

*Keywords:* firm investment, financial performance, wine industry, comparative analysis

## Introduction

One of the key challenges the corporate finance literature has to cope with is the identification of determinants of firms' investment behaviour. Understanding the factors influencing firms' investment is important from the perspective of financial management optimisation and investors' wealth. For this purpose, prior literature investigates the role of a large set of external and internal determinants, and reports mixed empirical evidence. However, the interest for studying the investment behaviour of wine companies is scarce. This paper fills in this gap and adds to the menu of studies addressing the role of internal factors in supporting the firms' investment

behaviour, by focusing on the role of financial performance and using wine industry firm-level data from the largest wine producing countries, namely France, Italy and Spain. We posit that the investment behaviour of the wine companies located in these countries is not only influenced by the economic context and competition policies (Rizzo, 2019), but also by their financial performances.

The external determinants of firms' investment behaviour are related to business cycle (Gertler & Gilchrist, 1994; Jeon & Nishihara, 2014; Pérez-Orive, 2016), taxation (Hall & Jorgenson 1967; Morck, 2003; Jugurnath et al., 2008), monetary policy (Vithessonthi et al., 2017), quality of institutions (Ajide, 2017), and even to the behaviour of other firms from the same industry (Lyandres, 2006; Leary & Roberts, 2014; Park et al., 2017). Noteworthy studies (Abel, 1983; Bernanke, 1983; Hartman, 1972; Pindyck, 1988; Calcagnini & Iacobucci, 1997; Baum et al., 2008; Glover & Levine, 2015) investigate the controversial role of uncertainty in influencing firms' investment behaviour.<sup>1</sup>

Two main categories of internal factors explain firms' investment behaviour.<sup>2</sup> On the one hand, building upon Modigliani and Miller (1958), the literature underlines the role of financial constraints, leverage and cash flow (Fazzari et al., 1988; Gilchrist & Himmelberg, 1995; Lang et al., 1996; Chen et al., 2001; Suto, 2003; Aivazian et al., 2005; Ahn et al., 2006; Baum et al., 2010; Almeida et al., 2011; Maçãs Nunes et al., 2012; Colombo et al., 2013; Vermoesen et al., 2013; Ameer, 2014). On the other hand, agency costs, information asymmetry and ownership structure are put forward (Jensen & Meckling, 1976; Koo & Maeng, 2006; Danielson & Scott, 2007; Alex et al., 2013; Farla, 2014; Mavruk & Carlsson, 2015). Several papers (e.g. Shen & Wang, 2005) show that both financial constraints and ownership structure influence the investment decision, while other papers (e.g. Bokpin & Onumah, 2009) underline the role of firms' size in explaining the investment behaviour.

The financial constraints and firms' leverage have important implications on the investment behaviour (Suto, 2003; Ahn et al., 2006), at the same time influencing the structure of investment (Almeida et al., 2011). A series of studies shows that financial constraints have a negative impact on firm-level investment. In this line, Vermoesen et al. (2013) report that high leveraged Belgian firms experienced a larger investment contraction during crisis times, compared to less leveraged firms. Opposite findings are reported by Baum et al. (2010) for a set of manufacturing United States (US) firms, who show that leverage stimulates the investment under the effects of uncertainty. However, most of existing empirical works focus on the role of financial constraints in explaining the investment – cash flow sensitivities. The financial friction theory mentions that the impact of cash flow on

investment increases in the presence of credit constraints. While Aidogan (2003) shows that the sensitivity of firm's investment to its own cash flow increases for growing firms, Kim (2014) states that the investment – cash flow sensitivity is explained by the level of external financing. Using a Panel Smooth Transition Regression model for 519 Asian listed firms over the period 1991–2004, Ameer (2014) reports that investment – cash flow sensitivity varies across different categories of firms. Mulier et al. (2016) also point out that the highest investment – cash flow sensitivity characterises financially constrained firms. Another set of works (e.g. Gamba and Triantis 2008; Arslan-Ayaydin et al., 2014) underlines the role of financial flexibility in fostering firm-level investment. Using a sample of 1,068 Asian firms, Arslan-Ayaydin et al. (2014) report that financial flexibility achieved through conservative leverage policies has significant influence on investment, in particular in crisis periods.

The second strand of literature investigates the role of agency costs, information asymmetry and ownership structure in influencing the investment behaviour. In their pioneering paper, Jensen and Meckling (1976) show that agency conflicts might distort firms' investment decision in the presence of multiple owners. Performing an empirical investigation for a panel of 115 listed firms in Taiwan for the period 1991–1997, Shen and Wang (2005) highlight that investment behaviour is financially constrained in a cross-ownership system. At the same time, Koo and Maeng (2006) find that the presence of foreign ownership in Korean firms decreases the investment – cash flow sensitivity. More recently, Farla (2014) discovers that firms' investment behaviour has little dependency on a country's macroeconomic setting, while foreign-owned firms have lower investment dynamics.

Only few papers, however, focus on the role of profitability and liquidity on the investment behaviour (Perić & Đurkin, 2015; Yu et al., 2017). While some studies (Stickney & McGee, 1982; Gilchrist & Himmelberg, 1995; Black et al. 2000) use financial performance indicators as control variables in their empirical specifications, several papers put accent on the role of liquidity in influencing the investment behaviour. As Baum et al. (2008) show, the impact of liquidity on investment is not straightforward. While in crisis periods characterised by credit contractions and financial frictions it is expected that liquidity positively influence the investment decision, an opposite effect appears if investment projects are delayed. On the one side, Acharya et al. (2007) state that the liquidity level sustains firms' future investment and offers protection against market risks. On the other side, Hirth and Viswanatha (2011) find that in the case of financially constrained firms, the relationship between liquidity and investment is U-shaped.

We extend the existing literature by examining not only the role of liquidity, but also the impact of capitalisation and profitability on investment

behaviour. All these variables characterise the firms' financial performance, offering at the same time information about risk protection and incentive to develop the business. The level of cash holdings and thus the level of liquidity is considered the cheapest cost of investment. Therefore, for a specific period, if firms decide to increase their liquidity for risk protection reasons (i.e. during crisis periods), a trade-off is expected between liquidity and investment. The increase of capitalisation level might also be done in the detriment of investment. It is surprising that previous literature does not debate the role of capitalisation in the investment behaviour. However, the level of capitalisation provides, on the one hand, information about the debt level and, on the other hand, information about the way shareholders interact with managers in the investment decision. When investment becomes risky, shareholders might prefer to increase capitalisation. At the same time, shareholders' equity represents an investment resource. In this context, during a fiscal year, it is expected that an increase in capitalisation negatively influence the investment dynamics. Finally, the level of profitability positively affects the investment behaviour. First, profitability increases the level of internal funds available for investment and has a negative influence on leverage (Datta & Agarwal, 2014). Second, high profits provide information about market dynamics and recommend future investments.

Another contribution of this paper to the bulk of literature investigating the determinants of firm-level investment consists of the empirical approach we use. Investment dynamics affects the firms' financial performance in its turn (Gatchev et al., 2009). Therefore, in line with other studies, we address the endogeneity issues resorting to a Generalised Method of Moments (GMM) panel approach. Nevertheless, different from previous works, we address different econometric issues as residual autocorrelation or instruments' over-identification, which may introduce a bias in the reported results, if the models are not correctly specified. Comparing a difference-GMM (Arellano & Bond, 1991) and a system-GMM estimator (Blundell & Bond, 1998), we show that the results are sensitive to different econometric specifications, although they are robust to alternative measures of liquidity and profitability.

Finally, we investigate the role of financial performance on the investment behaviour using wine industry firm-level data from France, Italy and Spain, the largest European Union (EU) and worldwide producers. As far as we know, the study by Outreville and Hanni (2013) is the only one addressing the determinants of investment in the wine industry. However, the authors focus on the foreign investment, investigating the case of the largest multinational enterprises, and underline the role of location for the inward investment. Different from this work, we analyse the case of domestic and foreign firms acting in the wine industry from the largest producing coun-



tries. France and Italy dominated the international wine market before the 1980s (Morrison & Rabellotti, 2017). Spain recorded a considerable development of the wine industry since then. Therefore, even after the increasing importance of newcomers in the industry (i.e. US, Chile, South Africa or Australia), the three EU countries continued to dominate the wine industry at global level.<sup>3</sup> Has the financial performance of firms located in these countries a similar impact on their investment behaviour in the context of an increased competition on the wine market? We try to respond to this question analysing firm-level data for 331 firms located in France, 335 firms located in Italy and 442 firms from Spain, over the period 2007 to 2014.

The rest of the paper is structured as follows. The second section presents some general statistics about the wine industry, with a focus on the EU. The third section describes the data and the methodology. The fourth section highlights the empirical results and presents the robustness checks. In the fifth section we present the summary of results and discuss in a comparative manner the role of financial performance on firms' investment behaviour in the three analysed countries, generating policy recommendations. The last section concludes.

### **General Statistics about the Wine Industry in the Selected EU Countries**

During the last decades, in the context of new EU regulations, wine-producing regions of Europe struggled to adapt to changing market conditions and to fight against the competition of newcomers in this industry (Outreville & Hanni, 2013). Table 1 indicates that France, Italy and Spain together represented more than 55% from the total wine production, and more than 25% of total wine exports during the 1960s. However, the total production of these countries dropped to 45% out of the world production during the 2010s, while the total exports represent nowadays more than 50%. These figures show that world-level production and consumption increased with the newcomers on the wine market, but the consecrated producers became more and more competitive. This happened in the context of an intensive process of international acquisitions, driven by competitive prices and the opportunity to acquire key brands (Anderson et al., 2003). Given that wine is considered a typical cultural commodity, these producers readapted their market strategy, underlining the intangible characteristics of their product (e.g. the notion of 'terroir' in France). Nevertheless, while Italy and Spain continued to increase their quotas in the world exports, France encountered a severe contraction during the last decade.

As compared to other EU countries, France, Italy and Spain are considered by far the largest producers, representing according to the Eurostat statistics, more than 80% of the total wine production in the EU. Table 2

**Table 1** Wine Production and Exports

		1961	1970	1980	1990	2000	2007	2008	2009	2010	2011	2012	2013
(a)	FR	22.59	24.97	19.79	22.98	20.32	17.80	15.69	17.47	16.77	18.69	16.17	14.67
	IT	24.42	22.81	24.57	19.24	19.10	15.47	16.15	16.22	16.54	14.87	14.70	15.39
	SP	9.39	8.48	12.03	13.92	14.54	13.30	13.73	12.14	13.36	12.33	11.95	15.75
(b)	FR	14.72	11.26	19.58	28.19	22.07	16.34	15.17	13.66	14.12	14.30	14.87	14.52
	IT	6.87	15.25	33.49	29.55	23.20	21.12	20.91	22.79	23.26	23.70	21.08	20.31
	SP	5.48	9.03	12.22	10.80	12.01	16.32	17.66	16.98	18.37	21.81	20.31	17.96

**Notes** Rpw headings are as follows: (a) wine production, (b) wine exports. Percentages of world total volumes. Based on data from Faostat database (<http://www.fao.org/faostat/en/#home>).

