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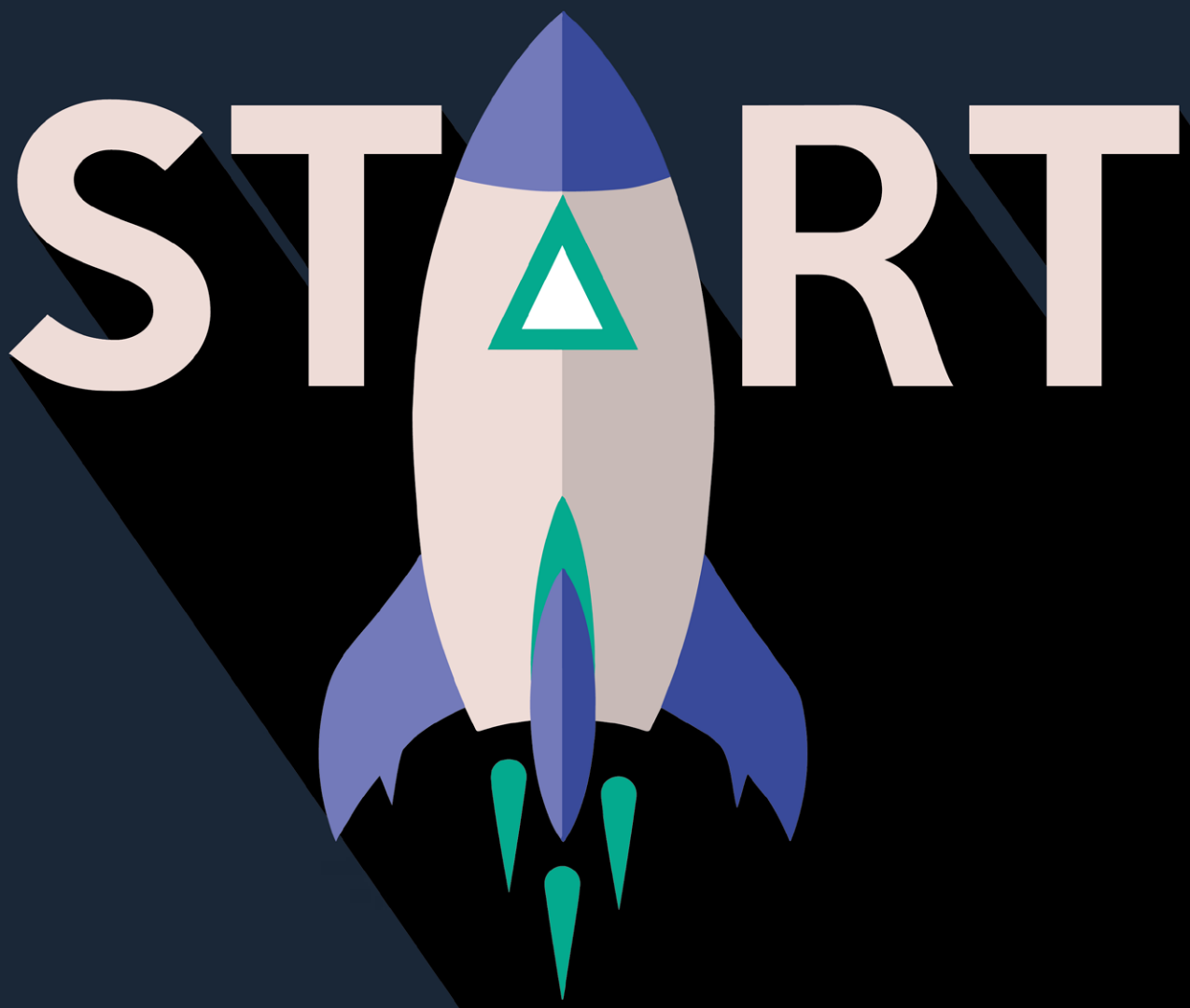

TIME IN ECONOMICS – A DISCUSSION ON ECONOMIC MODELS INVOLVING TIME AND ITS SIGNIFICANCE IN TODAY'S DYNAMIC MARKETS

THE ROLE OF INSTITUTIONS IN ACHIEVING SUSTAINABLE DEVELOPMENT

PAUSE, REWIND AND FAST FORWARD ON BLOCKCHAIN

eu | Business School

"The expert in anything was once a beginner."

Helen Hayes

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FOREWORD

Welcome to ON RESEARCH, the flagship peer-reviewed business journal of EU Business School. The launch of this maiden volume commemorates the 45th anniversary of EU Business School, and its commitment to cutting edge business education.

The scope of this journal is purposefully broad, so as to engage on a wide variety of issues that are interlinked with business. True to our core values, the journal aims to bridge the gap between theory and practice by showcasing fundamental research with practical applicability. The expansive scope allows us to be vibrant and focus on the assorted and inter-related aspects of business studies.

We hope to attract a diverse and global readership - from our established peers in academia, students, as well as anyone who is invested in the acquisition and proliferation of knowledge. The journal is free, open access, and is published online on our research website.

The current issue contains an assortment of interesting articles and essays on economics, sustainability, finance, blockchain technologies, to the varying dynamics of the education industry, all testifying to the changing dynamics of the business world.

The contributions for the current launch issue have been selected based on an internal call for papers, from our own faculty members and researchers. From our next edition, we will be soliciting scholarly essays and articles on a host of integrated business issues based on a global call for papers.

I am extremely indebted to our Editorial Board for their continued and steadfast commitment. We have a very small but an exceptionally talented team, who has worked resolutely and exceptionally hard to make this a reality. I cannot be more beholden to our peer-reviewers, who have been most cooperative while working through tight deadlines. Finally, I would like to thank each and every member of our Advisory Board, whose advice, support, and encouragement have been paramount.

We are extremely proud to mark the occasion, and I am eager with optimism that you would find this journal interesting and relevant. ON RESEARCH testifies to our pledge to proliferate our research endeavors outside of our classrooms.

This is just the *Start*!

Suddha Chakravartti
Editor-in-Chief

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PAUSE, REWIND AND FAST FORWARD ON BLOCKCHAIN

Marilet Branders

ABSTRACT: *The digital world is ever-changing and has produced multiple industry disruptions. Blockchain technology is immensely difficult to grasp, but how can we simplify this topic and strengthen our knowledge on blockchain? I believe the problem persists in the basic foundational understanding of blockchain. The purpose of this article is to pause for a second on the topic of blockchain, to go back to the basics and examine what blockchain really is, where it came from and where it is headed? In this article we will take a closer high-level look at how blockchain works from the transaction request to validation and completion. The underlying technology and basis of bitcoin and other cryptocurrencies is called blockchain. Blockchain is a decentralized ledger of multiple transactions on a peer-to-peer network. (Drane & Marsh, 2015) Blockchain has no intrinsic value, it has no physical form and the supply is not determined by a central bank. Blockchain improves business functions, has more accurate tracking with increased transparency and ultimately also reduces cost. Today blockchain technology disruption is gaining momentum and scale, by not only vigorously influencing the financial, banking and insurance industry, but also starting to disrupt and create potential applications in the energy, automotive and healthcare sectors. (Murray, 2015) Blockchain will reshape the landscape of value exchange. (Murray, 2015) Blockchain also does not come without implementation and regulatory challenges. I am hopeful that this short article will be a good summary to solidify your basic understanding of blockchain technology.*

KEYWORDS: **Blockchain, technology, finance, insurance, industry, consumer, digital, producer, regulation.**

SO WHAT EXACTLY IS BLOCKCHAIN?

Blockchain technology was created initially for the cryptocurrency bitcoin. Cryptocurrency is a digital, medium of exchange with encrypted techniques that verifies the transfer of funds and controls the creation of monetary units. (McNamara 2018) Blockchain has no intrinsic value, thus no other commodity, such as gold can be redeemed through it. (Ratan, 2018) It has no physical form and the supply is not determined by a central bank and

the network is decentralized. So how does it really work? A transaction is requested by a person, this requested transaction is then broadcast to a peer-to-peer network which includes computers called nodes. Validation follows, whereby the network of nodes then validates the user's status and the transaction using algorithms. The verified transaction can include contracts, records, cryptocurrency and other information. After verification the transaction is combined with other transactions to create a new block of data for the ledger. This new block will then be (permanently and unalterably) added to the existing blockchain. Now the transaction is complete.

The key attributes of Blockchain makes the technology unique (Ratan, 2018):

- Distributed ledger: All the participants in the network have access to a view of the information.
- Cryptygraphy: Cryptographic functions ensure the integrity and security of the information.
- Consensus: The need for a third party to authorize transactions is replaced by participants which verifies and confirms the changes with one another.
- Smart Contracts: Code is built within blockchain, an "if this, then that" statement which is then auto-executed.
- Provenance: The history of the asset is available over the blockchain.
- Shared ledger: Which eliminates a "single point of failure."
- Immutability: Once records are committed to the shared ledger, it cannot be tampered with. Making this information trustworthy. (Ratan, 2018)
- Finality: When a transaction is completed, it can never be reverted.

You also get public and private blockchains. Public blockchains can relate to the concept of the Internet and Private blockchains can relate to the concept of the intranet/home network. Public blockchains have no limitations on the people joining the network and it operates in a decentralized open environment (Bitcoin and Ethereum are two examples). Whilst private blockchains operate at a lower cost and within the confines outlined by a controlling entity (Ratan, 2018). The identity of the users remains anonymous. Banks and payment service providers use private blockchains as it allows them to keep some degree of control and potential for revenue (Swieters & Perfall, 2018).

WHERE DID BLOCKCHAIN COME FROM?

In the financial sector Blockchain was developed to serve bitcoin. Blockchain applications can be categorized based on their stage of development: 1.0, 2.0 and 3.0.

Blockchain 1.0 includes cryptocurrencies such as bitcoin. Blockchain 2.0 enables smart contract models. (Swieters & Perfall, 2018) Blockchain 3.0 is still only a vision to further develop the smart contract concept. (Swieters & Perfall, 2018)

BUT WHERE IS THE DISRUPTION HEADED?

Blockchain is potentially the most disruptive technology since the internet. I believe blockchain has the potential to transform the norm of how we do business, how societies are organized and how economies work. (Mitchell, 2018) Blockchain creates immense uncertainty in the digital space by deviating the perception of centralized systems to decentralized systems.

Eight revolutionary blockchain applications:

1. Financial services:

Transparency is improved and costs saved by faster and cheaper settlements. (McNamara 2018) This cuts out third party intermediaries. Blockchain's smart contracts can allow automation of processes in organizations. The distributed ledger of blockchain gives access to the same data in every transaction. Changes also happen in real time. (McNamara, 2017) New blockchain applications in the financial services include digital securities trading, foreign exchange, data storage, peer-to-peer transactions, digital storage and delivery of content. (Swieters & Perfall, 2018)

2. Energy:

The energy sector is adopting blockchain technologies quite fast, compared to the rest of the industries. Blockchain can increase the efficiency of the energy market. Users can maintain the record of their smart meter readings on a blockchain with the credits and currency allocated to power consumption and surplus power supply. (Ratan, 2018) It could allow energy producers and consumers to automatically carry out supply contracts, eliminating third-party intermediaries. Other possible blockchain applications could include grid management, energy trading and energy payment systems.

3. Automotive:

Here blockchain can be used by consumers to manage fractional ownership of autonomous cars. (McNamara 2018)

4. Agriculture:

Traceability and transparency from the farmer to the consumer can increase, the cost in the food-based value system and complexity can be decreased through blockchain. (Ratan, 2018)

5. Public sector, Voting and civil registration:

Votes can be casted via smartphones, tablets or computers through using a blockchain code. Resulting in immediate and verifiable results. (McNamara 2018) Blockchain will probably have the same transformational effect on government services and smarter cities such as the introduction of the digital internet in the public sector. Citizen records such as birth anddeath

certificates can be made more resilient and it can assist governments to collect taxes and issue passports. (Ratan, 2018)

6. Healthcare:

Without breaching privacy, encrypted health information from patients can be shred to numerous providers. (McNamara 2018) Blockchain can impact the healthcare sector by creating more transparency through provenances for critical drugs, creating a more secure ecosystem to exchange the electronic health records. (Ratan, 2018)

7. Business process:

Blockchain promises to be a business process improvement software.

8. Education:

Blockchain technology has the ability to maintain student and faculty records and certifications. It can also assist with certification verification. (Ratan, 2018)

It is estimated that the market value of Blockchain will reach $2.3 billion by 2021 over the current $210 million.

BLOCKCHAIN TECHNOLOGY MOST DEFINITELY INCLUDES RISKS AND REGULATORY CHALLENGES

There are still major uncertainties in blockchain technology, with issues and unknowns with regulatory implications, complex technology uncertainty, implementation/integration into existing systems challenges, scale, speed, competing platforms and cybersecurity. Just as blockchain can strengthen security, the belief is also that cybersecurity can bring in just as many security risks as blockchain is not without design flaws, with vulnerability in the code which present data security and privacy concerns. Risks also include the complete loss of data on loss of identification, very high transaction costs for public blockchain systems, escalation and authority conflicts, the lack of long term experience and maturity, the lack of standardization which brings insufficient and inadequate functionality and the networks must cope with greater flexibility. Blockchain also has a lack of anti-fraud and anti- money laundering capabilities. (Anonymous, 2017)

LAST BUT NOT LEAST, BLOCKCHAIN HAS A NUMBER OF POSITIVE FEATURES WHICH INCLUDE:

Monitoring and Increased transparency: all the interested parties have a view and access to all transactions.

- Data security: Provides tamper proof chain of block with encryption.

- Innovation: Blockchain removes barriers.
- Resilience: It is a distributed system, with minimal impact from outages.
- Blockchain can assist to overcome food supply chain issues: so with blockchain all the parties will have permission to edit information regarding their inputs in the product supply chain, thus products can be monitored in real time.
- Lower transaction costs due to peer to peer transaction and eliminating intermediaries (Third parties). This also speeds up the processes as previously manual work and tasks are automatically carried out by smart contracts.
- Flexibility, because of products and supplier switching.
- Transactions are made simpler with regards to documentation, contracts and payment. (Anonymous, 2017)

The right conditions are needed for blockchain to succeed.

If four of these things hold true, then blockchain could be an applicable solution (Anonymous, 2017):

- Multiple parties share data: If numerous people need views of common information.
- Multiple parties update data: If multiple participants need to record and update information.
- Requirement verification: If participants need to trust that the actions which are recorded are valid.
- Intermediaries and complexity: When the removal of intermediaries can reduce cost and complexity.
- Interactions that are time sensitive: If reducing delay has business benefits.
- Transaction interact: When transactions created by different participants depend on each other.

CONCLUSION

In conclusion, the internet came and changed the way that we share and gather information, but blockchain is revolutionizing the way we transact. (Mitchell, 2018) Private organizations and governments must plan ahead and be ready for the changes and impact of blockchain. Today we have the opportunity to inspire positive growth and develop a happier stronger society with greater social stability and for this reason it is important to dig deeper into digital disruptions such as Blockchain and not just investigate the current impact, but also prepare for the implications in the future (Ratan, 2018).

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CHALLENGES OF EDUCATIONAL SYSTEM ADAPTATION TO THE LEARNING APPROACHES OF GENERATION Z

Luc Craen

ABSTRACT: *This article aims to investigate the process of educational system adaptation to the learning approaches of a new generation of learners, namely Generation Z. As with every generation, the Generation Z, or digital natives (born between 1990s and today), present a new challenge for many sectors, including education, and educational systems in developed countries are the first ones that face this challenge as this generation approaches the age range for school or university enrollment. Digital natives have unique characteristics that differ from their educators, who belong to an older generation. The purpose of this research is to explore such characteristics and help define new vision of education in a digital world.*

KEYWORDS: digital natives, Generation Z, learning approaches, educational system adaptation.