**Table 2** Opening Stocks by Vintage Year in the EU Countries

	2007–8	2008–9	2009–10	2010–1	2011–2	2012–3	2013–4	2014–5	2015–6	2016–7
FR	57,062	57,459	53,901	54,061	54,518	59,958	53,238	47,830	50,318	51,514
IT	41,120	41,719	44,746	41,360	41,502	40,632	36,500	45,250	41,276	42,692
SP	33,817	34,168	36,962	36,446	34,169	28,677	29,311	36,619	33,730	30,701
EU	165,624	167,871	174,182	170,454	164,921	160,483	150,868	164,249	162,908	163,586

**Notes** 1,000 HI. Based on data from Eurostat database (<http://www.fao.org/faostat/en/#home>).

presents the dynamics of the wine industry in terms of opening stocks in the selected EU countries.

## Data and Methodology

### Data

We use firm-level annual data from AMADEUS database to investigate the impact of firms' financial performance on the investment dynamics over the period 2007 to 2014. To avoid the broken panel bias, we have included in our analysis only firms without missing values for a specific indicator. Further, we have dropped from our sample the companies where data indicate a capitalisation ratio (capital to total assets) over 100%. Finally, our sample includes 331 firms out of 367 firms registered in France (90%), 335 firms out of 410 recorded in Italy (82%), and 442 firms out of 531 registered in Spain (83%). The focus on firms with complete data may only introduce a sample bias, because firms with specific characteristics are more likely to enter in our sample. However, in our case, this bias is marginal given the high percentage of retained companies from each country. Moreover, as Andrén and Jankensgård (2015) state, balancing the panel has an important benefit as it allows the possibility to perform different robustness checks.

The investment dynamics (*inv*) is calculated as the growth rate of fixed assets. The liquidity ratios (general liquidity ratio – *lr* and current ratio – *cr*), as well as the profitability ratios (Return on Equity – *roe* and Return on Assets – *roa*) are extracted from AMADEUS database, while the capitalisation ratio (*cap*) is equivalent with the capital to total assets ratio.

Table 3 presents the results of panel unit root tests for all variables

**Table 3** Panel Unit Root Tests

Country	Variable	(1)	(2)	(3)	(4)
France	<i>inv</i>	-178.48‡	-26.687‡	1283.5‡	1832.4‡
	<i>cap</i>	-59.872‡	-4.8567‡	826.21‡	1139.2‡
	<i>lr</i>	-29.625‡	-4.2284‡	938.34‡	1266.6‡
	<i>cr</i>	-136.49‡	-8.8148‡	875.02‡	1255.3‡
	<i>roe</i>	-95.209‡	-13.785‡	1162.3‡	1672.9‡
	<i>roa</i>	-93.703‡	-14.462‡	1112.0‡	1577.2‡
Italy	<i>inv</i>	-10523‡	-3696.9‡	1830.4‡	1708.2‡
	<i>cap</i>	-633.61‡	-40.561‡	860.73‡	1455.6‡
	<i>lr</i>	-34.530‡	-3.5804‡	871.94‡	1191.2‡
	<i>cr</i>	-25.908‡	-2.1644‡	872.10‡	1042.6‡
	<i>roe</i>	-55.071‡	-11.468‡	1051.9‡	1635.9‡
	<i>roa</i>	-43.487‡	-8.1827‡	971.91‡	1396.2‡
Spain	<i>inv</i>	504.00	-33.357‡	1882.1‡	2807.2‡
	<i>cap</i>	0.2664	-11.625‡	1053.3‡	1270.6‡
	<i>lr</i>	-38.522‡	-3.9996‡	1179.6‡	1581.3‡
	<i>cr</i>	-33.441‡	-3.9028‡	1226.2‡	1498.1‡
	<i>roe</i>	-254.89‡	-19.882‡	1409.3‡	2367.1‡
	<i>roa</i>	-214.84‡	-14.507‡	1327.7‡	2044.8‡

**Notes** Column headings are as follows: (1) Levin-Lin-Chu  $t^*$ , (2) Im-Pesaran-Shin  $W$ -stat, (3) ADF-Fisher Chi-square, (4) PP-Fisher Chi-square. \*, †, and ‡ mean stationarity significant at 10%, 5%, and 1%. For all the tests, the null hypothesis is that the panel contains a unit root. Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution, while the other tests assume asymptotic normality.

and countries. With a small exception (the  $t^*$  test indicates the absence of stationarity for investment and capitalisation in the case of Italy), all variables are stationary and GMM models may be tested.

### Methodology

Classical panel data analyses investigating the role of firms' financial performance on their investment behaviour usually use fixed effects models to avoid the omitted variables bias. Therefore, along with previous studies, we draw first on a panel fixed effects model (Equation 1).

$$Y_{i,t} = \alpha_0 + \alpha_1 X_{i,t} + \beta_i + \varepsilon_{i,t}, \quad (1)$$

where  $Y_{it}$  is the dependent variable (*inv*),  $\alpha_0$  is the intercept,  $\beta_i$  represents all the stable characteristics of firms from each country,  $X_{it}$  represents the vector of independent financial performance variables,  $\alpha$  are the coefficients, and  $\varepsilon_{i,t}$  is the error term.

Given the fact that our sample has a  $N > T$  structure (the number of companies is much higher than the number of periods), we also test a random model (Equation 2), which controls for all stable covariates (Allison & Waterman, 2002). To select between these two static models, a Hausman test is performed.

$$Y_{i,t} = \alpha_0 + \alpha_1 X_{i,t} + \beta_i + \mu_{i,t} + \varepsilon_{i,t}, \quad (2)$$

where  $\mu$  represents between-entity errors and  $\varepsilon_{i,t}$  are the within-entity errors.

The results of the classic static models might be affected by an endogeneity bias. While the firms' financial performance influences the investment behaviour in the wine industry, we can also expect that an increase in investment will have a negative impact on liquidity and profitability in the short-run, and an opposite effect in the long run. Further, static models do not account for dynamics, where changes in explicative variables influence the dependent variables after a time adjustment, that is, in the long run. Therefore, we address the endogeneity issue applying a GMM approach. We first resort to the dynamic-GMM estimator of Arellano and Bond (1991):

$$\begin{aligned} \Delta investment_{i,t} = & \sum_{j=t-p}^{t-1} \vartheta_j \Delta investment + \alpha_1 \Delta capitalisation_{i,t} \\ & + \alpha_2 \Delta liquidity_{i,t} + \alpha_3 \Delta profitability_{i,t} + \Delta \mu_{i,t} + \Delta v_{i,t}, \quad (3) \end{aligned}$$

where  $\vartheta$  is the first lag of investment dynamics,  $\mu_{i,t}$  and  $v_{i,t}$  are the error terms which vary over both firms and time,  $\alpha$  are the coefficients of the explanatory variables.

However, for large  $N$  and small  $T$  samples, the system-GMM might have better properties (Blundell & Bond, 1998), since in the case of difference-GMM estimator, lagged levels of regressors are considered poor instruments and  $\Delta investment_{i,t}$  might be still correlated with  $\Delta v_{i,t}$ . The system-GMM estimator implies a system of two simultaneous equations, one in level and one in first difference. In this case, both lagged first differences and lagged levels of variables act as instruments.

Both GMM estimators might suffer from the proliferation of instruments and a Sargan test is used for over-identifying restrictions related to instruments. However, the Sargan test is not powerful enough in the presence of too many instruments. Therefore, a Hansen test statistic should be used if nonsphericity is suspected in the errors, which requires robust error correction (Roodman, 2009).

In conclusion, the two GMM estimators we use (difference- and system-GMM) serve as different tools for testing the robustness of our findings. In addition, we also check the robustness by using a two-step estimator instead of the default one-step. The two-step estimator requires robust errors and, in this case, the standard covariance matrix is robust to panel-specific autocorrelation and heteroscedasticity. Further, in the two-step approach the number of parameters does not grow with the number of estimated regressors in the nonlinear GMM step. The autocorrelation issue is checked with the Arellano-Bond tests (AR(1) and AR(2)) for autocorrelation, applied to differenced residuals. While the AR(1) process usually rejects the null hy-

**Table 4** GMM Results for France (One-Step Results, GMM Errors)

	Difference-GMM				System-GMM			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<i>c</i>	20.31†	20.49†	21.49†	21.73†	14.26†	14.24†	16.16†	16.05†
<i>lag</i> (1)	0.000*	0.000	0.000*	0.000	-0.001*	0.000	0.001*	0.000
<i>cap</i>	-2.462†	-2.268†	-2.447†	-2.254†	-1.846†	-1.692†	-1.884†	-1.731†
<i>lr</i>	-0.533	-0.364			-0.138	-0.284		
<i>cr</i>			-0.725	-0.659			-0.687	-0.730
<i>roe</i>	0.666†		0.671†		1.174†		1.196†	
<i>roa</i>		0.539		0.556		2.205†		2.261†
Observations		1,986				2,317		
Groups		331				331		
Instruments		94				59		
Sargan over-identification	721.4 [0.00]	724.3 [0.00]	719.8 [0.00]	722.5 [0.00]	885.4 [0.00]	896.9 [0.00]	886.4 [0.00]	898.5 [0.00]

**Notes** *lag*(1) is the first lag of the dependent variable; capitalisation is considered strictly exogenous while liquidity and profitability are endogenous variables; \*, †, and ‡ means significance at 10%, 5% and 1%; *inv* – investment dynamics, *cap* – capitalisation ratio, *lr* – liquidity ratio, *cr* – current ratio, *roe* – return on equity, *roa* – return on assets.

pothesis of no autocorrelation, the AR(2) test is more important as it helps detecting the autocorrelation in levels.

### Empirical findings

This section presents the results obtained for each country retained into analysis. The findings of static estimators are presented in Tables 6, 9, and 12 and serve as reference for potential comparisons with similar researches. According to the fixed and random effects models, there is no significant influence of firms' financial performance on their investment behaviour in the case of France and Italy. However, the capitalisation and liquidity negatively affect the investment dynamics in Spain, while the profitability level has an opposite effect.

In what follows, we focus on the dynamic estimators' results, and we present the empirical findings for each country. For each estimator, four different models are tested (Models 1–4), resulting from an alternative use of liquidity ratios (*lr* and *cr*) and profitability ratios (*roe* and *roa*). While liquidity and profitability are considered endogenous variables, the capitalisation ratio is included in estimations strictly as exogenous variable. There is no theoretical intuition that shows a direct increase or decrease in the level of capitalisation, following an increase in the level of investment.

### Results for France

In the case of France, the first set of estimations (one-step results) shows generally robust findings between difference- and system-GMM estimators (Table 4). As expected, in all the cases the capitalisation level negatively in-

**Table 5** GMM Results for France (Two-Step Results, Robust Errors)

	Difference-GMM				System-GMM				
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	
<i>c</i>	12.48	11.55	13.52*	12.56	3.621	1.520	7.926	6.261	
<i>lag</i> (1)	0.000‡	0.000‡	0.000‡	0.000‡	0.073	0.073	0.031	0.037	
<i>cap</i>	-2.123	-1.747	-2.113	-1.729	-0.015	-0.002	-0.026	-0.021	
<i>lr</i>	-0.397	-0.203			-2.430	-1.722			
<i>cr</i>			-0.550	-0.453			-1.593	-1.564	
<i>roe</i>	0.654		0.668		0.237		-0.007		
<i>roa</i>		0.536		0.603		0.880		0.456	
Observations		1,986				2,317			
Groups		331				331			
Instruments		94				32			
Arellano-Bond test AR(1)	-1.339 [0.18]	-1.325 [0.18]	-1.340 [0.18]	-1.326 [0.18]	-1.320 [0.18]	-1.360 [0.17]	-1.330 [0.18]	-1.350 [0.17]	
Arellano-Bond test AR(2)	-0.447 [0.65]	-0.143 [0.88]	-0.474 [0.63]	-0.169 [0.86]	0.310 [0.75]	0.460 [0.64]	-0.020 [0.98]	0.080 [0.93]	
Sargan over-identification					7.170 [1.00]	10.29 [0.99]	19.70 [0.84]	18.40 [0.89]	
Hansen over-identification					27.62 [0.43]	24.52 [0.60]	22.66 [0.70]	21.74 [0.75]	

**Notes** *lag*(1) is the first lag of the dependent variable; capitalisation is considered strictly exogenous while liquidity and profitability are endogenous variables; \*, †, and ‡ means significance at 10%, 5% and 1%; *inv* – investment dynamics, *cap* – capitalisation ratio, *lr* – liquidity ratio, *cr* – current ratio, *roe* – return on equity, *roa* – return on assets.