The concept of "digital natives" was originally proposed and extensively researched by Marc Prensky. In his research, Prensky (2001) analyzes generations from the point of view of "digital language" adoption. He defines the generation born prior to mid-1990s as "digital immigrants," or people who came into the digital age after the invention of computers and their widespread prevalence. His research focus is on "digital natives" and their generations' characteristics in regard to learning processes (Prensky, 2001). Currently, Universities' and schools' lectures and administrators are primarily represented by the generation of digital immigrants, whereas students are mostly digital natives. In this dynamic inter-relationship between the generations, the understanding of the difference between generations and adaptation to these differences becomes a key factor for achieving successful outcomes of any educational program. This article outlines this fundamental problem for educational systems and highlights challenges to overcome in the process of adaptation. Further research will suggest a new vision of education in the digital world during this transitional period.

FOCUS ON STUDENTS: DIGITAL NATIVES AND A NEED FOR A NEW EDUCATIONAL PARADIGM

Born in a new technological era, the Digital Natives have grown up surrounded by computers, the internet, smart phones, video games, instant messaging, social networks etc., and as a result, there is a marked difference in their cognitive and learning processes as compared to erstwhile generations. For instance, students enrolling in colleges and universities today manifest different motor skills: they tend to type faster than write with a pen; possess different cognitive processes: shorter attention spans, strong short-term memory, etc. Digital natives like to parallel process and have a strong ability to multi-task (Buzzetto-Hollywood & Alade, 2018). They prefer graphics over text. They prefer random access (hyperlinks) (Prensky, 2001).

Digital natives easily adapt in a rapidly changing environment. They are mobile, comfortable with multidimensionality, and are capable of finding and processing information faster than previous generations. Some researchers define digital natives as "fully awake" and aware of the social responsibilities towards society, knowledge of laws, rules and regulation. They are extremely technology savvy, smart minded, challenging, adventurous, active decision makers, with leadership skills and many talents (Singh, 2014). With this new generation of students enrolling in universities today – already outnumbering the millennials (Buzzetto-Hollywood & Alade, 2018), a new and renewed necessity has arisen to revisit our learning and teaching methods - forcing a change of teaching methodologies, and leading to the development of a new educational paradigm. Students of this generation consider "information technology" not a part of education, but a general topic of knowledge, and presume that lecturers and tutors would correspond to these expectations. Technology is perceived as a necessity and a part of daily life, and not as a rarity or luxury (Berkup, 2014), and attitude to technology in general constitutes the fundamental difference between this generation and previous ones.

All educational institutions are faced with the question of students' motivation. With information readily available online, the motivation of digital natives is completely different from the students of previous generations. What made students come to class and listen to the lecturer before is no longer a defining factor. Admissions and in class experience with students shows that digital natives are looking for either exclusivity in knowledge, or tools and methods to process available information in the most efficient manner.

Another characteristic that defines all students of the 21st century, regardless of their age, is the concept of lifelong learning. Although the term is more than two decades old (Friessen & Anderson, 2004) modern society is developing in a way that lifelong learning is a necessity rather than a choice (Simenc & Kodelja, 2016). To build a career or a successful business after university, students must continue their education and hone their skills throughout their life to stay competitive in fast changing environment. Hence Simenc and Kodelja (2016) state that lifelong learning is not congruent on a person's free will, but is a necessity. Digital natives understand this need; hence they are looking for ways to develop their individual model of information processing that would support them through different educational programs and add value to their lives by helping them keep up their skills.

The proliferation of the internet and the reduction in price of technology has also led to the mass democratization in education, making access to education much easier, affordable, and flexible. Today, students possess a plethora of choice and opportunity to decide what to study, where to study, and how to study, and how much they are willing to pay for it – particularly manifested in the spread of online courses. Due to this unprecedented competition, the education industry is fast turning into a service industry. Therefore, when the question comes to private education which commands high fees and tuition structures, digital natives are a different type of client, and for each institution it is very important to find and adapt the right ways to recruit and motivate prospective students. Previously, parents may have chosen universities for their children and based their decision on official information on quality, facilities and esteem (Jones, 2007). Today digital natives more and more often take the decisions themselves based on the information found in social media.

FOCUS ON EDUCATORS: ABOUT PAST, PRESENT AND FUTURE

Classrooms and libraries were exclusive sources of information for previous generations. In the past, a lecturer was the authority with full rights of monologue, and these rights were given to him with the knowledge that only he could transmit information and ideas to students in the formal classroom setting. Nowadays students are competing with lecturers in the field of information, and often textbooks are getting outdated before even reaching the classroom. This requires lecturers to adapt to this dynamic. First, educators must put extra effort to learn technological tools that digital natives are accustomed to. As educators, we cannot afford anymore not to be educated in technology. As many researchers point out, the single biggest problem facing educators today is that our digital immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language (Prensky, 2001). Lecturers need to involve students in the learning process, but without a shift in the skills of the lecturers, this new digital paradigm is not possible.

Teaching, as well as many other professions in the 21st century, requires lifelong learning. Lecturers who are not ready to adjust to this trend are not able to be ahead of students and maintain their attention. Concentration of digital natives in the classroom depends on the fact if the information (in its form and content) presented to them can be found elsewhere, and if so, they will no longer keep their attention on the lecturer. Education today can be successfully based on a dialog between students and lecturers. Lecturers now need to assist students in developing new analytical skills, causal linkages and capacity to put information in a context. They are no longer in the classroom to simply transmit knowledge. New generation lecturers must develop a set of questions that leads students to answers and helps building the systematic approach to analyzing information.

A NEW APPROACH TO EDUCATION

The profound difference between the generation of students coming to class and educators brings the necessity for educational systems to adapt to digital natives' expectations,

but the discussion about the form of this change is ongoing. One clear transformation that many researchers studying digital natives learning approaches agree upon is the digitalization of educational programs: students' use of technology is dramatically intensified and different from preceding generations. To accommodate these differences, it is vital that educational curricula will be transformed, rather than renovated (Jones, 2007).

Studies conducted previously argue that implementation of technologies should be included in all aspects of educational process: there is a need to embed digital technologies in all our pedagogical practices – teaching, learning, assessment and curriculum (Kivunja, 2014). Digitalization of teaching and curriculum are the most complex challenges of this process.

When studying the education digitalization process, it is important to mention the security and privacy issues that it raises in todays' world. With the rapid development of technologies, there is a big risk of losing control of devices and private information. The basic skill of the digital age is an ability to control digital technologies (Prensky, 2009). Hence one of the aims of education nowadays is inform students and teach them how to protect themselves in the digital world.

The new approach to education of digital natives should become more bespoke, individual or personalized. The idea is to transform our education system so that it conforms to the learner, and not the system (Green et al., n.d: 3). This need is highlighted by multiple researchers investigating the future of education. Previously individual characteristics of learners were often not considered when designing the program or even applying one or another pedagogical approach. In the studies dedicated to university students' use of digital technologies for learning and socializing, authors point out a particular problem of exclusion of variables such as the personal characteristics of users, their socioeconomic background, disciplinary differences, pedagogy and assessment regimes within which university students operate, teachers' perspectives on educational value of technologies, and so on (Margaryan, 2011). With the differentiation of learning processes comes differentiation of approaches to each student. The concept of individual needs becomes central for learning and teaching. More and more educational institutions develop individual counseling and tutoring programs, creating the corresponding positions within academic departments, finding a way to support each student individually and move towards personalized learning.

The trend towards individualization is closely linked to the digitalization of learning processes. To provide the necessary individual support, lecturers and university administrators are forced to use the language of digital natives to communicate with them, which means having a presence on social media, using instant messaging and constant presence online. However, educational institutions and lecturers nowadays often struggle to embrace this trend.

Another change of the curriculum that is observed as a new generation of students enters universities, is that of a higher level of practicality. Digital natives need to see real life examples to stay motivated throughout the learning process. This comes from the fact that all theories can be found and researched without lecturers' assistance but solutions coming from experience are better presented by the experts themselves in a form of dialogue.

This is especially seen in the business education environment. Students are interested to listen to successful business people and entrepreneurs, to learn their strategies and business methods, instead of reading classic business education in books, where information is outdated faster than ever. Additionally, digital natives learn at a high speed which means they are interested to apply the information received in class in real life immediately, and practical examples assist in this.

Many different trends will be challenging and transforming the educational system in the coming years: privacy issues, Big Data, information security, etc., but adaptation by digital natives, defined by some researchers as the next influential demographic group (Stillman, 2017), and their learning approaches, will stay the determinant factor for any educational program success in the nearest future. Some researchers like Kirschner (2017) point out that when and if digital natives themselves become teachers, this problem can and will be solved. But the digitalization and adaptation to new technologies on the contrary is the general trend that education will need to follow.

There is a common understanding in academia around the world today that educational systems need to be transformed. Successful transformation can only be achieved based on inclusion of multiple trends of technological development and pedagogical model of dialogue that would help address challenges, that the system is facing with digital natives becoming tertiary students.
Review of the studies conducted in past years offer three main questions, answering which will help developing the new approach to education:

- How to motivate students and educators that belong to different generations?
- How to facilitate the process of digitalization of learning and teaching?
- How to make the educational process constantly ready to the innovation and global modernization?

Each educational institution is finding complex answers to the above complex questions, which allows them to develop better quality teaching and learning environments for this new generation of students.

The purpose of this article is to give an overview of factors defining the process of development of the new educational paradigm based on the new generation of students. To allow complex approach to further research article suggests examining these factors from two different angles: focusing on educators and on students.

Consideration of the highlighted specifics of both students and educators in todays' classrooms will determine the success of educational institutions in coming years. Each presented factor, be it lifelong learning, digital natives' motivation or educators embracing social media and instant messaging communication, needs to be studied in a context of particular educational system to define the corresponding level of significance for the curriculum transformation and institutional development.

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THE SKILLS REVOLUTION OF THE 21ST CENTURY: IT'S TIME TO RE-CALIBRATE

Zaira Pedron

"Once you stop learning you start dying"
- Albert Einstein

ABSTRACT: *A huge change is underway in the world right now: The Fourth Industrial Revolution (4IR) has just started. The way we live, connect, learn, move and work will dramatically change. One can argue that society has already gone through other revolutions, so we shouldn't be concerned about its effects. According to historians and scientists of several disciplines, however, the 4IR is fundamentally different from the previous ones. Indeed, the magnitude and the speed of the expected disruption regarding industries, geographies, labor markets, mobility, data sharing, knowledge distribution and technological advancements is in itself unique and will be exponential. As a result, many existing jobs will change in nature; others will soon disappear and will be replaced by humanoids and intelligent machines; indeed, jobs that don't even exist today will probably become commonplace tomorrow. To keep pace with this storm of changes, the workforce of tomorrow will require new skill sets. In fact, "five years from now, over one-third of skills (35%) that are considered important in today's workforce will have changed" (Gray, 2016). We are living in a period of high skills instability across all job types and industrial sectors. The advancements in robotics, humanoids, new materials, machine learnings, genomics, artificial intelligence, 3D printing, and biotechnology- just to name a few- are disrupting the current business models, reducing the shelf life of employees´ skills. How will businesses, governments, and education institutions cope with skills disruption? Which role will each of them play in the forthcoming years and which measures will be undertaken?*
Certainly, businesses and their corporate universities will have to act strategically in terms of competence building, reskilling and upskilling their employees to stay relevant in the market. Further, firms face recruitment challenges and need to respond to the talent shortage- a reality in the technology sector. Building business collaborations within industries, as well as leveraging multi-sector partnerships with educational institutions will be key. Creating a culture of continuous learning, embracing a new mindset and encouraging the development of new technical and soft skills is vital. Change won't stop- neither wait; it's time to re-calibrate.

KEYWORDS: **fourth industrial revolution; skills; disruption; learning.**

A huge change is currently underway in the world: the fourth industrial revolution (4IR) has just started. The way we live, connect, learn, move and work will dramatically transform. Society has already gone through various revolutions. In fact, automation isn't a new phenomenon at all. Machines had been introduced even before the industrial revolution in the 18th and 19th centuries having side effects on employment rates. However, according to historians and scientists of several disciplines, the 4IR is fundamentally different from the previous ones.

Indeed, the magnitude and the speed of the expected disruption regarding industries, geographies, labour markets, mobility, data sharing, knowledge distribution and technological advancements is in itself unique and will certainly be exponential. As a result, many existing jobs will change in nature; others will soon disappear and will be replaced by humanoids and intelligent machines; indeed, jobs that don't even exist today will probably become commonplace tomorrow.

At present, there are numerous discussions taking place about the future of the workplace. One can argue that the digital revolution will kill many of the existing jobs, eventually replacing human labor, and placing the world in the midst of the highest global unemployment rate ever seen.

Well, the 4IR might make some jobs redundant and others obsolete, however, it will create new ones as well. Indeed, to quote Thorstein Veblen – a Norwegian-American economist and sociologist – "invention is the mother of necessity." This statement leads to the idea that the disruption of the digital era will call for new careers and create new jobs – which seems to be confirmed by history. As a matter of fact, the battle between humans and machines goes back centuries.

Humans have constantly adopted new technologies and achieved higher life standards in doing so. The new tech may destroy some jobs temporarily, however, creating new ones. A propos, there are numerous studies which show how the rise of machines and other technological developments have been job creators rather than job killers.

Statista (www.statista.com/) indicates that the number of full-time employees in the United States in 1990 was 98.67 million, which increased to 125.97 million in 2017 despite the huge innovations in this space of time.

Another study published in The Guardian (Allen K, 2015) based on 140 years of census data in England and Wales analyzed the size of the footprint of technological expansion in the job market and found that such advancements do not destroy jobs in absolute terms. In England and Wales, the percentage of the workforce employed in the agricultural sector - the first one to experience the tech effect- decreased about 95% from 6.6% in 1871 to 0.2% today. According to the same study, in 1901 in England and Wales, 200,000 people over a population of 32.5 million were employed in washing clothes. In 2011, only 35,000 people were still engaged in that sector considering that in the meantime the population rose up to 56.1 million. Despite the growing population worldwide, automation made agriculture, and then manufacturing, less labor intensive and managed to back up the increasing nourishment and commodity

needs with the introduction of ground-breaking machines. This data shows that technological advancements have improved human jobs in terms of quality, effectiveness and efficiency by making them easier and reducing the amount of work. Indeed, machines took on the more monotonous and strenuous duties, allowing workers to offset this loss by engaging in more creative and complex tasks. Actually, earlier waves of technological advancements have not caused a long-term rise in unemployment; revolutions have simply led to the establishment of new jobs in other more innovative sectors. In the same way, we can assume that the disruption of the present digital revolution will, indeed, amplify human abilities, magnify their opportunities in new growing sectors, and optimize their time; furthermore, advancements will leverage wealth and improve the quality of people's lives.

In the last decades we have assisted in the flourishing of new employment sectors: to name a few healthcare, IT and technology, energy and sustainability, and business services. These emerging sectors, among other trends, will generate demand for new jobs, which could balance out the displacement of workers from other sectors. It is remarkable that by raising the automation in older sectors economies grow, as well as incomes and consumption rates. Reasonably, people whose jobs became redundant because of the new technological advancements will jump into the new careers without remaining underutilized. So, does it mean that everything will take care of itself? Unfortunately not.

The critical factor is represented by qualifications. The employability of these people will, indeed, depend on their readiness to reskill their competencies. Besides that, the remaining workers, whose jobs will keep existing but will urgently demand new know-how, will need to upskill if they do not want to become obsolete professionals. According to McKinsey (McKinsey Global Institute, 2017), by 2030 3 to 14% of the global workforce will have to move to another occupational category. Furthermore, since all occupations will progress alongside the growing automation, the whole workforce will be affected and will need to adapt. This adaptation will entail a higher educational level and a switch to duties with a higher level of cognitive complexity which will require new skill-sets harder to automate as, for instance, social and emotional competences, creativity and mental agility. Another study of McKinsey (McKinsey Global Institute, pg. 2, 2017) on automation found that "about half the activities people are paid to do globally could theoretically be automated using currently demonstrated technologies". Only 5% of current occupations are constituted by duties that can be totally automated, nevertheless, at least one-third of the activities entailed in about 60% of different jobs categories could be automated. "Five years from now, over one-third of skills (35%) that are considered important in today's workforce will have changed." (Gray A, 2016)

We are living in a period of high skills instability across all job types and industrial sectors. The advancements in robotics, humanoids, new materials, machine learnings, genomics, artificial intelligence, 3D printing, and biotechnology- just to name a few- are disrupting the current business models, reducing the shelf life of employees´ skills, and will imply substantial transformations in job design also. Having said that, how will businesses, governments, education institutions and even single individuals cope with this skills disruption? Which role will each of them play in the forthcoming years and which measures will be undertaken?

Dealing successfully with the innovations of the 4IR requires a change in mentality and a new leadership model. Only strong partnerships between these actors will allow them to establish a framework which will be centred on the new four competences: Critical Thinking, Collaboration, Communication, and Creativity (the 4Cs). To stay relevant, businesses -and their corporate universities- will have to act strategically in terms of competence building, reskilling and upskilling their employees. To be successful, companies will need to develop and launch new pioneering products and services on the market whose realization already requires upskilled employees and a sustainable vision of the future. Larger companies can normally count on a stable and solid learning infrastructure, established collaborations with external partners, substantial financial resources, and a global support network. On the contrary, for SMEs -considered the backbone of many healthy communities- change response is more challenging.

Governments play a key role in assisting smaller businesses to reinvent themselves with reference to product innovation and internal competences. Warren (Warren H. Jr, 2004, pg.1) offers insights into the importance of building "public-private partnerships between government and industry" which appeared to be vital for SMEs in terms of stimulus for innovation and for "defining and executing R&D activities." Warren pinpoints two models of partnership: the "industry consortia" and the "innovation funding."

The first is based on collaboration with other firms and the output is the creation of a separate organization in which some strategic activities are carried out collectively. A consortium allows small companies to increase organizational efficiency by lowering costs; governments support these collaborations by funding research facilities. With regard to the innovation funding, governments endow SMEs in the early-stage of a new project until they can attract private capital. This measure ensures business success and creates a strong demand growth, boosting the economy; indeed, economies that do not expand, do not create jobs.

A prerequisite of successful business projects is, nevertheless, a competent workforce with up-to-date skills. Thus, governments have to promote skill conversion to prepare workers for the jobs of the future. "The approach involves training workers while they are still in jobs, making training flexible and accessible, and linking training to jobs to enable conversion." (Chua A, 2018) For instance, companies in Singapore -especially those belonging to a fast-paced developing sector as IT, healthcare, professional digital services, and engineering- are getting support from the government in re-educating their employees and instilling a new mentality.

Chng Kai Fong, Managing Director of the Singapore Economic Development Board (EDB), announced a campaign intended to assist workers in at-risk jobs to get ready for the future. According to Chng Kai Fong, technological advancements in Singapore will create 5,500 new jobs every year until 2020. (Chua A, 2018)

The government of Singapore presented a road map addressed to the professional service sector aimed at requalifying its workforce to deal with the disruption brought by the digital era. The service sector is expected "to grow 4.6% a year to reach $31billion in value-addin

two years," according to Indranee Rajah, the Senior Minister of State for Law and Finance of Singapore (Chua, 2018)). In addition, the instated plan will assist local firms to expand abroad, facilitating collaboration among enterprises as well as supporting firms and their personnel in building critical digital skills.

As Indranee affirms, the government is aware that "technology is changing the way professional services firms work with clients, and the sector has to transform to take full advantage of this." (Chua A, 2018/2) In parallel, there are jobs at risk – for example, the more operative jobs in accounting are being replaced with data analytics. Finally, Singapore intends to establish a "data-sharing consortium" where giants like Google and Adobe -alongside Grab- support local companies using data for marketing innovation purposes. Chng Kai Fong promises that other sectors will be tackled as well after recognizing their specific challenges. "Each sector will be analysed collaboratively by the labour movement, government agencies, the private sector and institutes of higher learning"- he affirms. (Chua A, 2018/1)

Last but not least, the government of Singapore will also address individual employees aiming at instilling a culture of continuous learning as a criteria of a regular career development.

Are other governments worldwide acting as catalysts as well to expedite innovation in their own countries? The example of Singapore shows how crucial collaboration is and the role of governments to expand economy and wealth. Individuals, educational institutions, and businesses need strong programs to face the challenges of the 4IR.

The European Commission in 2016 launched "Upskilling Pathways," a program addressed to adults -currently employed, unemployed or economically inactive- with a low level of literacy, numeracy and digital skills. This initiative aims to requalify these adults who should acquire a broader set of skills after a skills assessment and a personalized learning offer (Upskilling Pathways - New opportunities for adults. EU Commission, 2018). Another EU initiative called "Growing together" is an Electronic Platform for Adult Learning (EPALE) which promotes interactions with different stakeholders across the adult learning sector and allows them to establish connections and share best practices. "Adult education and training is a crucial component of the Commission's long term strategy," states the official website of the European commission (Upskilling Pathways - New opportunities for adults. EU Commission, 2018).

To make the best of this exciting era and achieve good outcomes, collaboration between policy makers, business and educational leaders will be decisive. Companies of all sizes will need to embrace automation's advantages and, simultaneously, address their workforce transition alongside the introduction of the new technologies to enable their redeployment. Owners of this turnaround will be all companies' departments, however, HR and Corporate Universities will be strongly involved in upgrading competences, leading the midcareer job trainings and the deployment of a workforce training model tied to the new business strategy. Managing the transition of displaced workers in cooperation with governments and educational institutions into new employment will be a critical task -as well as developing the business leaders of tomorrow. It is important that Corporate Universities take an active role in establishing a culture of learning and ownership across the entire company value chain and

actively includethe workforce in the process of change from the start, assuring acceptance and engagement. An evolution of the mentality of individuals is expected also: Employees must become a proactive part of their own development and leaders of their own lifelong learning. Besides that, firms, institutions and companies are expected to facilitate accomplishment by assisting efforts and creating the environmental conditions for the success.

In addition, worldwide firms experiencing the "war for talents" face recruitment challenges and talent shortages, especially in the new emerging sectors. The gap between the competences employers want and the competences employees have is a growing issue. At present, businesses face great competition in their home country as well as abroad for the best and brightest talents. How can they attract the right talents with business relevant skill sets?

According to Tina Schneidermann (2017), "work and organizations need to adapt to what is happening in people's lives." The future of work is being influenced by "how people's lives change, by technology and by societal change." As part of the "Future of Work Research Consortium" (Future of Work Research Consortium, 2018) and related studies, she observed that, on the contrary, firms expect talents to conform to how work is being organized -generally "unchanged since the 1950s." Since "gender, family structures, and age are now much more fluid and diverse," companies need to "create workplaces that embrace the whole selves of their talent and how they evolve, in all facets, over time" in order to attract, engage and retain them (Schneidermann T, 2017). The agenda of the coming years looks, indeed, challenging for businesses and governments. How can they be successful? Building business collaborations within industries, as well as leveraging multi-sector partnerships with educational institutions looks like to be key.

In particular, consortia within industries and educational institutions -aimed to create larger pools of skilled employees and build the future leaders- will become essential. Multi-sector partnerships can leverage innovation and underpin the ongoing business changes. Additionally, a smart use of data and metrics are central in recognizing, anticipating, and leading the new trends in labor markets.

The aim of the 2017 Business and Education Summit, organized by the British Chambers of Commerce, was to bring governmental leaders together with business and education figures. During the summit how to identify relevant policy solutions to bridge the gap between schools and workplaces and how to better train young potentials for the future of work was discussed. In the official website of the Summit we can read: "we think it is vital to increase collaboration between the business community and education providers to improve young people's transition from schools, colleges and universities into the workplace" (Business and Education Summit. British Chambers of Commerce). In fact, changes in the school system occur much slower than in private business. The plans and their execution take a very long time to be implemented, and the whole educational system shows a lack of agility in reacting to external events. University Alliance (https://www.unialliance.ac.uk), a partner of the 2017 Business and Education Summit, explained how its mission is to rethink the role of universities. Its business model is based on partnerships with local firms to contributeto the progress of local economies pointing at reducing the skills gap. "Our members within University Alliance

are anchors in their regional and local economies, working closely with more than 16,000 enterprises (including 11,000 SMEs), as well as public sector bodies. Alliance universities provide companies with the knowledge from around the world that can transform their businesses, talent to drive innovation from within, routes to finance to allow businesses to take risks, and new physical spaces where they can grow." (ibid)

University partners can boost critical Local Enterprise Partnerships (LEPs) targeted to connect local initiatives to address skills gaps. For instance, the Coventry and Warwickshire LEP -two members of University Alliance- decided to train 5,000 young or unskilled engineers to tackle local skills shortages. Also, the Coventry University partnered with Unipart Manufacturing Group, a global specialist in manufacturing logistics, and consultancy and founder of AME, the Institute for Advanced Manufacturing and Engineering, named the "UK's first faculty on the factory floor" (https://www.coventry.ac.uk/ame). AME is partly funded by the Higher Education Funding Council for England (HEFCE). This collaboration aids in bringing high-level academia, industry, and R&D in an "on the field" manufacturing environment together.

Another example is represented by CEMS (http://www.cems.org/corporate-partners/corporate-partnership/), a global alliance of academic and corporate institutions committed to teaching and preparing future generations to become the open-minded business leaders of tomorrow. Its vision is to build a bridge between the academic and corporate worlds. In 2010, non-profit organizations became part of CEMS as well. At present, CEMS counts more than 70 firms -from Airbus and McKinsey to Facebook and Dropbox- who partner with academia to develop cutting edge academic programs and to provide education strongly interconnected with the needs of the business world. Moreover, the CEMS partners – as well as their providers- are able to recruit industry-ready engineering graduates directly from its Masters Programs and benefit from their research by disseminating and developing innovative technology.

EFMD, a global, not-for-profit, membership organization of business schools and corporate universities which counts 900 members from academia, corporations, public service and consultancy of 88 countries is another model of collaboration, this time centred on best practices in management development. This forum permits its members to share information, research, and engage in networking and debate on innovation within corporate education. EFMD's mission is to "act as a catalyst to enhance excellence in management education and development globally." (https://www.efmd.org/what-is-efmd)

Undoubtedly, partnerships like AME, CEMS and EFMD represent a long term advantage for businesses: collaboration with the respective corporate universities in creating new postgraduate learning opportunities and professional development corporate courses is only one of the long-term benefits. Besides, this changing era is vital for the entire school system, especially for higher educational institutions. Universities must evolve quickly to assure their relevancy for the next years and desperately need the collaboration with other entities to do so. MissionU is a pioneering institution that provides skills-focused higher education. Its organizational culture and value are pretty innovative in comparison to traditionaluniversities. Hence, MissionU focuses not only on transmitting knowledge –which by the way always

can be found on the Internet. Instead, MissionU aims at preparing its students for the real world, investing in them, not vice versa. The programs are short but focused on career and on delivering real-world value. In fact, MissionU charges no tuition to its students until they succeed and find a job. Curriculums are designed together with leading partner corporations, who gain early access to employ talented MissionU graduates. "At MissionU, the idea of collaboration extends beyond the program itself. We partner with today's leading companies to ensure students learn what's needed to succeed at the jobs they'll interview for." (https://www.missionu.com)

The mentioned partnerships are best practices to be followed extensively in order to overcome the present challenge of workforce transition and skills' conversion across the gig economy. Failing to respond to this change will put countries and its economies at risk. In dealing with new emerging trends in a complex marketplace, the ability to cooperate is one crucial area that ensures innovation and prosperity. Only by bringing together the expertise of corporations, governments, and academia to design solutions aimed at managing the ever-increasing amount of information and building of new knowledge, can we create a "just in time," relevant and agile education. Definitely, preparing a pool of skilled employees to face the digital era is vital to ensure economic growth and a prosperous future for all communities.

The changing nature of jobs worldwide is clear: society is moving toward higher value-added jobs that require more complex skills across a volatile, uncertain, intricate, ambiguous global arena. The present 4IR does not need to become a battle between humans and machines, but rather a chance for work to become a channel through which employees can unfold their full potential.

Creating a culture of continuous learning, embracing a new collaborative mind-set and encouraging the transition to new technical and soft skills is also vital for the whole society. Change won't stop nor wait; it's time to re-calibrate. Now and together.

"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change"
- Charles Darwin

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GAMIFICATION IN ON LINE BUSINESS EDUCATION, AN EXPERIENCE ON TWO EU BUSINESS SCHOOL COURSES

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ABSTRACT: *Games are used for teaching purposes since a long time and became popular in the business schools in the 80s when video and computer games came in the market, Despite all the advantages of simulation games, several authors highlight limitations such as an oversimplification of simulation games. Game design and context: With the goal to enhance course dynamics and practical learning, customized games have been designed for two on-line graduate on-line courses, Organizational Behavior (OB) and Strategic Management(SM). The game for OB course aims at exploring the impact of various management styles on team dynamics and performance. The goal for the SM challenge consists in observing the impact of external and internal environments on firms' stock performances. Evaluation: The OB game was evaluated through a self-assessment. The game on SM was evaluated through a survey. 9/12 participants to the OB game made positive comments. On the 22 participants to SM contest, 15 answered the questionnaire, 12 found the game interesting and allowing to use concepts learned in class. Conclusion: Despite the limitations on the evaluation methodology, both games raise positive feedbacks. These results tend to demonstrate an interest in games as relevant contemporary teaching materials for on-line courses.*

KEYWORDS: **simulation game, design, online-courses, methodology.**

Games are used for teaching purposes since a long time (Cohen et al, 1961), and became popular in the business schools in the 80s when video and computer games came in the market, offering the potential to enhance learning. Research on gamification of business and engineering studies has significantly developed in the 2010s. (Cohen, 2011 ; Avramenko, 2012 ; Mc Cormick, 2013 ; Harman et al, 2014 ; O'Donnell, 2014 ; Deif, 2017 ; Kim and Lee, 2015 ; Banfield and Wilkerson, 2014 ; Su, 2016 ; Sobocinski 2017 ; Alsawaier, 2018). Cohen (2011) emphasized that games associate learning with fun, allow for team collaboration and trial and error testing, this point is confirmed by Avramenko in a detailed review (2012),

and Seethamraju (2011) associated gaming with deep learning and acquisition of integrative skills.

Since then, various authors have deployed models to assess the interest of business games in graduate education showing educational effectiveness that correlates with the four main primary factors curiosity, challenge, fantasy and control. (Kim & Lee, 2015). Gaming within undergraduate studies was also explored and showed a high intrinsic motivation and self-efficacy (Banfield and Wilkerson, 2014) and low learning anxiety (Su, 2016). Commercial simulation games receive a large audience in business educational institutions since the past ten years. As an example the Business Strategy Game (BSG) is a widely-used computerized business simulation of the international athletic shoe business. The game requires the students in small teams to make numerous decisions regarding product pricing, production, marketing and all aspects of company operations in numerous decision periods. This particular game allows international teams to play. (Doyle & Brown, 2000). More recently, a Delphi study carried out in Spain found that mobile learning, gamification, social media and open education are key e-learning trends that might have greater educational impacts in postgraduate programs in the next years. (Lopez-Catalan & Bañuls, 2017). Since the 2010s, business simulation games are also widely used in business organizations (Insley and Nunan, 2014; Renen and Rudman, 2015; Umar, 2015; Vinichenko et al, 2016; Hammedi et al, 2017; Shpakova, 2017). The business simulation game industry reached a volume of sale of approximately $3bn in 2016.