**Table 6** Results of Fixed and Random Effect Estimators for France

Variables	Model 1		Model 2		Model 3		Model 4	
	F	R	F	R	F	R	F	R
<i>c</i>	109.0 (106)	107.4 (68.73)	92.32 (108)	82.41 (69.39)	107.6 (108)	118.8 (71.34)	90.37 (111)	93.06 (72.18)
<i>cap</i>	-2.158 (13.49)	-0.579 (4.287)	-4.123 (13.45)	-0.338 (4.290)	-2.173 (13.49)	-0.535 (4.277)	-4.155 (13.44)	-0.298 (4.281)
<i>lr</i>	-1.639 (37.71)	-10.06 (26.49)	-3.861 (37.77)	-9.031 (26.52)				
<i>cr</i>					-0.315 (20.69)	-9.197 (15.33)	-1.157 (20.71)	-8.406 (15.34)
<i>roe</i>	-7.237 (4.716)	-6.188* (3.473)			-7.242 (4.714)	-6.220* (3.473)		
<i>roa</i>			1.431 (16.96)	-1.416 (10.89)			1.374 (16.95)	-1.520 (72.18)
Hausman test (recommended)	Prob > $\chi^2 = 0.97$ (random)		Prob > $\chi^2 = 0.98$ (random)		Prob > $\chi^2 = 0.91$ (random)		Prob > $\chi^2 = 0.93$ (random)	

**Notes** F – fixed, R – random. \*, †, ‡ means significance at 10%, 5% and 1%. Standard errors are reported in brackets.

fluences the investment dynamics. This result states that an increase of the capitalisation ratio might be made in the detriment of an increase in investments. While the liquidity is not important for the investment dynamics, the profitability has a positive influence, as expected. However, this last result

**Table 7** GMM Results for Italy (One-Step Result, GMM Errors)

	Difference-GMM				System-GMM			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<i>c</i>	24.24‡	27.19‡	16.26†	23.48‡	7.021	9.288	-1.830	1.887
<i>lag</i> (1)	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001	-0.000	-0.001
<i>cap</i>	-0.127	-0.177	0.075	-0.034	-0.076	-0.126	0.087	0.005
<i>lr</i>	-3.858	-5.958			12.71‡	10.25‡		
<i>cr</i>			1.709	-1.953	-0.044		12.23‡	9.779‡
<i>roe</i>	-0.006		0.013				-0.031	
<i>roa</i>		-0.617		-0.399		0.655		1.149
Observations		2,010				2,345		
Groups		335				335		
Instruments		94				59		
Sargan over-identification	615.7 [0.00]	635.3 [0.00]	489.0 [0.00]	546.9 [0.00]	741.1 [0.00]	777.7 [0.00]	601.7 [0.00]	671.5 [0.00]

**Notes** *lag*(1) is the first lag of the dependent variable; capitalisation is considered strictly exogenous while liquidity and profitability are endogenous variables; \*, †, and ‡ means significance at 10%, 5% and 1%; *inv* – investment dynamics, *cap* – capitalisation ratio, *lr* – liquidity ratio, *cr* – current ratio, *roe* – return on equity, *roa* – return on assets.

is influenced by the way the profitability is measured, a significant influence being reported only in the case of *roe*.

The Sargan test shows, nevertheless, that these findings might be affected by the proliferation of instruments. Therefore, in the second part we have performed two-step estimation, where the number of maximum lags for the dependent variable is set at one and for the explanatory variable at two. In this case, the results do not indicate a significant influence of financial performances on the investment dynamics (Table 5). The findings are similar for both estimators and for all the models, and in agreement with the static analysis (Table 6). Moreover, in this case, the Arellano-Bond tests show no autocorrelation problem, while the Sargan and Hansen tests indicate that the instruments are well identified.

We thus conclude that in the case of France, the capitalisation negatively impacts the investment dynamics, while the profitability has a positive impact. The liquidity has no significant influence on investment. However, these findings might be influenced by the over-identification of instruments and are not confirmed by the two-step estimation, which puts into question their robustness.

### Results for Italy

In the case of the Italian wine industry, the default one-step estimation shows no significant influence of financial performance on investment dynamics, except for the liquidity ratios for the system-GMM approach. Table 7 shows no significant impact of capitalisation and profitability, while the Sargan over-identification test indicates a proliferation of instruments is

**Table 8** GMM Results for Italy (Two-Step Results, Robust Errors)

	Difference-GMM				System-GMM			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<i>c</i>	13.29‡	15.69‡	6.902	13.04‡	12.98‡	13.70‡	12.89‡	13.60
<i>lag</i> (1)	-0.000	-0.000	-0.000	-0.000	0.016	0.003	0.033*	0.007
<i>cap</i>	-0.099	-0.111	0.083	-0.027	-0.086	-0.105	-0.089	-0.081
<i>lr</i>	-3.952	-6.044‡			-1.548	-1.127		
<i>cr</i>			1.675	-1.969			-0.956	-0.738
<i>roe</i>	-0.006		0.008		0.026		0.057	
<i>roa</i>		-0.745		-0.491		-0.199		-0.115
Observations	2,010				2,345			
Groups	335				335			
Instruments	94				59			
Arellano-Bond test AR(1)	-1.716 [0.08]	-1.715 [0.08]	-1.717 [0.08]	-1.716 [0.08]	-1.750 [0.08]	-1.720 [0.08]	-1.750 [0.08]	-1.720 [0.08]
Arellano-Bond test AR(2)	0.321 [0.74]	0.161 [0.87]	0.686 [0.49]	0.454 [0.64]	0.850 [0.39]	0.610 [0.54]	1.150 [0.25]	0.730 [0.46]
Sargan over-identification					3.260 [1.00]	4.280 [1.00]	2.580 [1.00]	3.690 [1.00]
Hansen over-identification					30.99 [0.27]	27.55 [0.43]	31.32 [0.25]	29.78 [0.32]

**Notes** *lag*(1) is the first lag of the dependent variable; capitalisation is considered strictly exogenous while liquidity and profitability are endogenous variables; \*, †, and ‡ means significance at 10%, 5% and 1%; *inv* – investment dynamics, *cap* – capitalisation ratio, *lr* – liquidity ratio, *cr* – current ratio, *roe* – return on equity, *roa* – return on assets.

**Table 9** Results of Fixed and Random Effect Estimators for Italy

Variables	Model 1		Model 2		Model 3		Model 4	
	F	R	F	R	F	R	F	R
<i>c</i>	71.71 (45.56)	45.86 (35.54)	73.77 (46.70)	47.18 (35.85)	73.94 (52.33)	49.99 (38.61)	75.99 (53.30)	50.82 (38.83)
<i>cap</i>	-0.388 (3.452)	-0.829 (2.458)	-0.364 (3.454)	-0.839 (2.458)	-0.387 (3.453)	-0.867 (2.463)	-0.363 (3.455)	-0.873 (2.463)
<i>lr</i>	-21.44 (27.28)	6.393 (12.51)	-21.40 (27.28)	7.107 (12.74)				
<i>cr</i>					-14.15 (22.06)	1.522 (11.21)	-14.12 (22.06)	1.885 (11.34)
<i>roe</i>	0.000 (1.043)	0.036 (0.734)			0.009 (1.043)	0.042 (0.734)		
<i>roa</i>			-2.483 (12.28)	-2.221 (7.782)			-2.491 (12.28)	-1.583 (7.730)
Hausman test (recommended)	Prob > $\chi^2 = 0.71$ (random)		Prob > $\chi^2 = 0.69$ (random)		Prob > $\chi^2 = 0.86$ (random)		Prob > $\chi^2 = 0.85$ (random)	

**Notes** F – fixed, R – random. \*, †, ‡ means significance at 10%, 5% and 1%. Standard errors are reported in brackets.

sue. These findings are this time confirmed by the two-step estimations with robust errors and we notice once again the lack of a significant influence of firms' financial performance on their investment dynamics in Italy (Table 8). As in the case of France, the two-step estimations for Italy do not present autocorrelation or over-identification problems.



**Table 10** GMM Results for Spain (One-Step Results, GMM Errors)

	Difference-GMM				System-GMM			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<i>c</i>	14.02‡	12.51‡	14.79‡	13.26‡	16.10‡	15.35‡	16.69‡	15.91‡
<i>lag(1)</i>	0.052†	0.054‡	0.050‡	0.052‡	0.023	0.020	0.023	0.020
<i>cap</i>	-0.236‡	-0.193*	-0.217†	-0.174*	-0.336‡	-0.320‡	-0.319‡	-0.303‡
<i>lr</i>	-1.580‡	-1.565‡			-0.940‡	-0.912‡		
<i>cr</i>			-1.137‡	-1.128‡			-0.770‡	-0.752‡
<i>roe</i>	0.067*		0.067*		0.075†		0.075†	
<i>roa</i>		0.325		0.326		0.400*		0.411*
Observations		2,652				3,094		
Groups		442				442		
Instruments		94				59		
Sargan over-identification	215.7 [0.00]	202.0 [0.00]	211.2 [0.00]	199.8 [0.00]	190.0 [0.00]	228.2 [0.00]	185.8 [0.00]	222.9 [0.00]

**Notes** *lag(1)* is the first lag of the dependent variable; capitalisation is considered strictly exogenous while liquidity and profitability are endogenous variables; \*, †, and ‡ means significance at 10%, 5% and 1%; *inv* – investment dynamics, *cap* – capitalisation ratio, *lr* – liquidity ratio, *cr* – current ratio, *roe* – return on equity, *roa* – return on assets.

### Results for Spain

The first set of results recorded for Spain (Table 10) shows that, in the case of a one-step classical estimation, the capitalisation ratio has a significant and negative impact on investment for all tested models, while the profitability has a positive impact, regardless the way profitability is computed. For firms acting in Spain, we notice that liquidity negatively influences the investment behaviour. Namely, firms that decide to increase their liquidity accept a reduction in the investment growth rate and conversely, the increase of investment is made in the detriment of the liquidity level. This result can be explained by the fact that Spanish wine companies might use their own funds with predilection, to finance the investment opportunities.

The two-step estimation partially confirms the one-step findings, although the significance of results decreases (Table 11). For the difference-GMM estimator, for all the models, we notice a negative impact of capitalisation and liquidity, and a positive influence of profitability on the investment dynamics. However, for the system-GMM estimator, the significance of liquidity and profitability's coefficients is no longer recorded.