Despite all the advantages of simulation games, several authors highlight limitations such as superficiality that render the learning outcomes while gaming too dependent on the abstract thinking abilities of the students (Wolfe, 2004 ; Anderson and Lawton, 2009;) or focusing students' attention on gaming or competing rather than on learning (Thorngate and Carroll, 1987) There are also claims that the computer-based or gaming approach is an inefficient pedagogy for some subjects (Anderson and Lawton, 2009), as a matter of fact, simulation games for business schools are mostly developed for marketing, strategy and financial courses, such as the business strategy game described above. Other authors describe an oversimplification of simulation games (Mintzberg, 2004) or more precisely the substitution of real-world situations with complex mathematical models, reducing interpersonal interactions to interactions with a computer screen. (Marakas, 1999). More recently, Sobocinsky (2017) emphasizes on the need to understanding students' needs, and school abilities before to engage in gamification and in a literature review on the effect of gamification on motivation and engagement, Alsawaier (2018), points on the gap between theory and practice in the study of gamification. The recent trend in gamification goes on customization (Zamora et al, 2017).

GAME DESIGN AND CONTEXT

With the goal to enhance course dynamics and practical learning, two customized games have been designed for two on-line graduate on-line courses, Organizational Behavior and Strategic Management, respectively taught on fall 2017 and Spring 2018. Participation to the games was non mandatory. It was assumed that each student participant to the game does

spend an average of one hour per week for the game.

The game design was adapted to a large array of class participants. The games started on week 3 in order to give students the time to accommodate with the course general environment, and extend until week 8, except on week 5, the mid-term week. Twelve on fourteen in Organizational Behavior and twenty two on twenty four students in Strategic Management students voluntarily participated to the course game. Organizational Behavior students organized themselves into two teams of six and Strategic Management students in six teams of three to five.

The game for the Organizational Behavior course aims at exploring the impact of various management styles on team dynamics and performances, the students are then placed as actors of situations closely mimicking real business settings in which they can understand and practice on the main leadership styles on a trial and error basis.

One team is led by a transactional-type leader and the other by a transformational-type leader. The two teams compete with each other on the objective, for both teams, to prepare the launch of a new cosmetic product. Practically, each team must produce a weekly short « press release » published each Friday at 19:00 on the course forum indicating its progression in product design and each team shall prepare a final and simplified marketing mix. The professor challenged the teams by providing each week, via the same forum real information on changing environmental conditions (new entrant, new regulation, etc.). The winning team is the one which have regularly delivered consistent and pertinent press releases and the smartest marketing mix. Bonus points were awarded to each of the winning team members and compensation points were allowed to the challenging team.

The goal for the Strategic Management game was for the students to observe the impact of external and internal environments on firms' performances. Practically, each team select a large publicly traded firm and produce a short weekly analysis, and their previsions on the stock value for the next 5 days, analysis are published on the class forum. At the end of each five day period, the professor published an assessment of each team prevision. Bonus points are awarded to the team members of the team whose previsions were the most accurate over the game period. Compensation points were allowed to all team members which consistently participate to the game.

EVALUATION

The game on Organizational Behavior was evaluated through a self-assessment (as a game player) in which students can post their comments.
For practical reasons, the game on Strategic Management was evaluated on week 6, through a six question survey (5 text questions and one comment box).

RESULTS

ORGANIZATIONAL BEHAVIOR GAME:
On week 9, each game participant could post a self-assessment (on their role, participation and contribution to the team) and let free to add a comment on the game. On the twelve game participants, nine left a comment: (portions of the comments not relevant with the game were removed and typos were corrected).

1. « It was an interesting game, I have not had the experience to work with so many people in a team yet, and therefore it was new to me, however, it definitely worked out. Also, I find that there is more individual and team work in the background of the game rather than what's being shown, so I think it's worth mentioning it ».

2. « It was an interesting project ».

3. « I thought we were a good team who worked well together. I have no complaints about any team member. Everybody pulled their weight ».

4. « X, Y and Z have been very important to our team and I was glad to cooperate with them ».

5. "This exercise was really interesting. I think our leader played really great her role. She kept us in the frames, giving some directions. Another thing which I liked was that I really felt we were trying to play the game and reconstruct the roles. We did not only focus on the marketing mix plan, but on the work which at least partially every manager would have to do in the real company and unfortunately not all contributions could be fully covered in the final plan. But our work evaluated over a time and it was nice to see this evolution. For sure not everyone was implicated in the same way, or, not everyone was able to be on the same page as we were all the time, but overall, I think that it was great. Everyone showed a good will and was willing to cooperate and tried to prepare something to respond on our requirements. It is true we could have more Skype meetings, more exchange, our instructions maybe could have been clearer – I could be a much better project manager, to be more direct, giving more feedback. But it was not always easy due to the time constraints and written language. For me, it was a personally developing exercise, I did it not only to pass, but to play".

6. "Overall, I found the process quite good. All team members we active, engaged and delivered on their responsibilities. I believe the game is a nice way of incorporating some "real life" scenarios – a realistic work approaches like in a company".

7. « I believe I chose the most fitting leadership style for me: the transformational one. Since I experienced only this kind of supervisors, I think I could have struggled with a transactional approach. Moreover, I believe it really fits for my personality. I hope my classmates think the same ».

8. « I could understand people behavior especially the colleagues to connect well in the activity and task I have with them ».

9. « The game was a super task, we could integrate more and know better each other, as we had to organize Skype meetings ».

Students were also asked their opinion about the course on the week 9 forum, four students left a comment about the game among other comments about the course:

a. « I was also impressed with the game that helped to get to know the team and feel myself in a creative company ».
b. « Moreover, the OB game in which people from different countries are grouping together to work and cooperate, share different thoughts and show different ways of thinking ».
c. « OB game was an amazing concept of work, as we realized in practice the accurate procedures of a manager at the workplace without having to implement the traditional studying model ».

The Strategic Management game was quantitatively evaluated with a five questions survey conducted on the 22 students participating to the game, 15 answered

	Strongly disagree	Disagree	Agree	Strongly agree	Skipped
The strategy contest game is interesting		2	8	5	0
The strategy contest allows me to use/ apply concepts learned in the course		2	7	5	1
I find easy to work with other class-mates on the strategy contest	1		9	4	1
I find useful to work with other class-mates on the strategy contest		3	7	4	1
The instructions for the strategy contest are clear enough			6	8	1

Table 1

Comments: Three participants to the survey left a comment:

1. « The emphasis is from a finance perspective and as such less focus is placed on whether the organizations actually act in line with their strategic objections or ascertain where they deviate with their decision, although same can be deduced based on the analyses. It's great to actively "test" the theories of analyses and seek an appreciation why corporations make certain decisions ».
2. « The contest is interesting because we are able to take a real-world example and look at the company over the course of the semester. Working with other students provides different views on how to analyze a company. It has given me different views on how to look at a company and what information is important. The length of the assignments (250 words per week) are good because it does not take a long time but still offers learning experiences. I like the incentive of receiving bonus marks on the midterm/final for submitting the assignments on time. I would recommend this contest for future semesters ».
3. « Strategy contest is good. It helps us analyze and make predictions in the real world ».

ANALYSIS

ORGANIZATION BEHAVIOR GAME

Interest for the game

We can see from the nine comments that three (1,2,5) show the adjective « interesting » and two other statements (6,9) imply a certain interest for the game.

Team building
Several comments indicate a engaging team building experience (1,3,4,5,6,7)
One comment (b) emphasize on the cross cultural aspect of team building. Remarkably, no participants describe any conflicts in the team during the game time.

Relevance
The relevance of the game in relation to the game objective e.g. exploring the impact of various management styles on team dynamics and performances cannot be seen from the comments, nor it can be assessed from the team productions (press release and marketing mix) as described in the professor final statement posted on the class forum. « Further analyzing team and individual assessments, I failed detecting significant differences between both managerial styles in term of team dynamics. Both teams functioned well, had no conflicts and achieved their goals on time ».

Instruction
One comment (5), suggests the need for clearer instructions.

Time spent on the game
The comment 1 shows a statement « Also, I find that there is more individual and team work in the background of the game rather than what's being shown. (In the final assessment-author's note-) » indicating that students may have in reality spent more than one hour each per week working on the game and debating in their team.

STRATEGIC MANAGEMENT GAME,

From the data shown on table 1, a majority of participants (13/22) found the game interesting. The results are less convincing as far as the game relevance is concerned (12/22), yet since the students were placed as observers in this game and not actors, it is understandable that the second question of the questionnaire did not meet a larger agreement. The time spent on the game was not assessed. The question on usefulness to work in team for this game got mixed answers. Game instructions looked clear to a large majority of participants.

From the comments attached to Table 1 we may infer that the game was found by this participant to more conveniently applying to financial classes rather to strategic courses(1). From comment (2) we can infer that the game was not too much time consuming and an appreciation of the bonus points.

LIMITATION AND FURTHER STUDIES

The analysis of the Organizational Behavior game was rather limited due to the absence of quantitative data collection, and the relevance of the Strategic Game cannot be thoroughly assessed due to a rather limited number and unrelated questions. It is therefore suggested that game are more thoroughly tested in the future with a reasonable number of pertinent questions asked at the end of the game. In particular, criteria such as adequation of the game to course learning objectives, enhancement in course concepts acquisition, time spent on gaming, balance between time spent on gaming and traditional learning phases, as well as game pertinence in placing students closer to real or plausible business contexts, must be evaluated.

CONCLUSION

These limited results tend to demonstrate an interest for customized games as relevant complementary teaching material for on-line courses. Further exploration is needed to assess the relevance of such game in the learning process.

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DOES FINANCE IN THE NON-PROFIT SECTOR HAVE A CULTURAL DIMENSION?

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ABSTRACT: *Culture is broad in its influences, but it affects all aspects of social life, even financial decisions. In an increasingly globalized world, cultures inevitably confront and interact with each other. Therefore, understanding how culture affects financial behavior is becoming even more important. Having information about possible deviations in behavior attributed to the cultural differences, can be a key to developing new projects, especially in emerging markets and developing countries. This article proposes to take a fresh look at financial management practices in the non-profit sector by exploring them from the perspective of cultural differences. The author believes that finance within the non-profit sector might have a cultural dimension. Cultural differences are widely recognized in many social contexts. However, they have not yet gained enough attention from the financial research community, particularly, in the non-profit world. This article is raising a question whether cultural dimensions developed by social scientists are also valid in the non-profit sector. A research study was conducted based on analysis of practices of decision makers in 92 non-profit organizations from 22 different countries. The results of the research confirm that shared cultural values within a cultural region lead to shared financial practices, which in turn influence the nature of financial management in non-profit organizations. The researcher hopes to be able to stimulate further cultural research in the non-profit sector and further application of cultural dimensions models in finance.*

KEYWORDS: **culture, non-profit sector, finance, management practices.**

Culture inevitably affects all aspects of society and social life. With the fast globalization process, different cultures confront and interact with each other even more. While financial markets are becoming increasingly intertwined, some differences in the financial practices across countries remain. This makes cross-cultural studies in finance very important. Cultural misunderstandings can cause business failures (Aitken, 2007). Therefore, it is beneficial to know how these cultural factors influence financial decisions within organizations. Schein (2004) states that investigation of cultural issues can facilitate understanding of what goes on in the organization, and how to run organization in a more efficient way. Consideration of the impacts of cultural backgrounds can contribute to a higher efficiency in decision making.

There are number of theories explaining cross-cultural differences and proposing various cultural clusters (Gupta, Hanges and Dorfman, 2002; Hofstede, 2010; Schwartz 1999; GLOBE 2009). Social science already distinguishes cultural regions according to attributes like performance orientation, collectivism, orientation on the future and equal treatment of men and women (Nisbett, et al., 2001; Ramirez and Tadesse 2007. Stulz and Williamson, 2003). Furthermore, cultural differences can be identified in risk taking, decision styles, precautionary savings, cash management, budgeting and strategic planning (Kwock and Tadesse, 2006). In non-profit sector, cultural differences can be identified in fundraising practices. However, rare attempts have been made to extend the cultural models to understand the influence of culture on the financial practices in the non-profit world. Understanding how the financial practices may differ from one national culture to another might throw light on some aspects of the effective financial management of non-profit organizations. Therefore, the author of this article has conducted a research where the cultural theories and behavioral finance constructs were applied to better understand the decision-making process within non-profit organizations.

Very often, in the non-profit world, the efforts to increase efficiency are centered on programs and on tracking of their outcomes. Building the capacity of the organizations themselves is often disregarded due to the non-profit nature of the organizations. In order to maximize the resources that go to the programs, non-profit organizations traditionally, set very low standards on administrative and financial management (McKinney, 2004). Yet, for most organizations, the ability to deliver effective services is highly dependent on thorough management practices, of which financial management is an essential part.

Contrary to the profit organization, the non-profit organization is dependent on the money that is donated. Very often, the donated money has to be used only for a particular purpose. This decreases the flexibility of a non-profit organization (Whitney, 2017). Therefore, the financial management of non-profit organizations is extremely important. The financial practices in this case require even more attention than at for profit-making organizations. Another reason behind that is the responsibility to show the transactions to the general public. (Center, 2011). The two main important areas of financial management in this regard are budgeting and cash flow management. These tasks can be particularly difficult and challenging since the organization is dependent on the donations that sometimes are hard to predict. In addition, fundraising is another chapter that requires a lot of attention (Blackbaud, 2004). Across different cultures, behaviors that are acceptable may vary significantly, especially when it comes to offering or asking for a financial support. Therefore, consideration of cultural elements is imperative prior to any fundraising activity in any country.

WHY DO WE NEED TO CARE ABOUT CULTURAL INFLUENCE ON FINANCIAL PRACTICES WITHIN NPOS?

- To understand partners and donors from different cultures, their values and preferences;
- To avoid "culture clash" when operating in multiple countries;

- To develop documents and reports that meet audience needs;
- To use cultural values as a leverage in fundraising practices;To minimize the likelihood of donor changing behavior;
- From the perspective of potential donors, understanding of cultural differences can help to manage expectations about proposed project budgets, communication styles and fundraising practices.

In the research that was carried out by the author of this article, previous studies and cultural theories were used as a base for building the conceptual model. It was intended to add to the existing knowledge about the efficient financial management of the non-profit organizations by providing an alternate explanation of the financial decision-making processes and practices. The research therefore was set to answer the following questions:

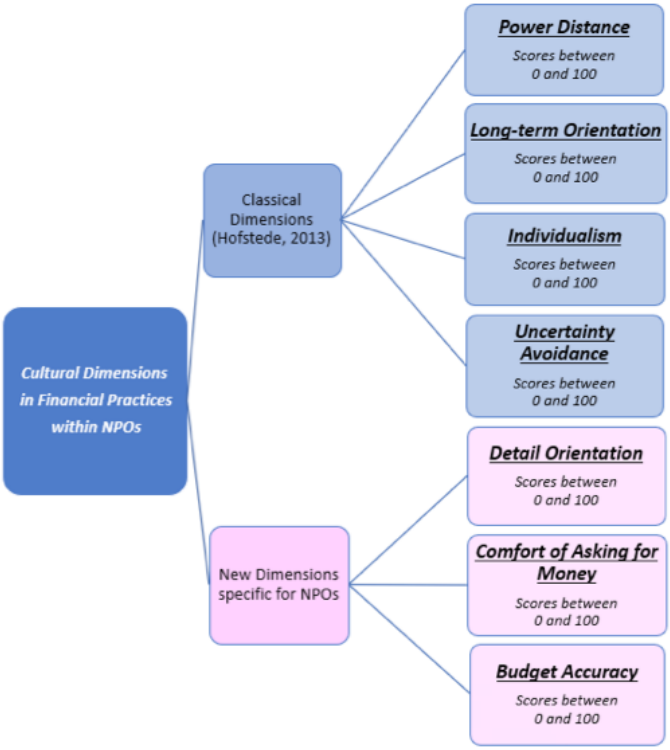
1. Does country-specific culture influence financial practices and decisions within non-profit organizations?
2. Does country-specific culture influence the importance and the position of the Finance Office within a non-profit organization?
3. How can a non-profit organization improve its existing financial practices based on the proposed conceptual model?