If in the case of the one-step estimators the Sargan test indicates an instrument over-identification problem, in the case of the two-step estimators, the Sargan and Hansen tests show that instruments are well identified, and the autocorrelation test shows no autocorrelation bias, especially for the system-GMM specification.

### Summary of Results, Comparisons and Policy Implications

This section presents a short overview of the empirical findings in a comparative manner and discusses different financial management strategies

**Table 11** GMM Results for Spain (Two-Step Results, Robust Errors)

	Difference-GMM				System-GMM			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<i>c</i>	6.610‡	7.872‡	8.229‡	8.831‡	5.624‡	4.469†	5.614‡	4.182†
<i>lag(1)</i>	0.065‡	0.065‡	0.062‡	0.062‡	0.019	-0.095	0.009	-0.068
<i>cap</i>	-0.103	-0.149*	-0.119*	-0.140*	-0.079‡	-0.038	-0.077‡	-0.030
<i>lr</i>	-1.499*	-1.528*			-0.174	-0.167		
<i>cr</i>			-1.036†	-1.062†			-0.053	-0.105
<i>roe</i>	0.062†		0.057		-0.009		0.023	
<i>roa</i>		0.437*		0.361		0.699		0.820
Observations	2,652				3,094			
Groups	442				442			
Instruments	94				32			
Arellano-Bond test AR(1)	-3.171 [0.00]	-3.179 [0.00]	-3.153 [0.00]	-3.165 [0.00]	-2.080 [0.03]	-2.100 [0.03]	-2.250 [0.02]	-2.440 [0.01]
Arellano-Bond test AR(2)	1.687 [0.09]	1.628 [0.10]	1.550 [0.12]	1.515 [0.12]	0.210 [0.83]	-0.059 [0.55]	0.170 [0.86]	-0.470 [0.64]
Sargan over-identification					55.01 [0.00]	59.66 [0.00]	46.77 [0.02]	52.48 [0.00]
Hansen over-identification					19.92 [0.83]	26.70 [0.48]	21.57 [0.75]	28.62 [0.38]

**Notes** *lag(1)* is the first lag of the dependent variable; capitalisation is considered strictly exogenous while liquidity and profitability are endogenous variables; \*, †, and ‡ means significance at 10%, 5% and 1%; *inv* – investment dynamics, *cap* – capitalisation ratio, *lr* – liquidity ratio, *cr* – current ratio, *roe* – return on equity, *roa* – return on assets.

**Table 12** Results of Fixed and Random Effect Estimators for Spain

Variables	Model 1		Model 2		Model 3		Model 4	
	F	R	F	R	F	R	F	R
<i>c</i>	14.50‡ (2.338)	9.399‡ (35.54)	13.82‡ (2.364)	8.747‡ (1.116)	15.17‡ (2.367)	9.845‡ (1.103)	14.49‡ (2.392)	9.176‡ (38.83)
<i>cap</i>	-0.241‡ (0.770)	-0.092‡ (0.025)	-0.225‡ (0.077)	-0.075‡ (0.026)	-0.231‡ (0.077)	-0.086‡ (0.025)	-0.214‡ (0.077)	-0.068‡ (0.026)
<i>lr</i>	-0.629† (0.270)	-0.095 (0.189)	-0.631† (0.270)	-0.123 (0.189)				
<i>cr</i>					-0.597‡ (0.206)	-0.234 (0.144)	-0.599‡ (0.206)	-0.253* (0.144)
<i>roe</i>	0.052* (0.029)	0.044* (0.026)			0.052* (0.029)	0.045* (0.026)		
<i>roa</i>			0.286 (0.180)	0.352† (0.139)			0.291 (0.179)	0.355† (0.139)
Hausman test (recommended)	Prob > $\chi^2 = 0.00$ (fixed)		Prob > $\chi^2 = 0.01$ (fixed)		Prob > $\chi^2 = 0.01$ (fixed)		Prob > $\chi^2 = 0.01$ (fixed)	

**Notes** F – fixed, R – random. \*, †, ‡ means significance at 10%, 5% and 1%. Standard errors are reported in brackets.

that seem to be implemented by the firms acting in the wine industry from the largest worldwide producers. Table 13 shows that our empirical findings are in general robust to different estimators and models we have used but are sensitive to the way we address the proliferation of instrument issue.

**Table 13** Results' Centralization

Country	Invest. dynamics	Difference-GMM		System-GMM	
		One-step	Two-step	One-step	Two-step
France	Capitalisation	N	–	N	–
	Liquidity	–	–	–	–
	Profitability	P	–	P	–
Italy	Capitalisation	–	–	–	–
	Liquidity	–	–	P	–
	Profitability	–	–	–	–
Spain	Capitalisation	N	N	N	N
	Liquidity	N	N	N	–
	Profitability	P	P	P	–

**Notes** P – means positive influence, N – negative significant influence, – indicates no significant influence.

We can notice that, in the case of Italy, the financial performance of wine industry companies does not influence their investment behaviour. That is, the investment decision is based on other factors (e.g. market conditions), and we may suppose these companies extend their production capacity by accessing external funds, in the detriment of internal sources. This result might also indicate a lack of inertia regarding the investment dynamics in the aftermath of the recent global financial crisis. For the French wine companies, the degree of capitalisation and the level of profitability represent reliable factors that influence their investment dynamics. In general, the profitability favours the investment decision, while a trade-off is recorded between investment and capitalisation. It appears that internal funds play their role in the investment behaviour, although the results in case of France are not very robust. In the case of Spanish wine companies, we notice an important role of financial performance in influencing their investment behaviour. On the one hand, the capitalisation and liquidity ratios have a negative influence on the investment dynamics. On the other hand, a higher profitability represents a prerequisite for increasing the investment level. These findings are quite robust and show that Spanish managers from the wine industry prefer the internal funds to extend their business. The results reported for Spain indicate the existence of a trade-off between capitalisation and liquidity on the one hand, and investment dynamics on the other hand. Moreover, these results confirm the potential trade-off between liquidity and profitability underlined by previous researches.

## Conclusions

The purpose of this paper was to investigate how firms' investment behaviour is influenced by their financial performance. With a focus on the

wine industry from the largest EU producers, namely France, Italy and Spain, we use firm-level data for a large set of companies to perform this investigation. Our panel data analysis covers the post-crisis period (2007 to 2014) and relies on dynamic model specifications.

The findings show different investment strategies for firms located in these countries. It appears that the investment behaviour of Italian firms is not influenced by their financial performance. In addition, in the case of French companies, only the capitalisation and the profitability ratio are important for the investment decision, while the influence of liquidity is insignificant. However, these results are partially robust and might be affected by the over-identification of the instruments used in the analysis. Finally, interesting and robust results are reported for Spanish firms. We show that the financial performance of wine companies is very important for their investment behaviour. If a negative impact is recorded in the case of capitalisation and liquidity, a positive influence is noticed for the profitability level. This means that the profits are usually re-invested by Spanish companies, and that internal funds are preferred by managers to sustain their investment decision. These findings support the growing importance of the Spanish wine industry at global level and have noteworthy policy implications for financial managers acting in these companies, as well as for the national authorities interested in the development and increased performance of the wine sector.

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### **Notes**

1. Uncertainty is in general associated with the lack of forecast accuracy (Albulescu et al., 2017). A recent paper by Chen et al. (2017) shows that the quality of analysts' forecasts significantly increases the efficiency of firms' investment.
2. A distinct category of internal factors explaining firms' investment behaviour might be related to the technological capabilities (for a discussion, please see the recent paper by Kang et al., 2017).
3. The EU countries do not only represent the largest wine exporters. For example, the United Kingdom is considered to be one of the largest wine importers (Anderson & Wittwer, 2017).

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# Skills, Gender, and Performance Matter when Undergraduate Business Students Choose Specialisation within Business Courses

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The purpose of this article is to explore the heterogeneity among undergraduate Norwegian business students. This is made visible by the students' choice of subjects in their third year. The chosen methodology is the ordinary least square (OLS) regression model. By using dummy variables depending on the preferred discipline, we can analyse what impact the composition of students will have on their performance in the compulsory courses during the two first years. The students who are highest ranked by letter grades tend to select further studies in finance and accounting subjects. One should be aware of this in the design of study programmes.

*Keywords:* business students, major, performance, gender, quantitative analysis, learning, knowledge

## Introduction

There is a heterogeneous group of students at the Norwegian University of Technology and Science (NTNU) Business School. They vary in preferences, personal characteristics, academic abilities, and attitudes towards mathematics (Opstad, 2019). This has an impact on the undergraduate students' selection of a course major in the third year. There is an assortment of students depending on preferred major. Students with good quantitative skills want to specialise in financial subjects. Those who have anxiety towards mathematics and minor success in this subject tend to specialise in non-quantitative courses like marketing and management. The brightest students study finance while students performing below average prefer, to a larger extent, to study non-quantitative majors. We see the same pattern at other business schools (Aggarwal et al., 2007).

## Review of the Literature

According to prior research, there is a distinction in the quality of students who are attracted to different majors in business studies (Bycio & Allen,

2007). A lot of studies confirm differences in performance depending on the chosen major. Black and Duhon (2003) reported that management students underperform relative to other majors after controlling for GPA (Grade Point Average) score, age, and gender. Using a regression model, Bielinska-Kwapisz et al. (2012) found that students in marketing and management had a disadvantage in performance compared to accounting and finance majors. In the study of Bycio & Allen (2007), students completing the finance major performed significantly better than students with either marketing or management majors. However, Bagamery et al. (2005) did not notice any difference in student scores among the business majors.

Having talent in mathematics seems to be one of the main reasons for selecting a major in finance or accounting. Students who feel that they do not have control over their academic work are less motivated to select demanding and laborious disciplines. Many students avoid majors that have a reputation of requiring a lot of effort. The opportunity costs for achieving success are too high (Davies et al., 2016). Roach et al. (2012) suggest that job availability and job security might be more important than quantitative abilities when students choose a business major discipline.

Aggarwal et al. (2007) found that the quality of students differs depending on their course major. They suggest that marketing attracts students who are good in written and oral communication. Mathematical skills are an important factor in the decision process for selection of a major field. Those who do well in mathematics tend to prefer quantitative disciplines like economics, finance, or accounting. Tarasi et al. (2013) pointed out that students preferring a marketing major use quantitative tools less frequently. Aggarwal et al. (2007) observed that marketing and management attract students who score poorly in academic achievement compared to other business majors. American data from a variety of colleges show that students in marketing and management perform considerably weaker than students in other majors. The results are stable over many years (1982–2005) and stable over time. It is not clear why there is such a composition of students. Do the students take in marketing and management due to special interest in the field or because they consider this choice to be an easier way to get a bachelor's degree in business studies? Pappu (2004) reported that many students choose marketing because it gives a wide range of career possibilities and it is easy to combine with other business majors (Siegall et al. 2007). Another reason for choosing marketing is that students find the field interesting and exciting. Students who report being poor with numbers like marketing and management (Schlee et al., 2007).