RESEARCH APPROACH

The investigation was done based on analysis of practices of real decision makers in 92 non-profit organizations from 22 different countries in 6 cultural regions, where cultural differences were already identified as influencing management decisions in prior researches. Four main areas of focus were identified as the most important for the financial management of non-profit organizations: reserves management, cash management, budgeting and fundraising.

The Hofstede's VSM method (2013) was identified as the most useful to explore country-specific cultural differences, as the method developed by Hofstede was proven to be user-friendly, easy to understand and reproducible. Thus, it was used as a base for development of a new conceptual framework. The research tested if four cultural dimensions developed by Hofstede (2010): *Power Distance, Individualism versus Collectivism, Uncertainty Avoidance, Long Term Orientation versus Short Term Orientation* are also valid within non-profit sector. In addition, the researcher tested three new proposed dimensions of cultures: *Detail Orientation, Comfort Asking for Money and Budget Accuracy*. The cultural dimensions measure independent preferences for one state of affairs over another (Hofstede, 2010). The model is applied to countries rather than to individuals. As culture can be meaningfully identified only in comparison, all the country scores on the dimensions in the proposed model are relative. The dimensions measured by this model are based on cultural region-level correlations that produce dimensions of a national culture. The selected 6 cultural regions included in the study were: Anglo, Germanic, Eastern European, Asian, Latin and African regions.

Figure 1: Cultural Dimensions in Financial Practices within Non-Profit Organizations Model



The proposed model was verified via expert interviews and online questionnaires to ensure the necessary objectivity of the research. The results of the study were presented visually via Cultural Dimensions maps.

This research was carried out from the perspective of the financial behavior theory. This research relied heavily upon the views of the selected experts and survey participants, as a result it favors a qualitative approach. However, quantitative methods were also utilized to analyze the results of the survey. Online questionnaire survey helped to assess the reliability of cultural dimensions within non-profit organizations. Data was gathered through a self-administered Internet-based survey platform. The proposed questionnaire included scaled and open-ended questions. Chi-square test for independence was performed to analyze the data from the survey.

RESULTS

This research has confirmed that the cultural dimensions method is a useful method for discovering cultural differences. The proposed framework gives some direction on those differences. In summary, this research has demonstrated that shared cultural values within a cultural region lead to shared financial practices, which in turn influences the nature of financial management of non-profit organizations. The study has identified differences in financial practices within non-profit organizations due to the cultural influence, including differences in cash flow projections,

reporting styles, budgeting accuracy, time orientation and fundraising approaches.

The study has laid the groundwork for testing the influence of culture on the financial practices within non-profit organizations. Here are the key challenges related to the management of non-profit organizations that are discussed in light of the research findings:

1. **Reliance on external funding sources and streams.** In contrast to for-profit organizations, non-profit organizations depend on a diverse set of funding sources. Substantial cutbacks in both government and foundational funds in the past years show that non-profit organizations should develop sound fundraising plans to support their financial sustainability. Some differences in the fundraising practices across different cultural regions were identified in this study. Germanic and African regions scored high on Comfort of Asking for Money dimension. Eastern European and Asian cultural regions demonstrated low Comfort of Asking for Money. Fundraisers from Asian (43%) and Eastern European (56%) regions find it particularly hard to request potential donors for funds. Furthermore, the study found a significant association between culture of origin and the defined timeline for fundraising strategy. The study results reveal that six-months fundraising strategies are not adopted in any region other than African and Asian. Non-profit organizations of the majority of the regions choose a one-year fundraising strategy in overall. The majority of the non-profit organizations from the Germanic region establish a funding timeline greater than five years.

2. **Increased demand for transparency, value and accountability from funders.** Foundations and other donors increasingly search to access up-to-date information about organization's operations as a way of ensuring return on their investment. However, significant differences in the way people from different cultural regions value details and structure their reports and budgets were identified in this study. The results reveal that a strong majority of organizations from the Germanic region use concise and precise information such as figures and dates, when requesting for funds. On the other hand, 100% of the NPOs from Eastern European region mostly make use of stories to persuade donors for funds. The Germanic Region was identified as a high Detail Orientation region. This means that employees from this region are more likely to pay attention to the details when structuring reports or communicating. In contrast, the Eastern European region values a general view of the situation. It is more likely that organizations in this region will rather emphasize a general direction of the work progress or project, than small details about it.

3. **Cash management.** The changes in the funding climate make non-profit organizations vulnerable. As it was identified in this research, many organizations lack cash reserves, which makes periods of low revenues very difficult. In these situations, the management is forced to be focused on survival, rather than on long-term strategic planning and improving the quality of the programs delivered. The research has revealed that the majority of the organizations from all of the cultural regions under study generates cash flow projections either on an annual or semi-annual basis. Thirty percent of all of the respondents informed that their organizations generate cash flow projections on an annual basis. However, the majority of Germanic origin non-profit organizations generate cash flow projections on a monthly or quarterly basis, which depicts that they analyze their performance more frequently than in other countries. Cash flow projection is an important exercise that should not be overlooked. While an organization may not have control over money that comes in, it can project and

manage its cash needs of the programs to ensure that it has the liquid assets necessary to meet its expenses.

4. **The position of the finance office.** The main tasks that finance offices in non-profit organizations perform can be put into two main categories: operational and strategic. If the position and tasks of the financial office is poorly configured, the lead financial officers might not be engaging in long-term planning and oversight activities. This study has demonstrated that different importance is indeed attributed to the role of financial office within non-profit organizations from different cultural regions. The results reveal that a majority of the organizations from Anglo, Asian and Germanic regions give importance to the position of the finance office. Where only 37.5% of the respondents from Eastern Europe, 33% from African, and 33% from the Latin region believe that the financial office has an important position. It is crucial to invest in financial office infrastructure and recognize the importance of a strong financial management. Without strong and well established financial practices, non-profit organizations will not be able to improve their programs. Strong financial resources alone cannot ensure that the organization will meet its expenses. The organization must also have processes in place that allow the development of accurate budgets at the program level and organization-wide.

The study's conclusions have provided decision-makers in non-profit organizations with insights that can lead to a better understanding of their own practices, as well as their partners and donors from diverse cultures and can help to avoid culture clash. Weak financial management and practices are hampering the ability of non-profit organizations to achieve their missions. The results of the study suggest that the improvement of programs quality should be combined with parallel efforts to strengthen the financial management capacity.
The proposed cultural dimensions model can be used as a starting point for further research. This model is particularly useful as cultural dimensions reduce the complexities of culture and its interactions into seven relatively straightforward facets.

The results of the study contribute to the understanding of the actual practices and explains the challenges and opportunities posed by cultural differences presented in different countries. However, the research was not able to include the list of all possible cultural differences; it rather intends to supply the readers with those factors which might have the greatest possible effects.

The study findings provide some of the first evidence to support the validity of cultural models in the financial management of non-profit organizations. However, the number of organizations participated in the research was relatively small. Therefore, further discussion on the impact of culture on the financial practices within non-profit organizations is suggested. In addition, future studies can track the influence of culture on the financial practices within non-profit organizations over time (i.e., financial decisions and behaviors of the same individuals over time). Moreover, future analyses can be done in a form of experimental studies. While the empirical analyses based on the survey data have exposed some interesting associations, experimental studies can take the research even further.

Behavioral finance and cultural concepts have proven their validity in this field. The research has the potential to explain differences in decision-making and practices in the finance field within non-profit organizations. The results of this research encourage non-profit organizations to adopt strategic

financial management practices that take into consideration cultural differences. The researcher hopes to be able to stimulate further cultural research in the non-profit sector and further application of cultural dimensions models in finance.

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INNOVATION IN SPECIALIZED SUPPLIER-BASED ECOSYTEMS: A NEW CONCEPTUALIZATION OF ECOSYSTEM VALUE CREATION

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ABSTRACT: *In a specialized supplier-based ecosystem, companies do not produce products or services, companies basically solve problems, provide solutions and above all, face challenges to be able to add value to their stakeholders (clients, owners, sources, consumers or end-users, suppliers, environment, society). Different authors describe the ecosystems as flexible networks that are connected by different types of platforms. But, what do these platforms look like in a specific specialized supplier- based ecosystem? What's the structure of that type of ecosystems? What types of networks in these specific ecosystems would accelerate innovation? This paper approaches the generic structure of a specialized supplier- based ecosystem for finding some specific frameworks that could determine the specialization of an ecosystem. Using a real case study of innovation, the goal of this paper is to understand how does this type of ecosystem work and to find the answers to the following questions: How does a supplier- based ecosystem determine its own specialization and performance? Is the specialization of that type of ecosystems achieved by some particular structure, some particular combination of resources, etc.? What are the relationships between the structure of this type of specialized ecosystem and the supply chains that shape each type of these specialized ecosystems? Finding responses to the previous questions will allow us to better interpret the processes of value creation and innovation in this type of ecosystems.*

KEYWORDS: **supplier-based ecosystem, value creation, innovation, supply chain.**

Technological and social revolutions create new premises for competitive advantage. Firms increasingly compete on ecosystem-basis, rather than as individual entities. In supplier-based innovation ecosystems, companies do not only produce products but rather solutions and above all services that add value to clients, owners, sources, environments, and consumers or end-users.

Within this new paradigm of innovation management, companies in supplier-based innovation ecosystems must change their focus not only at the strategic level and for the allocation of new objectives, resources, policies and goals, but also at an operational innovation level. Different authors describe the ecosystems as flexible networks that are connected by different types of platforms and focal firms. (Autio and Thomas, 2014; Gawer and Cusumano, 2002; 2013) In this paper, we aim to investigate the role and nature of these platforms. We also seek to understand the how ecosystem structure impacts value creation and value capture from innovation in supplier-based ecosystems.

Different authors have introduced the concepts of value creation and value capture in relation to open innovation (Chesbrough and Appleyard, 2007), co-specialization (Jacobides et al., 2006) and innovation ecosystems. (Hannah and Eisenhardt, 2016) In these approaches, the authors establish a sequence of value processes starting with the value creation and then by addressing the value capture of the newly created value. Chesbrough and Appleyard (2007) define the need to capture value in order to sustain continued participation and support to the initiatives of value creation. Hannah and Eisenhardt (2016) establish that to create value, it is necessary to cooperate between different interdependent firms. Subsequently, to capture value it is essential to compete among these interdependent firms. Jacobides et al. (2006) point out the importance of generating advantageous industry architecture to increase the amount of value capture or appropriation without the need for engaging in vertical integration. Firms have to simultaneously address, direct, and balance both types of value processes. Value capture is a consequence of value creation in order to appropriate and protect and value generated by the organization. This yields questions regarding the purposiveness of value creation and value capture. Do companies in ecosystems create value because they are aware of a potential application that will help capture value? Are thus ecosystem mechanisms driven by value creation or value capture? In addition, to what extent do the perceptions of companies match with the potential new trends, real challenges, etc. in their ecosystem? Is there a gap between perception and reality that influences ecosystem mechanisms?

To contribute to understanding the research questions, we conduct an analysis of the existing literature. We then study and analyze a specific real case of innovation carried out in a specialized supplier-based ecosystem. We introduce a new framework for innovation in a specialized supplier-based ecosystem including goals, actors, structures, organization, relationships, networks, and crucial processes. We also identify potential drivers that can accelerate the innovation processes in these ecosystems.

METHODOLOGY AND MATERIALS

We focus our analysis on a specific real case of innovation. The methodology used in our research has been inductive case analysis based on the research of different specific topics of innovation within a specific specialized supplier-based ecosystem. The data collection has included participant observation of this real case of innovation. (Yakura 2002; Vinten, 1994)

SPECIALIZED SUPPLIER-BASED ECOSYSTEM CASE DEFINITION AND COMPONENTS

We have analyzed the specialized supplier-based ecosystem of the global clinical diagnostics industry, which includes different markets and supply chains that crosses the different actors and organizations of this ecosystem. The primary inputs of this ecosystem are the human samples from the patients and the clinical trials, as well as the new demand of tests from the preventive medicine. The final outputs of this global ecosystem are the test results reports to be provided to the health care professionals, and the new knowledge that enhances medicine and health care.

This global ecosystem encompasses different healthcare systems and supply chains of human test results as well as other different supply chains e.g. pharmaceutical industry, food processing and intolerance industry, veterinary, etc. The present life cycle phase of this ecosystem is a stage of constant growing and expansion thanks to the growing, high importance of the preventive medicine and continuous health care follow-up.

This specific ecosystem is integrated by various types of entities: patients, medical staff, clinical laboratories, reference laboratory, urgency clinical labs, hospitals, clinics, pharmacies, pharmaceutical labs, doctors' offices, manufacturers and suppliers of reagents, manufacturers and suppliers of all of the different types of auto-analyzers and equipment for testing, transportation companies, exportations and importations agents, airlines, national and international health agencies, international transportation agencies (e.g. IATA), certification and accreditation national and international agencies, suppliers of different types of materials for sample extraction, collection, preparation, packaging, preservation, etc. and the environment in terms of the impacts of this ecosystem in the planet (e.g. impact on pollution due to sample transportation) and in society (impact on the health, quality and expectance of life).

The type of operations of value transformation within this ecosystem are: services framework, including largely before and after sales or following-up services, information processes regarding the test results and procedures, global sample transportation, samples reception, preservation and storage, samples analysis and testing, tests results data collection, delivery of test results to the doctors, customers, hospitals, quality processes, and patient feedback processes.

FOCAL ACTOR IN THE CASE ECOSYSTEM: IDENTIFICATION OF LEAD USERS AND TRENDS IN THE ECOSYSTEM.

Inside this ecosystem to start our investigation we chose the case of a reference laboratory and the topic of the samples collection and transportation within this laboratory. Balague Center is a specialized reference clinical testing laboratory that performs reference tests that its customers cannot perform, due to their high cost and to the technological capacity and scientific expertise required. For example, the laboratory provided molecular diagnostics, genetic testing, pathology testing, chromosome analysis, etc. which require large investments in new technology and expertise. They also ran routine tests (biochemistry, hematology, etc.), but the core activities of the laboratory are the reference and specialized tests. They constantly performed clinical trials and research to be at the forefront of the reference laboratories leaders in Europe and to be able to match the new demands and requirementsof the healthcare systems in terms of new

diagnostic and prevention trends. The human resources of this laboratory were comprised of a wide range of different experts and medical specialists and researches. The production of Balague Center was centralized in the 3.000 m2 Barcelona laboratory, but they also had two additional small laboratory subsidiaries in Brazil and Portugal to provide routine tests. The output of the Barcelona laboratory was 4,000 tests per day. The tests are picked up in the facilities of the customers and they arrive to the laboratory facilities in less than 12 hours. They used a complex transportation system and packaging to preserve the tests samples in terms of integrity, humidity and temperature preservation.

Balague Center's customers were big laboratories of public hospitals, medium-sized laboratories of private clinics and hospitals, local laboratories and pharmacies, pharmaceutical companies, food processing companies, and allergists. 70% of Balague's tests came from Spanish customers and the remaining 30% of the tests came from six different non-European countries. Balague also outsourced some of the techniques or tests due to low number of samples volume and its high cost per test. These tests were sent to different European or U.S. reference laboratories or institutions.

Applying the lead-user approach as an important source of innovation (Von Hippel, 1986), we determine that in this ecosystem the lead users were national and international private and public renowned and first-rate hospitals and clinics that were developing new therapies and treatments with leading medical teams of specialties. These new tests were constantly demanding new or improved technical solutions from Balague Center as a reference lab.

These new methods and new preventive treatments required new clinical tests which were constantly expanding the test panel providing new and renewed or improved tests and thus producing important trends of innovation in the whole ecosystem. From the lead-user hospitals, these new trends flowed forward to the patient or consumer and backward to the clinical test lab, to the freight companies and agents, the suppliers of reagents and chemical components to perform the new tests or improve the tests methods, to other researchers, to universities, etc.

Another important trend in the ecosystem was the cost reduction and the efficient management of all of the supply chains in the ecosystem to compensate the operations costs in the public health systems due to the increase of the costs of the new techniques which were more expensive than the routine tests. The lead-users required full attention to the processes of value creation and value capture because of their participation in these processes and their impact on value creation.

FROM LEAD USERS TO LEAD ACTORS

These new trends and the explosion of new tests required a total and constant reassessment, reformulation, and improvement of all service attributes, preferences and perceptions that affected the different processes and actors within this ecosystem, e.g. technical attributes of the test results, transportation attributes of the sample transportation and preservation, attributes of the test results delivery to the client, quality control attributes, financing attributes, old sample searching attributes, etc.

Analyzing the effects of these new trends and their effects on the multi- attribute mapping of this ecosystem and its supply chains, we found that we can expand the concept of lead users (Von Hippel,

1986)to other "lead actors" in the ecosystem that can provide different solutions to those new needs and can provide important sources of innovation equally or further on than the lead users of the ecosystem. We found the following lead actors in this ecosystem: those lead transporters that can provide new transportation services, those lead integrators and suppliers that can provide new testing methodologies with new or improved equipment and reagents, those lead distributors and importers of technics and above all those lead reference global laboratories that can perform efficiently and implement rapidly those new requested tests in big quantities.

RESULTS

We concentrate our analysis of value capture and value creation on the transportation processes which had a high impact on the new innovation trends of the case ecosystem. The new trends regarding the expansion of new tests and its resulting impact on cost reduction in the ecosystem, required a revision of the transportation processes, and became a source of innovation in terms of value capture and value creation to align transportation processes with these new trends. The new tests demanded new requirements and solutions for sample transportation in terms of new or improved sample preservation and delivery requests, new forms of sample transportation to cut transportation costs, etc.

This ecosystem requires large amounts of sample transportation operations. The sample value is very high since a specific sample could save more than one life, even thousands of lives. Thus, safety and preservation were important attributes of functionalities required for these transportation operations. Other relevant attributes were related to the costs of the samples e.g. the specifications of the transportation containers that content the samples. These attributes were the capacity of the containers, the level of recycling, the ease of preparation and use of these boxes or containers, etc.

The impact on the ecosystem and its firms of these attributes in the transportation of samples and the impact of how the lead actors manage these attributes were also crucial. This means that to innovate in transportation attributes and processes, each actor could add value to each one of the specific end-users or markets of these services and to each one of the companies and supply chains that compose this ecosystem.

OBJECTIVES OF THE STUDIED INNOVATION PROCESS

The aim of the of sample transportation innovation process was to find a more effective and efficient solution regarding the following attributes:

1. Efficient and sustainable transportation of samples: Cut transportation times, modify pick up times of the samples, change routes, vary scheduling, vary type of transportation, recycling, etc.
2. Better sample preservation (sample temperature, integrity, and thermic insulation): design and type of container, new materials for containers, increase capacity of containers, reduce costs, etc.
3. Better shipment tracking and sample identification: introduce bar codes, introduce temperature probes and tracking.

The Balague Center focused the innovation process on finding a new container for sample transportation to match the requirements above.

THE INNOVATION PROCESS

The innovation process of the Balague Center was based on multi-attribute mapping and positioning for product concept evaluation and generation (Roberts and Urban, 1985) and on the product development process phases described by Ulrich and Eppinger (2012). To innovate the sample container, they followed the steps below:

1. Gather raw data from the different users of the container in the ecosystems:

    a. Segmenting the platforms and users of the containers.

    b. Observing the container in use in the lead user facilities (hospitals, clinics, etc.), in the transporter installations and vehicles and in the laboratory reception area.

    c. Interviewing the different employees of the facilities and firms that operate or handle the container (preparing and storing the samples in the container to be shipped, opening the samples container in the reference lab, etc.).

2. Interpret the raw data in terms of user needs and transform them into attributes (product perceptions or preferences of requirements) and organize these attributes into a hierarchy to establish relative importance of the attributes. Group them according to the similarity of the needs they express to simplify the subsequent analysis, discussions, and development.
3. Compare attributes or different technical requirements among the different available and commercialized containers within this ecosystem. The Balague Center obtained a comparison of attributes (Figure 1).

	TECHNICAL REQUIREMENTS	LAB COMPETITOR A CONTAINER	LAB COMPETITOR B CONTAINER	PROVIDER A NATIONAL	PROVIDER B EUROPEAN	PROVIDER C ASIAN
WEIGHT OF THE CONTAINERS (DEPENDS ON BOX AND ON THE NUMBER AND WEIGHT OF THE THERMIC ACCUMULATORS)	**HIGH**	LOW	HIGH	LOW	MEDIUM	MEDIUM
RESISTENCE OF THE CONTAINERS	HIGH (EXTERNAL RIGID MATERIAL)	MEDIUM (ONLY EXPANDED POLYSTYRENE OR POREXPAN)	MEDIUM	MEDIUM (POREXPAN INSIDE A FLEXIBLE PLASTIC CASE WITH HANDLES)	HIGH (RIGID)	ACCEPTABLE (RIGID)
GRADE AND DURATION OF THERMIC INSULATION (REFRIGERATED SAMPLES)	HIGH	**LOW**	HIGH	MEDIUM	MEDIUM	**MEDIUM BUT DEPENDS ON REALIABILITY OF THE DIFFERENT LOTS SUPPLIED**
GRADE AND DURATION OF THERMIC INSULATION (FROZEN SAMPLES)	**LOW**	MEDIUM	HIGH	LOW	HIGH	**MEDIUM BUT DEPENDS ON REALIABILITY OF THE DIFFERENT LOTS SUPPLIED**
TRANSPORTATION CERTIFICATION FOR SAMPLES	NO	NO	NO	NO	YES	NO
NUMBER OF DIFFERENT CONTAINER SIZES	3	3	1	2	**1 BUT VERY BIG**	4
VOLUME (SAMPLES/ BOX)	1 (200) + 1 (70)+ 1 (2 FROZEN) OUR LAB AVERAGE PER SHIPMENT WAS 50 SAMPLES	1(100) + 1(60) + 1(10)	**1(80)**	**1(100) + 1(10)**	1 (200)	1(300) +1(200) + 1(100) + 1(50)
POROSITY/ ABSORPTION OF WATER	VERY LOW	HIGH	LOW	MEDIUM NOT TESTED	LOW	**MEDIUM BUT DEPENDS ON REALIABILITY OF THE DIFFERENT LOTS SUPPLIED NOT SECURED**
CATEGORY OF SAMPLES WHICH CASES COULD CARRY	CATEGORY B NO CATEGORY A (INFECTIOUS SAMPLES)	CATEGORY B NO CATEGORY A (INFECTIOUS SAMPLES)	CATEGORY B NO CATEGORY A (INFECTIOUS SAMPLES)	CATEGORY B NO CATEGORY A (INFECTIOUS SAMPLES)	CATEGORY B NO CATEGORY A (INFECTIOUS SAMPLES)	CATEGORY B NO CATEGORY A (INFECTIOUS SAMPLES)
COST PER CONTAINER/ COST PER ROUTE	**VERY HIGH/ VERY HIGH**	VERY LOW/ LOW	HIGH/ MEDIUM	MEDIUM	**VERY HIGH/ HIGH**	VERY LOW/ VERY HIGH

Figure 1: Comparison of existing containers in the ecosystem

4. Prepare a list of crucial attributes to improve, including new ones to be introduced, per user segment (Figure 2).

CUSTOMERS SEGMENTS	% OF CUSTOMERS	ATTRIBUTE 1	ATTRIBUTE 2	ATTRIBUTE 3	ATTRIBUTE 4	ACTUAL ATTRIBUTES TO IMPROVE	NEW ATTRIBUTES TO INNOVATE AND DIFFERENTIATE
PUBLIC HOSPITALS	65%	PHYSISCAL INTEGRITY: PRESERVATION OF THE PHYSICAL INTEGRITY OF THE SAMPLES	TEMPERATURE INSULATION REFRIGE-RATION (DURATION)	TEMPERATURE INSULATION FROST (DURATION	CAPACITY (HIGH) EASE OF USE CATEGORIES OF THE SAMPLES (SOMETIMES NEED CATEGORY A)	TEMPERATURE INSULATION (FROZEN + REFRIGERATED) WEIGHT	TEMPERATURE TRACKING AND FINAL VERIFICATION CERTIFI-CATION AND ACCREDI-TATION OF THE CASES NUMBER OF DIFFERENT CONTAINERS SIZE (INCREASE CAPACITY FOR FROZEN SAMPLES)
PRIVATE HOSPITALS	5%	PHYSISCAL INTEGRITY: PRESERVATION OF THE PHYSICAL INTEGRITY OF THE SAMPLES	TEMPERATURE INSULATION REFRIGE-RATION (DURATION)	TEMPERATURE INSULATION FROST (DURATION	EASE OF STORAGE CATEGORIES OF THE SAMPLES (SOMETIMES NEED CATEGORY A)	TEMPERATURE INSULATION (FROZEN + REFRIGERATED) WEIGHT	CERTIFI-CATION AND ACCREDI-TATION OF THE CASES
CLINICS	15%	PHYSISCAL INTEGRITY: PRESERVATION OF THE PHYSICAL INTEGRITY OF THE SAMPLES	TEMPERATURE INSULATION REFRIGE-RATION (DURATION)	TEMPERATURE INSULATION FROST (DURATION		TEMPERATURE INSULATION (REFRIGERATED) WEIGHT	NUMBER OF DIFFERENT CONTAINER SIZES
PHAR-MACIES	5%	PHYSISCAL INTEGRITY: PRESERVATION OF THE PHYSICAL INTEGRITY OF THE SAMPLES	TEMPERATURE INSULATION REFRIGE-RATION (DURATION)	TEMPERATURE INSULATION FROST (DURATION	CAPACITY (LOW) VOLUME PER CASE (TO REDUCE STORAGE AREA)	TEMPERATURE INSULATION (REFRIGERATED) WEIGH	
CLINICAL ANALYSTS OFFICES	15%	PHYSISCAL INTEGRITY: PRESERVATION OF THE PHYSICAL INTEGRITY OF THE SAMPLES	TEMPERATURE INSULATION REFRIGE-RATION (DURATION)	TEMPERATURE INSULATION FROST (DURATION	CAPACITY (LOW) VOLUME PER CASE(TO REDUCE STORAGE AREA)	TEMPERATURE INSULATION (REFRIGERATED) WEIGHT	NUMBER OF DIFFERENT CONTAINER SIZES. THEY NEED SMALLER REFRIGERATED CASES THAN ACTUALS

Figure 2: List of crucial attributes of containers

5. Identify in each user segment, market or environment biases or promising opportunities and important trends experienced by different ecosystem actors e.g. suppliers of the container materials, accreditation agencies, hospitals, transportation agencies, commercial department of the company, government agencies, medical department of the company, etc.). The Balague Center found the following opportunities, representing a mix of market pull and technology push (Brem and Voigt, 2009):

a. Privatization of public labs into private concessions contracts. To win public tenders reference labs need to improve transportation containers.
b. Permission to sell Balague Center clinical test services to distant countries
c. Modifications of the specific regulations for sample transportation in category a and category b launched by global organizations IATA and OMS.
d. Release of new materials (new gels) to manufacture frozen accumulators for the container to achieve better container performance.
e. Release of new materials for transportation and packaging with less weight and very similar rigidity
f. Public tenders seek verified environmental protection management to increase recycling.
g. Shipping deferred tests of the Balague Center to reference labs in the US, thus reducing costs

6. Positioning and mapping of the comparison of these attributes and opportunities and identifying how the opportunities can improve the attributes.
7. Combining the list of required attributes with the list of market biases or promising opportunities by a cross-functional team. Selecting the best combinations of attributes and opportunities to develop the new container.

a. Target segments for innovation: Public hospitals and analyst offices.
b. Processes to innovate: sample transportation processes, including set up process, shipping process and reception and check-in process.
c. Cross-functional team departments: customer service- operations- logistics and samples reception- medical department and commercial departments.
d. Target attributes and relevant modifications:
    - Reduce weight by changing materials of the containers, change the type and materials of thermic accumulators, etc.
    - Add new sizes of containers, e.g. larger size for frozen samples for public hospitals and smaller size of refrigerated samples for the analyst offices.
    - Accreditation of containers by international agencies e.g. APPLUS and TÜV.
    - A new system to track the temperature of the samples with sensors and verify values during transportation.
    - Increase duration of temperature insulation through changing materials, changing accumulator materials, etc.

8. Remaining product development phases for the new container, including product concept, system level design (5P design), detail design, testing, refinement and production ramp up with different phases to launch the new container.

ANALYSIS OF THE INNOVATION PROCESS

An analysis of the innovation process of Balague Center yields a number of insights. In this specific specialized supplier-based ecosystem we can find different specialized supply chains of products, components, and services that compose the ecosystem. These specialized supply chains cross the ecosystems providing different kinds of specialization that in combination accelerate innovation. We pay particular attention to the supply chain crossing the ecosystem for the supply of the containers and to the supply chain for sample transportation.

These supply chains can also cross other types of different specialized ecosystems providing interchange of value between them. In the studied case, the solution of the Balague Center was inspired by a solution in the fishery ecosystem for the transportation of fish from remote places, to find a similar solution for the preservation and safety of the human samples.

We analyze the value processes as a combination of different value systems or centers which each one contains its own inputs and outputs. In the different supply chains that cross the ecosystem there are different value centers that act as hubs, interconnecting the supply chains. In these value centers there is an interchange of inputs and outputs with other value centers. These centers are very specialized because they combine inputs from different specialized supply chains. To innovate, the Balague Center had to combine the following attributes from different specialized supply chains:

1. Materials and products produced in the supply chain of the cooling materials and devices e.g. gels, accumulators, thermometers, and temperature sensors.
2. Materials and products produced in the supply chains of the packaging materials e.g. cardboard, plastic bags, and Styrofoam boxes.
3. Services provided by accreditation agencies.
4. Services provided by the transportation supply chain e.g. shipping frequency, timetables, and delivery tracking.

Each value center combines specialized supply chains to produce added value that is specifically oriented to the ecosystem users. The Balague Center enhanced relationships with the different actors, specialists, and other stakeholders of the entire ecosystem from the bottom to the top, including the end-user or patient. The Balague Center discarded a focus on their immediate clients. Instead, they focused attention also on the clients of the clients, on the suppliers, as well as on other ecosystems. The process thus followed the criteria that innovation should be oriented toward the people who use the container and consume the final results, e.g. patients and doctors, rather than oriented towards the product and its characteristics. (Levitt, 1960)

DISCUSSION

Based on the reported findings, we can induce a new specific theoretical framework or model for innovation in a specialized supplier-based ecosystem based on:

1. A new approach regarding the composition of a specialized supplier-based ecosystem.
2. An approach of process analysis and productivity applied to innovation.
3. A different strategic approach to differentiate, plan and organize the innovation in this type of ecosystems.
4. An approach to enhance and accelerate specialization within this ecosystem
5. An approach to expand this type of ecosystem and to expand the market of a company into other ecosystems.