There might be a gender difference in business studies. Some studies report that men get higher scores than women (Black & Duhon, 2003; Bagamery et al., 2005; Zeis et al., 2009). By examining multiple majors,

**Table 1** Chosen Major The Third Year

Item	GPA score*	Females		Males		Total
		N	%	N	%	
Finance	52.3	74	27.6	116	47.7	190
Accounting	51.6	45	16.8	37	15.2	82
Marketing	52.0	90	33.6	71	29.2	161
Management	51.7	59	22.0	19	7.9	78
Total		268	100.0	243	100.0	511

**Notes** \* From high school.

Bielinska-Kwapisz et al. (2012) found that males outperform females in all business majors (finance, accounting, management and marketing) with the highest gap in accounting. On the other hand, Bycio & Allen (2007) did not find any differences related to sex.

Numerous studies have shown that the GPA (Grade Point Average) score from upper secondary school is an indicator of performance in business studies (Bycio & Allen, 2007; Rook & Tanyel, 2009; Bielinska-Kwapisz et al., 2012; Ketcham et al., 2018). There is a significant positive correlation between GPA scores and success in business studies across all subjects and majors.

### Sample and Research Methodology

The data used in this study were collected from business students in the NTNU Business School, Norway, within the 4-year period 2013 to 2016. The students in the undergraduate bachelor's programme have almost identical course portfolios in the first two years, but in the third year, they can select among different majors. In this study, we focus on four different majors: management, marketing, accounting, and finance. The average number of students completing the bachelor's degree is around 200 per year. The students can choose courses across majors. Around 40 per cent of the students overlap between the major courses in marketing and management. The proportion of crossovers is much lower for accounting and finance. In order to avoid double counting, we decided to exclude those students and those with unknown gender. A significantly greater share of males compared to females chooses the finance major, while female students have higher preferences for attending a major in management (Table 1).

Table 2 shows that there are differences in performance in compulsory courses during the first and second year, depending on the student major course of study. The finance major students have the highest score. The accounting students are second to the finance class, and both classes have higher letter grades than marketing and management students.

By using a linear regression model, we will analyse how the composition

**Table 2** Performance Depending on Chosen Major

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(a)	3.01	2.92	3.15	2.10	2.22	3.38	3.76
(b)	3.12	3.00	3.25	2.31	2.54	3.46	3.70
(c)	3.24	3.18	3.31	2.28	2.77	3.52	3.81
(d)	2.94	3.00	2.90	2.53	3.07	2.82	3.08
(e)	2.96	2.98	2.96	2.71	2.82	2.75	3.26
(f)	3.02	3.12	2.95	2.44	2.35	3.16	3.38

**Notes** Column headings are as follows: (1) all, (2) female, (3) male, (4) management, (5) marketing, (6) accounting, (7) finance. row headings are as follows: (a) business mathematics and business statistics, (b) quantitative courses in economics and business studies (business economics, microeconomics and macroeconomics), (c) accounting (financial accounting and managerial accounting), (d) introduction to marketing, (e) management (organizational management and organizational psychology), (f) business law.

of students in different majors depending on their success in compulsory courses. The applied model is:

$$y_i = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3 + \alpha_4 x_4 + \alpha_5 x_5 + \varepsilon, \quad (1)$$

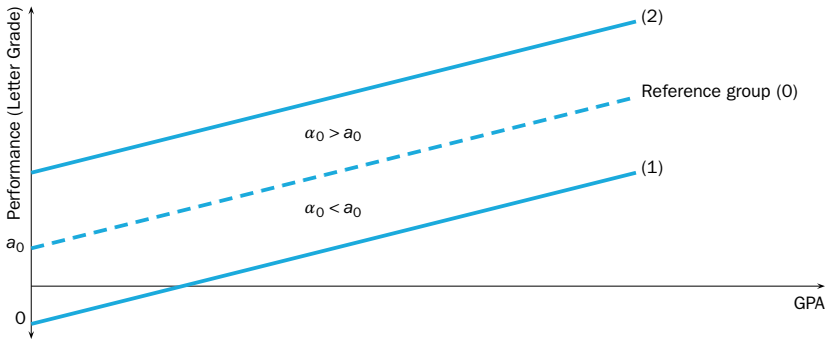
where  $y_i$  are Grades in the compulsory course  $i$  (0: F, 1: E, 2: D, 3: C, 4: B, 5: A),  $\alpha_0$  is constant,  $x_1$  is gender (0: F, 1: M),  $x_2$  is Grade Point Average (GPA) from upper secondary school,  $x_3$  is dummy variable for having chosen finance course (0: not chosen, 1: chosen),  $x_4$  is dummy variable for having chosen accounting (0: not chosen, 1: chosen),  $x_5$  is dummy variable for having chosen management course (0: not chosen, 1: chosen), and  $\varepsilon$  is stochastic error.

The literature shows that the GPA score and gender affect student performance in business courses. Hence, they are included as independent variables. To avoid multicollinearity, no dummy variables for marketing major are included in the regression model and this group will belong to the reference category, which also includes some students who have taken other courses the third year.

The focus of this study is to see how students preferring different majors perform compared to the reference group. If the value of the dummy variable is positive, the curve will shift upwards from (0) to (1). Those students will perform better than the reference group. On the other hand, if the coefficient ( $\alpha_i$ ) for the dummy variable is negative, the curve will shift downwards from (0) to (2). This means that the students belonging to this major underperform relative to the reference group.

## Findings

For all courses, there is a significant positive link between GPA score and performance. There is a clear positive connection between gender and



**Figure 1** The Link between GPA and Performance Depending on the Dummy Variables

**Table 3** Dependent Variable: Performance in Mathematics and Statistics

Item	Business math		Business statistics	
	(1)	(2)	(1)	(2)
Constant	0.16		-0.425	
Gender	0.088 (0.167)	0.528	-0.107 (0.172)	-0.63
GPA	0.049 (0.025)	1.98 **	0.055 (0.026)	2.12 ***
Finance	0.993 (0.194)	5.10 ***	1.369 (0.199)	6.88 ***
Accounting	0.683 (0.246)	2.78 ***	1.236 (0.251)	4.92 ***
Management	-0.441 (0.260)	-1.70 *	-0.373 (0.271)	-1.38
R <sup>2</sup>	0.139		0.199	
N	328		328	

**Notes** Column headings are as follows: (1) coefficient, (2) t-value. Standard error difference in parenthesis; \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively; VIF (variance inflation factors) values are between 1.0 and 2.0.

macroeconomics, while this effect is negative for introductory courses in marketing and business law. Except for marketing and organisational management, the dummy variable for finance major has a positive impact on performance. The same tendency applies for accounting majors as well. There is, however, no significant positive impact from an accounting major on the performance in marketing. Unlike the finance major, the accounting major has a positive influence on organisational management, but not on organisational psychology. For all other courses, there is a positive correlation. The picture is the opposite for a management major. Consistently significant negative effects are present. The exception is in the following three

**Table 4** Dependent Variable: Performance in Quantitative Courses in Economics and Business Studies

Item	Business economics		Micro-economics		Macro-economics	
	(1)	(2)	(1)	(2)	(1)	(2)
Constant	-0.908		0.879		-0.586	
Gender	0.096 (0.158)	0.61	-0.163 (0.130)	-1.26	0.213 (0.119)	1.79 *
GPA	0.068 (0.023)	2.92 ***	0.038 (0.019)	1.95 *	0.067 (0.018)	3.80 ***
Finance	0.490 (0.184)	2.66 ***	0.0967 (0.150)	6.43 ***	0.74 (0.139)	5.32 ***
Accounting	0.733 (0.233)	3.14 ***	0.852 (0.192)	4.45 ***	0.663 (0.176)	3.76 ***
Management	-0.781 (0.244)	-3.19 ***	-0.266 (0.203)	-1.31	-0.687 (0.180)	-3.81 ***
$R^2$	0.121		0.175		0.245	
$N$	338		328		322	

**Notes** Column headings are as follows: (1) coefficient, (2) t-value. Standard error difference in parenthesis; \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively; VIF (variance inflation factors) values are between 1.0 and 2.0.

**Table 5** Dependent Variable: Performance in Accounting

Item	Managerial accounting		Financial accounting	
	(1)	(2)	(1)	(2)
Constant	0.350		-1.403	
Gender	0.44 (0.166)	0.26	-0.130 (0.171)	-0.76
GPA	0.05 (0.025)	2.10 **	0.083 (0.025)	3.37 ***
Finance	0.662 (0.195)	3.39 ***	0.693 (0.200)	3.46 ***
Accounting	0.669 (0.245)	2.73 ***	0.750 (0.250)	3.00 ***
Management	-0.897 (0.259)	-3.46 ***	-0.698 (0.272)	-2.57 **
$R^2$	0.132		0.139	
$N$	318		284	

**Notes** Column headings are as follows: (1) coefficient, (2) t-value. Standard error difference in parenthesis; \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively; VIF (variance inflation factors) values are between 1.0 and 2.0.

subjects: microeconomics, business statistics, and organisational psychology. Notice that this result appears when we compare with students in the

**Table 6** Dependent Variable: Performance in Non-Quantitative Courses

Item	Introduction to marketing		Organisational management		Organisational psychology		Business law	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Constant	0.756		-0.533		0.582		-3.011	
Gender	-0.172 (0.103)	-1.67 *	-0.184 (0.127)	-1.45	-0.115 (0.128)	-0.90	-0.501 (0.199)	-2.57 **
GPA	0.045 (0.015)	2.92 ***	0.072 (0.019)	3.84 ***	0.040 (0.019)	2.13 **	0.116 (0.032)	3.68 ***
Finance	0.119 (0.120)	0.99	0.144 (0.147)	0.98	0.577 (0.148)	3.91 ***	0.646 (0.234)	2.76 ***
Accounting	-0.212 (0.152)	-1.40	-0.697 (0.192)	-3.63 ***	0.211 (0.193)	1.09	0.669 (0.282)	2.37 **
Manag.	-0.523 (0.159)	-3.28 ***	-0.532 (0.195)	-2.72 ***	-0.011 (0.200)	-0.05	-0.840 (0.373)	-2.25 **
$R^2$	0.078		0.123		0.065		0.290	
N	338		328		336		120	

**Notes** Column headings are as follows: (1) coefficient, (2) *t*-value. Standard error difference in parenthesis; \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively; VIF (variance inflation factors) values are between 1.0 and 2.0.

reference group, i.e., mainly students choosing courses in the marketing discipline. If we look at financial accounting, students who have chosen further studies in this field (accounting) or in finance achieve grades that are about 0.75 points better (three quarters of a letter grade) on average, while those belonging to management will underperform with grades that are about 0.7 lower when compared to the reference group. Furthermore, with a significance level below 1 per cent, there is a strong link between performance in business statistics and mathematics and in selection of further studies within finance or accounting.

## Discussion

The substantial variety of student preferences is reflected in the choice of courses and majors in their third year. The composition of students differs depending of the field selected in the third year reflecting different preferences, skills and interests.

GPA from upper secondary school has an impact on achievement in all business courses. The link is positive and significant for all presented courses. Besides mathematical skills, GPA is the most important factor to determine study success (Opstad, 2018). However, there are some variations in the unstandardised coefficient for GPA. For instance, this value is distinctly higher for business law than for other courses. This could be related to the fact that business law is a non-quantitative course that re-

quires significant analytical skills and good writing ability. High GPA scores show academic capacity and the students get rewarded in disciplines like business law. Pitts et al. (2005) confirm this finding.

For the majority of the courses, there is no significant gender impact. However, there are some exceptions. In macroeconomics, males perform better than the females, but the opposite is true for management and business law. Some studies confirm this tendency. The female students struggle more with quantitative courses relative to male students, but they do better in non-quantitative subjects. This might indicate a gender gap in favour of men (Naqvi & Naqvi, 2017). Daymont and Blau (2008) however, reported higher scores for female students than their male peers. Based on such findings, the results in this research make sense. However, prior studies do not give a clear answer for the gender effect. Many studies have not found any significant gender gap in law studies (Sigfried, 1980; Terry et al., 2015; Fordyce et al., 2017).

This study shows that the undergraduate business students at the NTNU Business School are not a homogenous group. This is clearly evident by looking at the coefficients of the dummy variables. If there were no diversities in the composition of students choosing different pathways through their major studies, the coefficients of the dummy variables would not vary when we compare the preferred fields with the reference group.

Our study shows that there is a substantial difference in quantitative skills depending on the selected major. This is in line with findings of Newell et al. (1996) and Tularam (2013). Those who have decided to specialise in finance subjects perform about one letter grade better in business statistics and business mathematics. The reason is probably that subjects in finance are quantitative oriented, and business statistics are definitely an important tool in this field. The magnitude of this impact is modest, but still substantial and significant for quantitative business courses. Compared to students choosing the marketing field (reference group), the dummy coefficient for finance major appears to be significantly positive for organisational psychology and business law as well (with a coefficient around 0.6). On average, the finance group students outperform the reference group by more than half of a letter grade.

The same tendency is also seen among the students who prefer to specialise in accounting. The students who select to study this discipline outperform the reference group in quantitative courses. There is a strong positive link, but the coefficients are marginally smaller than for the finance students. For the non-quantitative courses, the results are more mixed. A significant influence occurs for two courses, and notice that it is with an opposite sign. In organizational management, the link is negative.

The picture is quite the opposite among students who choose manage-



ment compared to those taking further studies in finance and accounting. When considering that the reference group consists mainly of students who prefer marketing, it means that students who have chosen to specialise in marketing outperform those who take added courses in management. Among the students who prefer management there is a strong negative link for almost all courses.

For organisational psychology, the effect is also negative, but not significant. Notice also that for the other management course (organisational management) there is a substantial negative relationship. The conclusion is that students with the weakest achievements in compulsory courses tend to select further studies in management.

Our finding is consistent with some previous studies. This is the same pattern as Aggarwal et al. (2007) had noticed. The quality of the students is different depending on their chosen field. Management majors get the lowest score (representing the line below the reference group). The best students prefer specialisations in accounting and finance (indicated by the line (1) in the figure).

The difference between the student mean letter grade in the compulsory courses for those who have chosen finance major and management major is substantial. Based on the values on the dummy coefficients, the calculated difference is more than one letter grade for most of the business courses. This means that there is a large variation in student academic skills among the different majors. The data in this survey does not provide a complete answer to these findings. We know from other studies that mathematic skills and attitudes can be an explanatory factor. Students with practical mathematics from upper secondary school demonstrate a substantially poorer performance in quantitative courses (Opstad, 2018). Those students tend to prefer non-quantitative majors. Our investigation confirms this result, because the difference in success between students choosing finance and management major, respectively, is significantly less in courses where the student performance does not depend on mathematical skills (for instance in the introductory course in marketing).

Other research papers show that there is a close link between the student success in the introductory course and their later performance in desired course within the same field (Bernardi & Bean, 2002; Opstad & Årethun, 2020). This positive selection may be due to preferences, interest, skills and success.

### Limitation and Contribution

The present dataset is from one business school only. In the regression model, there are few independent variables besides the dummy variables. This creates some limitations and can explain the low *R*-square values.

Adding additional independent variables to our analyses would probably increase the *R*-square values, and it could have led to a slightly different result regarding the effects of gender and GPA on performance.

The causal effect is not obvious. Our regression model has explored how characteristics among the students choosing different pathways in the third year have influenced the performance in compulsory courses. The composition of students within various disciplines differs. However, an obvious interpretation of the results is that performance in compulsory courses is a key factor to explain student selection in the third year. Students who are being successful in the two first years tend to prefer specialisations in finance and accounting. They may have the most promising and prosperous careers in business ahead of them. Therefore, those with the best letter grades tend to choose this lane. Among those who achieve poorer grades, further studies in management are more tempting.

Using data from a Norwegian business school, this research confirms that there are differences in performance among students depending on their chosen major. This information is useful for ensuring a diverse study programme that may be adapted to the individual student interests. There is a discussion about requiring theoretical mathematics as a criterion for enrolment into business schools. The result will be another selection of students and will probably improve the student performance. On the other hand, this will likely lead to fewer students choosing non-quantitative majors. One should consider both these effects when determining the level of math skills as entry ticket to business studies.

A different composition of the students may have an impact on the grading practice. If the instructor is not aware of this or if he or she ignores it, the result will be different grading practice depending on student choice of major. It will then become harder to achieve good grades in subjects with many skilled undergraduates (Opstad, 2020).

### **Conclusion and Further Research**

The results of this study confirm the findings from other business schools. By dividing the students according to their choice of discipline, significant differences are revealed among the student performance and their reasons for choice of course portfolio. There is a substantial heterogeneity among undergraduate business students. The evidence or indicator is student selection of specialisation in the third year. Undergraduates who choose further studies in finance or accounting tend to have higher average grades in the compulsory courses, while the opposite is the case for those who take extra courses in management. There might be some gender effects as well. Female students favour some non-quantitative courses.

There is a need for further research to explore why there is such a con-

siderable difference among the undergraduates' choice of pathways in the third year. Why do various disciplines attract different kinds of students?

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# Experience Economy in the Context of Sustainable Development

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One of the main challenges is the question how sustainable development assumptions can be implemented in practice better and more effectively. This paper explores the relation between sustainable development trends and experience economy, with its main aim to describe links of those two ideas. The authors hypothesized that there is relation between sustainable development and experience economy since both ideas have common goals and are a counterweight to the concept of mass consumption. The aim of the study is to prove that the concept of experience economics along with its conscious design in an enterprise can counteract growing consumerism. In order to verify this hypothesis and achieve the main aim, the author used triangulation methods combining desk research and qualitative research. The main research result is that designing experience in organisations will be an important trend that will allow to meet the current challenges not only economic, social but also ecological. It is a very good time for designers for using their creativity in many different branches of industry.

*Keywords:* experience economy, sustainable development, experience design, consumerism

## Introduction

Human life is full of experience. What we experience, what stimuli we perceive, how we deal with them and process them affects the kind of people we become. *Homo oeconomicus* is also a rational man striving to maximise profits and making choices because of the economic value of the results of these decisions.

Although people are not always rational, they have high desire to maximise benefits and learn from mistakes that make this maximisation difficult. The constant need to improve the state of life and the desire to increase the level of possession that goes with it has led to an escalation of standard consumption – the consumption of goods in order to directly meet human needs to the level of consumerism – consisting in almost unjustified real needs, or ecological costs, social acquisition of material goods and services.

In consumerism, consumption has become a key value, determining even the style and quality of life. It is debatable whether this process has been designated by people as consumers, driven by new whims in a dynamically changing world, or by companies that impose new needs on recipients. Nevertheless, hedonistically understood consumption, as well as the accompanying cult of ownership transforming into materialism, led to one of the most important questions of modern times about how not to over-exploit and protect the environment in which we live.

CO<sub>2</sub> emissions, which companies are responsible for, contribute to an increase in the Earth's surface temperature, which translates into melting glaciers and rising water levels. The global deforestation is responsible for the decrease in animal population and for the increase of the smog phenomenon. Excessive use of natural resources means that in the near future we will be forced to change our habits, diets and even lifestyles.

Sustainable development responds to the current needs of people without limiting future generations from being able to meet their needs. Sustainable development requires partnership and is now generally accepted by not only politicians but also producers and end users. Nevertheless, its implementation is not easy and needs effort on the part of the stakeholders. One of the main challenges is the question how sustainable development assumptions can be implemented in practice better and more effectively.

This paper explores the relation between sustainable development trends and experience economy, with main aim to describe links of those two ideas. The authors hypothesised that there is a relation between sustainable development and experience economy as both ideas have common goals and are a counterweight to the concept of mass consumption. What is more that the concept of experience economics along with its conscious design in an enterprise can counteract growing consumerism.

In order to verify this hypothesis and achieve the main aim, the author used triangulation methods combining the desk research method and also qualitative research in form of the individual in-depth interviews (IDI). The scenario was divided into introduction, summary and three substantive parts. The respondents were representatives of enterprises and experts in the field of experience economy, experience design and sustainable development.

### **Experience Economy, Circular Economy Role and Implementation**

The economy of experience is based on the experience of the recipients and refers to their emotional, physical, intellectual and spiritual involvement in the consumption of products and services. Thanks to such approach, the recipient has a sense of participation and co-creation of different types of activities, and thus of involvement and identification with the product. The



price of such a hybrid offer is therefore higher than the purchase of the good itself.

In practical terms, the relationship between the producer and the recipient may assume two extreme types of behaviour – active and passive. In an active relationship, the manufacturer allows the recipient to co-create the selected good or service that the recipient wants to purchase (Stickdorn & Schneider, 2011). In a passive relationship, the producer recognises the lack of need to involve the recipient in the process of producing the good or service. The main assumptions of the experience economy include the following aspects (Dziewanowska, 2013):

1. it is not products or services that are purchased, but the accompanying sensations, which means that value is no longer considered only in the utilitarian context, but value is considered in relation to the category of experiences that allow buyers to fulfil their dreams and achieve the desired lifestyle (Bakowska & Tomczyk, 2014; Smith & Wheeler, 2002);
2. key are customer experiences (Majchrzak, 2014), which co-exist with increasingly personalized consumption, based on the intangible values accompanying the concluded transaction, such as feelings, smell, prestige, impressions, mood, atmosphere (Stasiak, 2013), store appearance, service behaviour, product packaging, way of providing the service, way of communication with the customer, etc. (Skowronek, 2011).

Experimental goods are characterised primarily by the fact that they are symbolic (based on mass beliefs, ideas, commonly held values), consist of messages affecting the imagination, have an element of surprise, create a desire to repeat the experience, are virtual, can use all the possibilities of digital technologies, so they are widely available. The economy of experience is based on experience as the main factor of creating value. Thanks to this, the product itself could be used many times, because it is not the products that are the goal, but the experience around them (Pine & Gilmore, 2013). The economics of experience can therefore become part of circular economics.

The circular economy (Ellen MacArthur Foundation, 2013) is a sustainable development paradigm that has attracted the attention of governments and organisations around the world as it is considered a promising concept to enable more sustainable economic development in a changing socio-economic landscape where resources are limited. The interpretation of the Ellen MacArthur Foundation has become a de facto standard in recent years.

However, it appears that industry has not yet implemented the principles

of a circular economy for sustainable production on a large scale (Heshmati, 2015).

The main concept of circular economy is based on the principle of reborn design (Stahel, 1982), who in the 1970s, in a research report entitled 'The possibility of changing the workforce to energy' commissioned by the European Commission, sketched a vision of a looped economy. This concept was developed by (Braungart & McDonough, 2002). In a book published in 2002 they comprehensively described a philosophy of action called cradle-to-cradle.