NETWORK OF DIFFERENT TYPES OF SUPPLY CHAINS WITHIN A SPECIALIZED SUPPLIER-BASED INNOVATION ECOSYSTEM

A specific supplier-based ecosystem could be crossed by different supply chains that belongs to different industrial and service sectors (Figure 3). Thus, different networks of supply chains with different flows of products, components, subsystems, ideas, services, financing, etc. could cross each one of the companies that compose a specific supplier-based innovation ecosystem. Thus, depending on the scope of value that a company offers, it could be crossed by different supply chains that supply specific solutions and applications for each of the supply chains e.g. applied products, applied ideas, applied specific value, and applied services.

In a specialized supplier-based ecosystem, the ecosystem specialization is attained by the combination of different specializations. In our case study, in the global ecosystem of clinical testing is obtained by the combination of the following specializations: clinical testing automation, results delivering, sample transportation and preservation, preventive medicine, etc.

Each of these different specializations is led by a specific actor of the ecosystem, since a combination of the different supply chains that crosses this actor. In our case study, the actor is a specific analyzer manufacturer, a reference lab, a specific service provider, etc. These actors are the ones that are leading that ecosystems, and thus constitute the focal firms that connects the loose networks of the ecosystem (Gawer & Cusumano, 2013).

OBJECTIVES OF THE STUDIED INNOVATION PROCESS

The aim of the of sample transportation innovation process was to find a more effective and efficient solution regarding the following attributes:

1. Efficient and sustainable transportation of samples: Cut transportation times, modify pick up times of the samples, change routes, vary scheduling, vary type of transportation, recycling, etc.
2. Better sample preservation (sample temperature, integrity, and thermic insulation): design and type of container, new materials for containers, increase capacity of containers, reduce costs, etc.
3. Better shipment tracking and sample identification: introduce bar codes, introduce temperature probes and tracking.

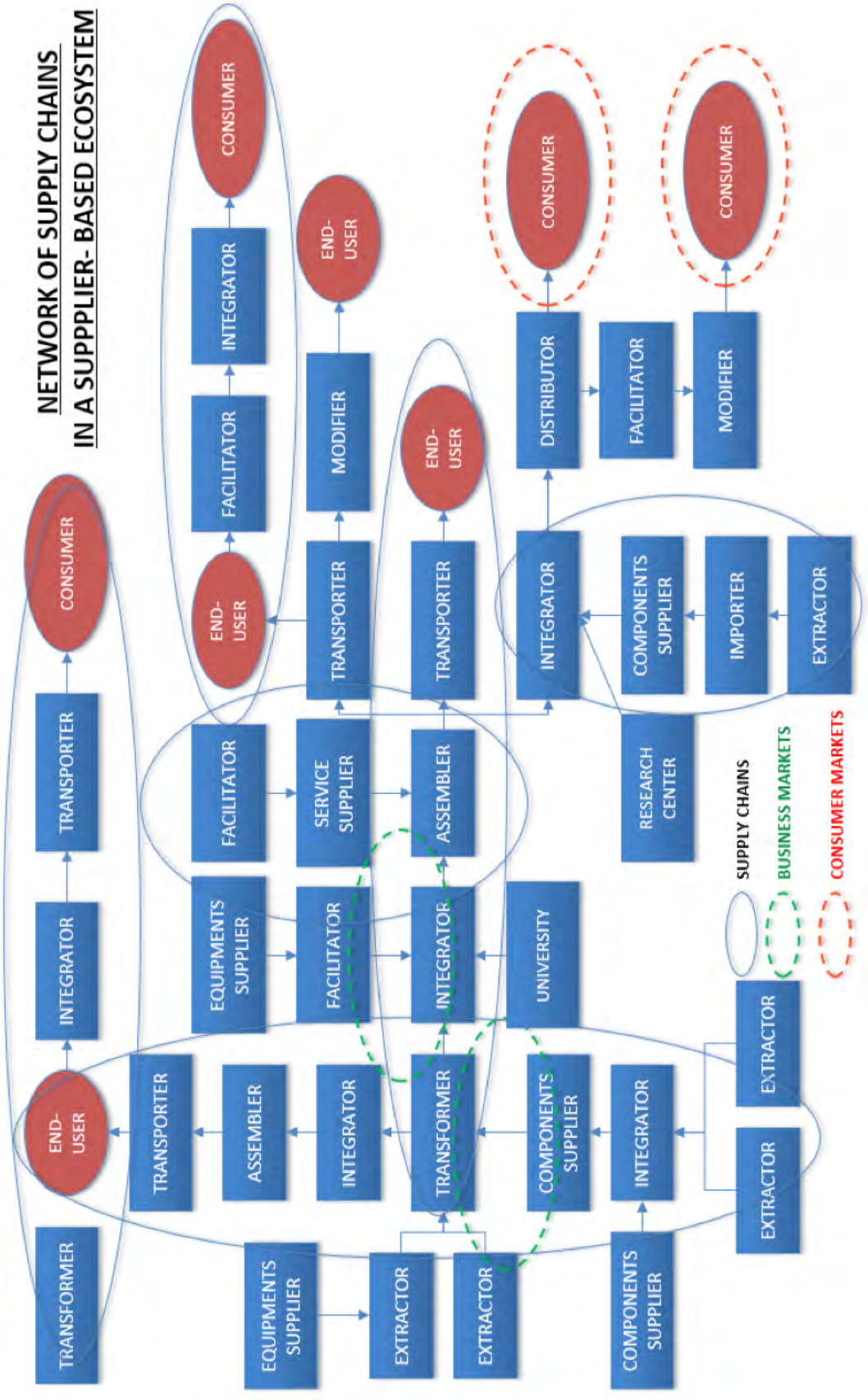

Figure 3. Network of supply chains in a supplier-based network

THE CREATION OF VALUE CENTERS: THE CORE ACTORS OF A SUPPLIER-BASED INNOVATION ECOSYSTEM

An effective and efficient specialized supplier-based innovation ecosystem tends to be composed of a network of different temporary or permanent value centers, each with a specific purpose regarding value creation (Figure 4). Each intentionally built temporary or permanent value center is constructed with a combination of different types of resources that belong to different actors or organizations that compose the e.g. integration companies, manufacturing companies, clients, end-users, consumer organizations, government institutions, distributors, service providers, transporters, universities, and research centers. A value center is based on the co-specialization concept which relies on the mutual adaptation of different firms and the different assets and resources that the firms provide. (Teece, 1986)

A value center is a system with the main goal to produce value. It is composed by a specific combination of different types of resources which create value. A value center could be considered as a black box where several types of inputs are transformed to obtain different types of outputs. In this black box, the inputs and outputs are value items. This model is based on the input-output model. (Leontief, 1986)

A value center in a supplier-based ecosystem integrates different types of resources from one or different actors within the different supply chains that cross the value center network. The actors of the value center network are the different organizations, companies, and institutions related to the different supply chains which create and define each specific value center for a specific purpose. These organizations define each specific value center in terms of its main goal, its orientation and objectives, the type of resources to be involved, specific potential applications or value creation, etc. These partner organizations must collaborate regarding all the necessary cross-functional and cross-resource inputs of these value centers.

In the case study, the Balague Center created a temporary value center encompassing different resources and talent from different firms: experts in transportation from MRW which presently leads transportation in this sector, experts in labelling and certification from companies APPLUS and TÜV, professionals from the reference lab of Balague, experts from TESTO, a leading company in the temperature tracking industry, etc. This value center became a key to accelerating innovation in sample transportation, which represents a specific specialization of the global clinical testing ecosystem.

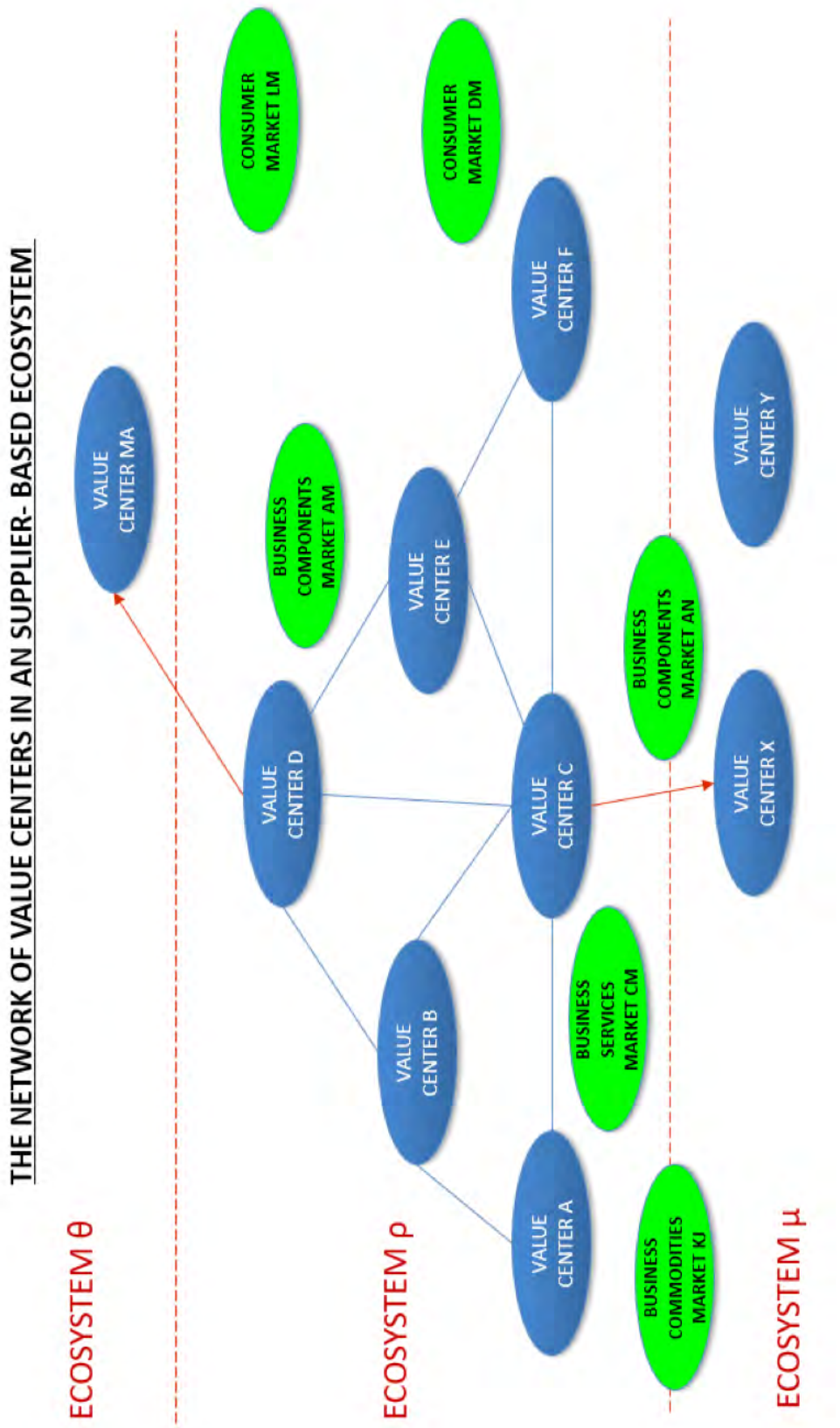

Figure 4. The network of value centers in a supplier-based ecosystem.

VALUE CREATION THROUGH ENHANCING AND CREATING FUNCTIONALITY

In terms of the multi-attribute analysis, value creation could be achieved in two ways. Firstly, the value center can improve and enhance some of the already established functionalities and attributes found in a specific application. Then, the value center transforms this functionality into more valuable functionalities or attributes that can be used in the same application or in other applications. These new functionalities and improved applications represent value for the next stakeholders and actors in the supply chain. Secondly, the value center is capable of developing new functionalities or attributes, new dimensions or client perceptions, thanks to the effective and efficient transformation of the functionality into new value.

CONCLUSIONS

Our first conclusion is that a specialized supplier-based ecosystem is crossed by different specialized supply chains that connect the different organizations inside and outside of this type of ecosystem. In a specialized supplier-based ecosystem, the ecosystem specialization is attained by the combination of different kinds of specialization. Each of these specializations is led by a specific ecosystem actor and is a combination of the different supply chains that crosses this actor.

The second conclusion is that each of these supply chains that cross the ecosystem could be a potential source of innovation for the different organizations of the ecosystem, because they are specialized in specific topics or functionality that is provided to that ecosystem. Each main topic or functionality of a supply chain that crosses an ecosystem confers and add a specific characteristic or identity to that ecosystem. For this reason, the sum of these different identities of each one of the different supply chains that crosses an ecosystem grants the specific identity of that ecosystem. Based on this, the first step to innovate in this type of ecosystem is to identify those crucial entities or functionalities.

Based on the previous conclusions, the third conclusion concerns accelerating innovation in a specialized supplier-based ecosystem. We found that instead of relying on focal firms that connect the loose networks (Gawer and Cusumano, 2013), firms develop and introduce value centers that connect the ecosystem actors. The value centers encompass specialized resources from different firms and thus accelerate innovation processes.

The single case analysis is a limitation of this study, and further analysis using multiple cases or quantitative data are necessary to validate identified relationships. The detailed mechanisms within the value centers also yield fruitful avenues for future research.

Still, the study of innovation at the Balague Center has enabled us to identify the value center as a key mechanism for ecosystem innovation and for understanding the interaction of different companies within innovation processes.

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DEVELOPING AN INNOVATIVE TEACHING-LEARNING APPROACH TO ENTER-PRISE EDUCATION

Konstantinos Biginas, Antonia Koumproglou, and Peter Wyers

ABSTRACT: *This paper focuses on the development of an innovative teaching and learning approach to enter-prise education within undergraduate and postgraduate business and management programmers. The aim of the paper is to elaborate an innovative approach to enterprise education which crea-tively builds out of a parallel focus upon individual learning process, use of research-informed en-trepreneurial small business management 'content' and utilization of live, growth-achieving small businesses as an intertwined learning and assessment vehicle.*

KEYWORDS: **innovation, teaching, learning, education, enterprise, individual, management.**

This paper focuses upon how the processes and outputs of creative entrepreneurship and small busi-ness development research feed the provision of innovative enterprise education.

We commence with a summary consideration of our case study and an action research derived in-sight into the small business owner manager learning process and activities and how that learning drives effective small business strategic management practice. This forms the backdrop for focus on our progressive application of that understanding in the teaching of undergraduate and postgraduate entrepreneurship and small business development programmers. Firstly, in our utilization of a "learning process" dimension of our findings which treats the approach to fostering our students' enterprise education from the same "learning model" perspective as we find displayed by successful growth-achieving owner managers. Secondly, through the offering of a course "content" dimension of our findings as regards the "owner manager strategic learning in action" in the form of what con-stitutes "best entrepreneurship and small business strategic management practice."

We demonstrate how our research approach utilizes Personal Construct Theory (PCT: Kelly 1955) to posit the small business owner manager as "man the scientist," the naturally ever-inquiring per-son, and in so doing show how growth-achieving owner managers become increasingly more ef-fective and resilient learners – learning their business in the face of highly uncertain external operat-ing environments as "man the good scientist."