The cradle-to-cradle model is the driving force behind the circular economy and is used to describe a sustainability model in which manufacturers, looking at nature, introduce solutions to reduce or eliminate waste. Economic growth in the circular economy model is not related to the consumption of limited natural resources. Materials are divided into technical and biological ones and so the production process is conducted in such a way so as to maintain and use the highest quality throughout the product's life. The main focus is on the efficient design and use of materials in order to optimise their flow and maintain or increase technical and natural resources. Circulation management can therefore be interpreted as a set of many complementary principles. The proper selection and application of these principles largely depends on the context of the problem. In order to implement the principles of circular economics, it is necessary to start by changing the approach to the design of products and services so as to eliminate the concept of waste already during production – things, packaging and systems – from the very beginning based on the assumption that there is no waste (Braungart & McDonough, 2002):

Zero waste, zero emissions, zero 'ecological footprints,' [...] zero is a good target. We also need to understand that poor design of things is dishonourable, destroying the best systems that man could create. [...] Respecting diversity in the design of things means not only how the product is made, but how it is to be used and by whom. The cradle-to-cradle concept can have many uses, many users, over time and space.

The circular economy model is based on the 3R rule: reduce reuse, recycle, which is a challenge and a necessity to change the current paradigm of management. This is the basis for the Canadian formula 4RV + ges – réduire, réutiliser, recycler, régénérer, valoriser + 0 gas à effet de serre, which means to reduce, reuse, recycle, regenerate, valorise + zero greenhouse gas emissions. The Swiss 5R formula assumes réduire, réparer, réutiliser, recycler, réinventer, i.e. to reduce, repair, reuse, recycle, reclaim, regenerate, reinvent (Raftowich-Filipkiewicz, 2015).

## Designing Experiences in the Context of the Future and Designing for the Future: Research Issues

Current economic realities are very difficult for micro, small, medium and large enterprises. The environment is turbulent, trends are created in a very short time, and quickly disappearing. It is not just companies that create economic reality. It is also intensively created by consumers. Thanks to new media, especially developed thanks to the Internet, buyers have the opportunity to communicate their needs and reasons. Thus, economic realities arise at the interface between the world created by producers and the world of recipients.

Even the organisation's many years of experience will not necessarily be able to guarantee its managers the skilful construction of the entity's operating strategy. In such intensively changing realities it would be wrong to assume a certain level of sector expertise or trends. Fashion and trends emerging in economic realities pose significant challenges for enterprises. It results, among others, from the fact that they determine the activity of entities.

However, it should be remembered that fashion and trends should not be given up. In order to manage them effectively, business models that help create economic reality, not just being passive recipients, can be helpful. What's more, active trend analysis, conducting research on the company's environment can support entities in the fight for a strong competitive position on the market (Spsychalska-Wojtkiewicz & Tomczyk, 2017).

The specificity of issues related to economy of experience and the trends that follow it is so complex that the authors decided to apply a qualitative study to deepen the phenomena accompanying these issues. Individual in depth interviews (IDI) were selected as a technique, taking into account the specificity of respondents, namely experts coordinating strategic processes in enterprises. Experts came from various European countries ( $N = 20$ ), but they all represented entities from the creative sector (such as fashion, ICT, multimedia production, audio-visual arts, advertising, graphics). Interviews were moderated by the authors. They lasted 40 minutes and were recorded in accordance with the principles of anonymity of the interviewees. Transcriptions from interviews were carried out and analysed. Interviews focused on three main research issues:

- lack of information on how to design customer experience,
- lack of information on whether designing experiences can counteract excessive consumption,
- lack of information on how to reconcile mass production and mass sales with the sharing trend, and whether conscious design in enterprises can remedy this.

The problems presented to the respondents determined the interview scenario and research questions. The interview began with an introduction to the general assumptions of the conversation and ended with a summary of the main conclusions. The main part has been divided into two areas:

- the first concerned issues of experience design,
- the second focused on design issues in relation to contemporary socio-economic challenges.

The interviews were aimed at verifying the hypothesis that there is a relation between sustainable development and experience economy because both ideas have common goals and are a counterweight to the concept of mass consumption. The qualitative study has positively verified this hypothesis. Experts admitted the concept of experience economics along with design in an enterprise can counteract growing consumerism and has shown that the current, difficult time, full of environmental challenges in particular, is a very good time for designers, as there are possibilities of using their creativity and redesigning products that do not meet current standards. The process of designing experience in organisations will be an important trend that will allow to meet current challenges not only economic and social but also ecological.

### **Designing Experience in the Opinion of Experts**

Sensations that flow from experience can have a number of dimensions, e.g. sensory, aesthetic, visual or olfactory. Thus, each of them, as well as the sensations arising from it must be properly planned and therefore designed. An apt design should create or fit into existing trends. According to the experts surveyed:

One of the current trends that will not lose its significance but will even strengthen is craft – manual work and a return to creative foundations.

According to the experts surveyed, there are concepts for the design of products, services and enterprises that would be good for people, business and the environment, but these are quite niche initiatives and still not enough, as well as not breaking through to mass consciousness.

A lot of initiatives are created, but unfortunately they are usually start-ups and not large enterprises (and these have their limitations). I know, for example, a company that produces algae bottles or produces materials from potato waste. The concept of recycling as a method of business seems to be very accurate.

Experts judged that a wise concept uniting the goals of buyers, producers and the environment is circular economics, which can help stop ex-

plotation of the planet. The circular economy assumes a renewable and self-regenerating system designed to reduce and ultimately eliminate the amount of unused waste and wasteland arising in the economy. In a closed economy, products are not wasted – they are recycled, processed, repaired or they find another buyer or other purpose. This is an incredible challenge for producers, managers and designers.

Circular economics and circular design are very difficult concepts because they assume that the product will not become waste. This requires designers, enterprises and management assumptions to move away from the traditional paradigm and the concept of the product linear life cycle: from production to its death. The circular approach assumes that the product never really goes out of circulation and never becomes waste.

The respondents in answer to the question, considering creating and offering buyers products of high quality but also high prices that can be countered against excessive consumerism focused on cheap fast-moving goods, agreed that this is how it can be:

Briefly: yes. Quality must be good, then these goods will be much more respected and can be used many times.

I think so, that it is a matter of quality it compensates for, a higher price, or longer waiting for the product.

The high price aspect is problematic. When an economical, rational person is able to buy easily available goods at a lower price, one will most certainly choose them. The question remains what if one is presented with a long-refined and meticulously designed product, being hence expensive. Will the buyer be interested? In experts' words:

I am convinced that awareness in this area is increasing. It was completely different a few years ago, it is different now and, in a moment, in the next period it will be different as well. Consciousness increases. You will want to have not only more beautiful things, not only good quality, but also what gives us aesthetic pleasure, so the combination of this creativity, art and business has a future.

According to the respondents, well-designed, durable products will stay with customers longer, not only due to their functional but also sentimental ties. Even a daily product can bring back memories, i.e. offer specific sensations. Many people value inherited items, e.g. from grandparents, in order to build a family identity. For such things to stand the test of time, they have to be of good quality, which often goes hand in hand with price, which consumers know and are often able to accept in such cases.

Some experts note that consumer education is necessary, pointing out why prices are low, what affects them, and why prices are high. Several re-

spondents said that they are able to risk the statement that among young people, despite the extensive and momentous discussion about environmental protection and natural resources, there is a cult of ownership. They don't wonder where the products come from, how much they are worth, where they are produced. This lack of knowledge and reflection causes that they do not value them and quickly get bored and replace them. According to the experts of this study, as well as KPMG (2018) analyses, *The Fashion Market in Poland*, is mostly young buyers at international stores with low or medium price caps. What's more, in recent years the fast fashion approach has evolved in consumers a strong need to have clothing corresponding to seasonal trends, produced quickly, but not durable and quickly out-dated, contributing to increasing the consumption of clothing by half, but also increasing the formation of clothing garbage.

However, with age and a richer portfolio, there is interest in good quality and specific aesthetics. Education in this field seems to be justified from an early age in order to teach future consumers that it is not worth falling into the clutches of unrestrained consumption, and that it is worth saving and sensibly managing the signed funds, exchanging them for high-quality products. According to experts, personalisation is important for craft products.

The respondents referred to examples of Scandinavian countries considered to be rich, where citizens pay special attention to aspects related to waste segregation, cleanliness of public space, or environmental protection. According to the surveyed customers, e.g. from Sweden, they appreciate expensive products from natural resources, care for them and adhere to the principle of their repair and further use, not just throwing them away and replacing them with new ones. An example would be a shopping mall opened a few years ago in Swedish Eskilstuna where only recycled items are sold – second hand and repaired. There are clothes, furniture, vases, lamps and other decorations, bicycles, books, as well as home appliances and electronics (see <https://www.retuna.se>). Regardless of the country of origin, the respondents concluded that the question: 'Can building customer experience (counterpart) prevent excessive consumption?' is a difficult question to answer but they are able to agree with a positive answer:

Yes, customer experience can cause buyers to want to participate and experience instead of just have it. Referring to the eternal question to have or to be, the experience economy can lead us to the path of being, the experience of things.

In the course of these statements about customer experience in the face of consumerism, the respondents were asked to answer the question: are buyers looking for the products themselves or are they looking for experi-

ences related to them? The answers prevailed that buyers, in addition to the solutions offered by the products, are looking for certain impressions and experience (even if they are not completely aware of it). The greater the pleasure of these experiences, the better the product is remembered and the more buyers want to identify with it and do not want to part with it.

Generally, yes. In the case of basic goods, such as bread or soap, you will notice that impressions, memories of warm bread, a family home, etc. are added, and to a large extent these projects can affect the purchase. When buying, for example, soap, it is also encapsulated with a certain aura, e.g. relaxation, time for yourself etc. These impressions influence the purchase.

Thus, the authors asked: can one design experiences to counteract excessive consumption? Make customers buy less often but reasonably, and even at a higher price? According to the respondents, yes, it is possible.

Yes, you can design your experience the most. I think this is already happening and more and more companies are doing so. Enterprises are increasingly designing products and services that respond to specific needs.

It's already happening and I think that this trend will be more and more popular, also because we live in times where the ecological crisis is unfortunately very likely and will also force it.

Yes, for example according to – fun theory, where human habits change through experience in the form of fun. I think a well-designed experience can mean that we will not only buy but will pay for the buying experience.

In the opinion of experts, designing experience is a very current and important topic, especially in the context of protecting natural resources and the environment. For this reason, the respondents emphasised that this topic would continue to grow in importance. According to the respondents, designing experiences and consumption impressions may prevent excessive buying and throwing away. Experts mentioned that some time ago things, such as furniture, interior design, but also clothes and other textiles, were passed down from generation to generation.

### **Discussion and Interpretation in Perspective of Sustainable Development**

Appropriate designed experience can cause the buyer to be strongly attached to things, identify with them, which in turn can lead to taking more

care of them and to desire to pass them on to others. According to the respondents, this trend may counteract excessive consumption, since during the consumption process it was determined by producers that their products were quickly disposable, and their usefulness ended with the warranty period.

This is similar to research of the emotional bond consumers experience with their durables during ownership, which shows that for both product attachment and satisfaction, the pleasure elicited mediates the effects of utility and appearance (Mugge et al., 2010).

Designing experiences and impressions of recipients resulting from contact with the purchased product may lead buyers to buy less. What's more, it may develop the need to search for added value that they would not get anywhere else. Such value may be, for example, a positive or neutral impact on the environment, products that are not tested on animals. The trend of thoughtful design of experience can occasionally make customers more aware and more demanding of producers. What is more, they will be more focused on the quality not on the quantity of products and will be willing to pay more for the quality that meets their needs. According to the respondents, the social suitability of business, social innovations, circular economics, recycling or upcycling, fair trade are trends that change business, the fashion sector or fast-moving goods. These changes are not temporary, as the widely discussed climate crisis has its impact on producers and consumers.

Producers will permanently introduce changes that are profitable. An important role in this practice lies with the consumers; namely, their passive or active attitude can give testimony to what they expect. The preview research shows that the group of buyers with moral norms is the smallest one and consist of experience buyers with higher income (Han 2016), so the new way of production and business models needs to be developed.

According to the respondents, the role of entrepreneurs should be re-defined so that they are more aware of targeting not only sales but also responsibility for the environment and recipients. Concepts for, for example, adding ideas such as:

- planting trees,
- creating urban gardens or municipal food gardens,
- creating city hives,
- manufacturing products from new materials (e.g. clothing from recycling materials),
- looking for alternative materials for plastic,
- sharing food, meals,



- searching for cheaper and energy-saving logistics solutions could change a lot in the approach of entrepreneurs.

According to experts, when starting a business, the entrepreneur already has a kind of debt to pay because he uses natural resources for enrichment purposes, thus he should look for a way to repay to nature. It goes together with the theory of circular economy (Braungart & McDonough, 2002; Heshmati, 2005; Raftowich-Filipkiewicz, 2005).

Hypothesis that there is relation between sustainable development and experience economy because both these ideas have common goals has been positively verified. Moreover, according to the respondents, these issues are combined and cannot be resolved separately. Sustainable development and experience economy should be implemented together to be a counterweight to the concept of mass consumption.

## Conclusions

The results of the study helped to achieve interesting results indicating that the current, difficult time, full of environmental challenges, is a very good time for designers, as opportunities for using their creativity are opening up. The respondents confirmed that the process of designing experience in organisations will be an important trend that will allow to meet the current challenges not only economic and social, but also ecological.

Customers operating in a spiral of desire to own have more than one thing of the same kind, they surrender to the mass market because they do not want to differ from others, because they want to have more, they want to manifest something with their possession. It is therefore important to find a way out of this self-winding spiral by designing products and solutions that will guide reason and concern for the quality of life of present and future generations.

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## Abstracts in Slovene

### **Oblikovanje identitete projekta v večprojektnem okolju**

*Emmanuel Nyameke, Harri Haapasalo in Kirsi Aaltonen*

Sočasno upravljanje projektov velja za učinkovit pristop v sodobnem poslovnem svetu, vendar pa tovrstno upravljanje v gradbeništvu še vedno velja za izziv. Ključnega pomena za uspeh je identiteta projekta. Prispevek želi poglobiti razumevanje večprojektnih projektov in orisati ključne značilnosti, ki predstavljajo postopek sočasnega upravljanja projektov v večprojektnih okoljih projektne zasnovanih organizacij. Na osnovi študije primera dveh priznanih finskih gradbenih podjetij je opredeljenih pet postopkov, ki predstavljajo osnovo projektne identitete v večprojektnem okolju. Ti procesi vključujejo: (1) opredelitev vizije in ciljev večprojektne okolje, (2) upravljanje dodeljenih sredstev in časovno načrtovanje v večprojektnem okolju, (3) vzpostavitev ustreznih komunikacijskih sistemov za večprojektno okolje, (4) vzpostavitev sistema upravljanja zainteresiranih strani ter skrbno in podrobno pripravo dokumentacije, ter (5) zagotavljanje ustreznih usposabljanj in vzpostavitev okvira za inovacije. Rezultati bodo projektne zasnovanim organizacijam pomagali pri razvoju in vodenju sočasno izvajanih projektov v večprojektnem okolju.

*Ključne besede:* večprojektno okolje, identiteta projekta, identiteta organizacije, upravljanje

IJMKL, 9(1), 3–25

### **Organizacijski izzivi pri razvoju in izboljšavah v šolstvu**

*Anne Dorthe Tveit in Velibor Bobo Kovač*

Namen raziskave je bil prepoznati dejavnike, ki v obstoječem načinu organizacije šol ovirajo razvoj in izboljšave, ter jih preučiti. Rezultati kažejo, da šolska struktura vsebuje različne podskupine in posledično ima šola značilnosti raznolike organizacije, kar pogosto vodi v nesmiselne razprave, ki zgolj ovirajo razvoj in napredek. Tudi narava šolske kulture lahko predstavlja oviro razvojnemu procesom v šoli. Pozitivne značilnosti šolske kulture, kot so vključevanje, dobri odnosi in visoka samozavest lahko tudi negativno vplivajo na učinkovitost šol, predvsem na njihovo zmožnost poudarjanja in izboljšanja učnih dosežkov učencev.

*Ključne besede:* razvoj šole, upravljanje, izboljšanje šole, organizacija, izzivi, podskupine, šolska kultura, učenje

IJMKL, 9(1), 27–42

### **Vpliv vodstva na učinkovitost inovacij v proizvodnih podjetjih v Keniji**

*Isaac Muiruri Gachanja, Stephen Irura Nganga in Lucy Maina Kiganane*

Namen prispevka je opredeliti vpliv vodstva na učinkovitost inovacij v proizvodnih podjetjih v Keniji. Raziskava je potekala s pomočjo sestavljene raziskovalne metodologije in načinom prečnega prereza. Ciljno populacijo je sestavljalo 2484 vodstvenih delavcev, večstopenjsko vzorčenje pa je bilo izvedeno pri 345 anketirancih. Tako so bili zbrani osnovni podatki. Rezultati so pokazali, da vodstvo pomembno vpliva na učinkovitost inovacij. Iz tega je mogoče sklepati, da mora vodstvo delovati ustvarjalno in tudi samo spodbujati ustvarjalnost, raziskovanje, navdih, boljši izkoristek in podjetniško miselnost – vse z namenom spodbujanja učinkovitosti inovacij. Nadaljnje raziskave bi morale biti usmerjene v iskanje načina vodenja, ki bi predstavljal kompromis med upravljanjem tveganj in učinkovitostjo inovacij.

*Ključne besede:* vodstvo, učinkovitost inovacij, raziskovanje, podjetniška miselnost

IJMKL, 9(1), 43–57

### **Rastoči pomen intelektualnih delavcev in intelektualnega dela**

*Maria Jakubik*

Prispevek želi odgovoriti na vprašanja: Kaj je človeška inteligenca? Kako se razvija človeški razum? Kako se intelektualni delavec razlikuje od znanjskega delavca? Kako se intelektualno delo razlikuje od znanjskega dela? Skupek rezultatov pregleda literature predstavlja okvir »vzpona človeškega razuma«. Novost v prispevku predstavlja predlog spremembe konceptov Petra Druckerja iz petdesetih let prejšnjega stoletja – in sicer »znanjski delavec« in »znanjsko delo« v »intelektualni delavec« in »intelektualno delo«. Nova strokovna izraza se zdita ustreznejša zaradi premika gospodarstva znanja v smeri ustvarjalnega in miselnega gospodarstva.

*Ključne besede:* kreativno in miselno gospodarstvo, človeška inteligenca, intelektualni delavec, intelektualno delo, znanje in vedenje

IJMKL, 9(1), 59–73

### **Naložbeno vedenje in finančna uspešnost podjetij: primerjalna analiza na podlagi podatkov vinarских podjetij**

*Claudiu Tiberiu Albu*

V prispevku je ocenjena vloga finančne uspešnosti pri razlagi naložbene dinamike podjetij v vinarstvu na primeru treh največjih proizvajalcev v Evropski uniji (EU). Vinski sektor si, glede na hudo konkurenco s strani tistih, ki so se v posel vključili kasneje, pri preučevanju naložbenih vedenj podjetij zasluži posebno pozornost. Natančneje, prispevek raziskuje, kako kapitalizacija, likvidnost in dobičkonosnost vplivajo na dinamiko naložb s pomočjo podatkov na ravni podjetij iz vinske industrije iz Francije (331 podjetij), Italije (335) in Španije (442). Za primerjavo med temi državami uporabljamo podatke od

leta 2007 do 2014 in se opiramo na razlikovne in sistemske GSM ocenjevalce. Vpliv dobičkonosnosti je splošno pozitiven in pomemben, medtem ko kapitalizacija pomembno in negativno vpliva na dinamiko naložb le v Franciji in Španiji. Vpliv količnika likvidnosti je negativen in pomemben le v primeru Španije. Posledično pri vinarskih podjetjih v največjih državah proizvajalkah opazamo različne naložbene strategije. Kaže, da so te ugotovitve na splošno zanesljive, tako glede na različne specifikacije količnikov likvidnosti in donosnosti, kot tudi različnih načinov ocenjevanja.

*Ključne besede:* trdna naložba, finančna uspešnost, vinska industrija, primerjalna analiza

IJKML, 9(1), 75–94

### **Spretnosti, spol in uspešnost vplivajo na izbiro predavanj v okviru specializacije študentov dodiplomskega poslovnega študija**

*Leiv Opstad in Torbjørn Årethun*

Namen članka je raziskati heterogenost med norveškimi dodiplomskimi študenti poslovnih študij. Ta je razvidna iz izbire predmetov študentov tretjega letnika. Izbrana metodologija je regresijski model navadnega najmanjšega kvadrata (angl. *Ordinary Least Square* – OLS). Z uporabo navideznih spremenljivk in v odvisnosti od pričakovano izbranega predmeta je mogoče analizirati, kakšen vpliv bo imela razporeditev študentov na njihovo uspešnost pri obveznih predmetih v prvih dveh letih študija. Študenti z najvišjimi črkovnimi ocenami za nadaljevanje študija pogosto izberejo predmeta finance in računovodstvo, kar je pomemben podatek za načrtovanje študijskih programov.

*Ključne besede:* študenti poslovnih študij, glavni študijski predmet, uspešnost, spol, kvantitativna analiza, učenje, znanje

IJKML, 9(1), 95–107

### **Izkustvena ekonomija v okviru trajnostnega razvoja**

*Monika Klein in Monika Spsychalska-Wojtkiewicz*

Boljše in učinkovitejše izvajanje predpostavk trajnostnega razvoja postaja v praksi eden večjih izzivov. Prispevek raziskuje odnos med trendi trajnostnega razvoja in izkustveno ekonomijo, glavni cilj pa je opisati povezave med idejama. Avtorja domnevata, da obstaja povezava med trajnostnim razvojem in izkustveno ekonomijo, saj imata obe ideji skupne cilje in predstavljata protiutež konceptu množične potrošnje. Želita dokazati, da lahko koncept izkustvene ekonomije skupaj z oblikovanjem zavesti podjetja predstavlja protiutež rastočemu potrošništvu. Za preverjanje hipoteze in doseganje glavnega cilja raziskave so uporabljene triangulacijske metode, ki združujejo teoretično in kvalitativno raziskovanje. Glavni rezultat raziskave kaže, da bo tovrstno oblikovanje v organizacijah postalo pomemben trend pri soočanju s trenutnimi izzivi, ne le gospodarskimi in družbenimi, temveč tudi ekološkimi. Oblikovalcem se torej ponuja izvrstna priložnost, da svojo kreativnost uporabijo v različnih gospodarskih panogah.

**124 Abstracts in Slovene**

*Ključne besede:* izkustvena ekonomija, trajnostni razvoj, izkustveno oblikovanje, potrošništvo

IJMKL, 9(1), 109–120

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