The paper then considers the implications of our findings for the approach to small business man-agement development and for the provision of entrepreneurship and enterprise education. In this latter respect, the focus is upon student learning process, academically rigorous but practically rele-vant content and the integrating of classroom and world of business practice learning context. Inte-gral to this we propound the potential for use of our entrepreneurship and small business research findings in the development of low-level theory capable of enhancing both owner manager and en-terprise student personal learning and development.

We conclude with example of our innovative approach to undergraduate entrepreneurship and small business strategic management teaching-learning provision.

THE THEORETICAL FOUNDATIONS OF OUR RESEARCH AND TEACHING-LEARNING APPROACH

a. UTILISING PERSONAL CONSTRUCT THEORY TO DEMONSTRATE THE COMPLEXITY OF THE SMALL BUSINESS STRATEGIC LEARNING TASK

Drawing upon the work of Stacey (1990) and Kelly's Personal Construct Theory (1955), Wyer and Mason (1998) and Wyer, et al. (1999; 2000; 2002; 2003; 2010; 2017 ongoing) demonstrate the high-level complexity of the small business strategic learning process – and in so doing provide context for enhancing understanding of how small businesses undertake effective strategic man-agement practice. At the foundation of Wyer et al.'s thesis is the conceptualization of the contempo-rary external environment as not merely highly uncertain but unpredictable, often unknowable, and thus unamiable to conventional rational planning modes of management.

Utilizing Stacey's (1990) differentiation of change situations, Wyer et al. propound that small busi-nesses predominantly face open-ended change situations that are totally unknowable and unpredict-able in terms of timing and consequences. For Stacey, such open-ended change situations cannot be managed even by large well-resourced companies through rational long-term planning – rather or-ganizations must create conditions whereby they can identify and learn about unfolding open-ended change. Indeed, empirical observations reveal that important principles of rational choice are often violated in the real world. For instance, not all the alternatives or consequences of a choice are known nor are all the preferences accounted for; thus, decision behavior differs systematically from rational procedures (March, 1994).

Within a small business context, a perspective of limited resource and expertise base does on its own highlight the difficulty of the small business management task in coping with open-ended

change. However, Wyer et al.'s utilization of Personal Construct Theory demonstrates the true complexity of the small business owner manager's strategic learning and strategic management tasks in dealing with the external environment.

Wyer's application of PCT shows how we as individuals all effectively proceed through life as "man the scientist," creating our own internal models or personal theories to try to understand the world around us. When confronted with a change situation we formulate our own theory or hy-pothesis as to what appears to be happening and of how we should behave in order to deal with that situation. We then test our personal theory by putting it into action - if our behavior produces the outcome we have anticipated, our personal theory is confirmed as valid. And we will utilise that personal theory again in the future if a similar change situation arises.

However, when a change situation that an individual faces is new to him, of a nature never before experienced, his existing personal constructs will be inadequate.

In such cases, he is faced with a difficult learning task of surfacing his constructs and challenging the assumptions upon which they are based. This is a highly complex learning task. It requires him to attempt to improve his constructs by altering them to better inform his behavior and actions.

Faced with such a complex strategic learning task raises the question of just how successful growth-achieving owner managers effectively cope with the uncertain operating environment in which they strive to develop. Our case study and action research addresses this issue, key findings from which are summarized in the following sub-section.

b. WHAT DO SMALL BUSINESSES DO IN STRATEGIC MANAGEMENT PRACTICE?

Limitations of the Rational Long-term Planning Mode of Strategic Management

Although having faced numerous challenges over the years, the traditional rational long-term plan-ning mode of strategic management retains its place in many "how to" texts and online support plat-forms as prescription for small business owner managers in the effective addressing of the vagaries of their external operating environment. Its apparent simplicity is appealing.

Business organizations maintain strategic control of their external operating context using a step-approach management process:

- Conducting an external audit facilitates revelation of developmental opportunities and threats.
- Undertaking an internal audit allows for identification of organizational strengths and weak-nesses.
- Completion of a SWOT analysis facilitates synthesized consideration of these key issues and reveals alternative developmental options from which a reasoned and logical choice of future long-term organizational objectives can be made along with identification of clear strategic development paths.

- Finally, action programmers can be planned to facilitate implementation of the identified strategies and can be couched in such a way as to enable ongoing control and review activities to ensure implementation proceeds on track (see Fry and Stoner, 1995 for an indicative prescription of such a traditional model in a small business development context).

Integral to the traditionally prescribed long-term planning mode of strategic management is a ration-al thinking perspective and an underpinning step activity. An owner manager would thus be en-couraged to follow a linear process of "discovery," "choice" and "action" (using Stacey, 1991, summary couching of the rational step model).

It is assumed that strategic control of impacting external change situations can be achieved by a comprehensive collection of all information relevant to the particular change situation, analysis of which reveals alternative development opportunities and facilitates choice of the "best option." The output of such a rational step-process is a pre-determined development path articulated by quanti-fied long-term objectives and strategies depicting organizational actions to effect achievement of those objectives (Wyer, Burkinshaw, Barrett and Choong, 2003).

Certainly, it is not difficult to find counter argument regarding level of efficacy of the rational long-term planning model. For example, recent work such as that of Mousavi and Gigerenzer (2014) finds in their research focus in "fast and frugal heuristics" that in certain scenarios, intuition is a bet-ter decision-making tool than a rational and deliberate calculation of the options.

Moreover, the availability of too much information can lead to analysis paralysis, where more and more time is spent on gathering information and thinking about it, but no decisions actually get made. A senior executive at Hewlett-Packard admits that his company suffered from this spiral of analyzing things for too long to the point where data gathering led to "not making decisions, instead of us making decisions." (Zell, et. al., 2007) Information is indeed power, but it is often the case that businesses fail to act because of data overload. Scholars have pointed out the importance of "ecological rationality," which is defined as the "ability to exploit the structure of the information in natural environments." (Goldstein and Gigerenzer, 2002)

But for the small business, it is the combination of resource poverty, severe time constraints, the facing of size-related unique problem types (Gibb, 1990; Wyer 1990; Smallbone and Wyer, 2012; Wyer, Donohoe and Matthews, 2010) and management ability limitations, which highlight that such formal, tidy, rational long-term management process is likely to be of little utility.

Our Research Findings As To What Successful Small Businesses Do In Practice :

Our in-depth case study and action research reveals insight into alternative management approaches and actions within small businesses that over time are successfully coping with their unpredictable operating contexts and which begin to make explicit the propensity of successful

growth-achieving owner managers to creatively think and behave as "man the good scientist."

Indicative best practice small business "strategic management" actions include (Wyer et al, 2003; Wyer, Donohoe and Matthews, 2010):

- Identifying and learning about external change situations predominantly through interaction with key informants on the boundaries of their activities (suppliers, agents, customers, etc.).
- Focusing on a "slice" of the operating environment. Comprehensive external analysis is constrained by resource and management deficiencies, and by the unpredictable nature of the environment.
- Formal search for information does take place, but insight is often unfolded by opportunistic interface or accidental encounter with key informants
- Interface with key informants often builds into deep dialogical learning interactions whereby an owner manager "tries on for size" the personal constructs (worldviews) of the informant and uses this to challenge his/her own existing personal constructs.
- The external learning is contextualized into the small firm specific context through internal dialoguing among key internal workforce and decision-makers: a further "trying on for size" of each other's worldviews of the change event under consideration and its implications for the firm.
- The firm's existing core markets, products and processes, activities, and current understanding of the external environment is used as a mentally-held "learning focus."
- The firms have no formal long-term written plans – but a flexible "preferred end" with regard to the direction the owner managers feel their business should be moving in.
- Thus, the present markets, products and processes activities of the business, current understanding of the external environment and a "preferred end" regarding future direction are embraced in an owner manager mentally-held framework which provides focus for ongoing owner manager strategic learning.
- There is a willingness to adjust parts of the core activity and/or the "preferred end" if current learning activities so suggest: the learning process often requires "try out" or an experiment to facilitate full understanding of the change event under investigation.
- A "discovery," "choice," and "action" strategic control process is thus in place; but not as linear, sequential process based upon logical reasoning. For example, the discovery process may be embedded in experimental action.
- Intuitive judgements appear to frequently take the place of rational perspective and logical reasoning.
- In PCT terms, the owner manager is responding not to the actual stimuli of a change event he faces, but to his or her idiosyncratic interpretation of that event.

Here we are seeing little sign of tidy step process management actions and behaviors as

prescribed by the traditional rational planning model. Instead, the three strategic control elements of discovery, choice and action are undertaken in a more iterative and messy fashion – the uncertainty of the ex-ternal environment often allows for only partial initial discovery, with an owner manager proceed-ing to test out this partial insight through experiment or "try out," say with the test of a new product or a new market niche. If the try out appears to be viable the owner manager commits further re-sources and proceeds with choice to continue the activity as fully-fledged new strategic develop-ment path. Thus, experiment and try out are frequently an integral part of the small business owner manager strategic learning process – the owner manager creatively and progressively enhances his personal construct of the change situation, testing it out an early stage to build confidence in his personal construction. In short, behaving as "man the good scientist."

c. DISTINGUISHING GROWTH-ACHIEVING OWNER MANAGERS AS RESILIENT LEARNERS

To reiterate, we are, in presentation of the above small business management practice insight, demonstrating how our research approach utilizes Personal Construct Theory (PCT: Kelly 1955) to posit the small business owner manager as "man the scientist" and in so doing show how growth-achieving owner managers become increasingly more effective and resilient learners, learning their business in the face of highly uncertain external operating environments.

Integral to our work is the proposition that the Personal Construct Theory offers sound foundations in terms of an approximation of how individuals deal with their uncertain personal worlds and thus of how owner managers strive to predict and control the course of events and facilitate effective de-velopment of their firms. Effectively, in taking initial guidance from PCT, we are proceeding on the basis that an owner manager makes sense of his world by building personal common-sense theo-ries of it. He or she uses personal theories as the basis of subsequent development actions and an-ticipations. However, the highly uncertain and unpredictable nature of the external operating envi-ronment and/or low-level strategic learning capability results in many owner managers having diffi-culty with this personal theorizing – indeed, often they are "man the poor scientist."

We are showing that what distinguishes growth-achieving small business managers from those that tread water or whose businesses stagnate, or decline is an owner manager ability to address short-falls in existing personal constructs (personal theories). And to either revise them or to form new personal constructs which more adequately inform his or her behavior in dealing with change situa-tions and events with which he/she is confronted. In short, an owner manager learning ability to "simple learn" by making minor enhancements to existing personal constructs and when necessary to "complex learn" – develop new personal constructs when arising external change situations so dictate. Such resilient attitude allows the owner manager to "bounce back" quickly and "roll with the punches" and thus deal with perceived adverse situations in a positive and creative way, trans-forming challenge into opportunity. A resilient manager is one who is able to absorb any learning offered by setbacks quickly and at the minimum physical and mental cost.

Crucially, the more astute entrepreneurial owner manager is able to creatively consider the unfold-ing change situation and impart an innovative interpretation on the event – often creating an ena-bling context of impacting situations that other owner managers perceive as over-restricting constraint.

d. IMPLICATIONS OF OUR FINDINGS FOR SMALL BUSINESS MANAGE-MENT DEVELOPMENT

Extrapolating this small business-embedded PCT perspective of individual learning process to in-form approach to small business management development has seen us treat such management de-velopment as a provision of support which facilitates enhancement of owner manager ability to re-flect upon the practical utility of own existing personal constructs. This includes the ability to make minor adjustment to those constructs when needed and to formulate new personal constructs when never-before encountered external change events so require. Effective management development for the growth-seeking small business owner manager thus involves the facilitation of both "simple" and "complex" learning; assisting him or her in reflecting on the strength and usefulness of existing personal constructs as well as enhancing the ability to improve, replace or create totally new per-sonal constructs when confronted with new change situations. Such perspective views simple, sin-gle-loop learning as just as important as complex, double-loop learning. (Beck 1980; Wyer et al, 2010) Effective owner manager management development embraces both: owner manager recognition of the relevance and utility of his or her existing personal constructs is as important as the learning ability to formulate new personal constructs. Indeed, many owner managers understand their business very well and if current perspectives and management approaches have worked to date then care should be taken by "outsiders" in the questioning of owner manager current stances and existing personal constructs.

THE THEORETICAL FOUNDATIONS OF OUR RESEARCH AND TEACHING-LEARNING APPROACH

The findings of our case study research demonstrate that owner managers of successful growth-achieving small enterprises strive to control development of the business by attempting to construe unfolding events and to re-construe them when any of their attempted constructions prove inadequate. We have labored the point that it is a complex and difficult process and arguably through their ongoing learning and development activities they are progressively refining and enhancing their own common sense based personal theories – and utilizing these to guide the actions and be-haviors that drive the business forward.

The work of Wyer et al. (2003) further suggests that if this "best practice entrepreneurship and small business strategic management practice" insight and understanding can be effectively captured and conceptualized, then it has significant potential in the guiding of other growth-seeking owner managers.
To this end Wyer et al. propound the potential for the development of some form of low-level

small business management theory capable of enhancing the natural common-sense personal theorizing of small business entrepreneurs.

It is not necessary, argue Wyer et al., that any theory offered to the small business owner manager should in itself have explanatory or predictive capabilities. If we posit the owner manager as "man the scientist," indeed as "man the 'not very good' scientist," then small business management theo-ry may be of value even if it falls short of high-level predictive capability. Given the complexity of the owner manager construing and predictive processes when dealing with the external environ-ment, it is unlikely that any predictive theory can be evolved to effectively underpin such develop-ment processes.

It may be possible, however, to build up some form of lower level theory in the form of a "set of spectacles" (or "lenses") through which an owner manager can formulate different perspectives on a different event, be it strategic problem or opportunity. After all, for Kelly (1955) our personal constructs can be considered as spectacles through which we view and interpret the world. Wyer et al. in such an approach emphasize that they are treating theory not in terms of mere usefulness, but rather as a practicality. (Prange 1999) In this way, they are suggesting the potential for development of theory that leads small business management practice. And over time the outputs of Wyer et al.'s multidisciplinary case study and action research, whilst falling well short of work-up into "pure theory," have produced frames of insight which lend themselves as sets of "informing spectacles" capable of complementing, enhancing or replacing owner managers' own, often limiting personal spectacles.

Conceptualization of their case study of best small firm strategic management insight as guiding frames of reference enables other owner managers to utilise those guiding frames as "lenses" through which to view events from new dimensions and put facts and insight into more productive combinations – and be more imaginative in unfolding alternative constructions of those events. As "man the scientist" he or she will provide himself with more rigorous practical grounds for more effective anticipation and prediction with regards to the direction he can take his business and how. (Kelly, 1976; 1977)

Wyer et al.'s proposition is to pursue development of small business management theory that the owner manager can use in the form of "this is what you may find is happening" – not some high-level theory form that attempts to predict what will be. In this way, Wyer et al. are helping the own-er manager to improve his personal "common-sense" derived theories to better guide his practical actions, including providing a vehicle for making intuitive reasoning more explicit.

Thus, small business management development becomes at least in part a process of enhancing owner manager commonsense theorizing capability. Effectively, a successful owner manager ap-proximates a working picture of his business in its environment – and seeks to progressively ap-proximate and re-approximate that working picture to produce an ever more effective understanding of the business in its changing environment and integral strategicdevelopment opportunities. Small business management development has a significant role to play in helping owner managers in that learning and development process.

And the capture of understanding of "best small business strate-gic management practice" of successful small firms in "guiding lenses" theory form has high poten-tial in this respect.

OUR INNOVATIVE TEACHING-LEARNING APPROACH

Such an approach to understanding and enhancing owner manager strategic learning capability re-quires that we similarly perceive and treat our entrepreneurship and management students (as well as ourselves as lecturers) as "man the scientist" and approach university-based enterprise education in a similar manner: nurturing of student ability to simple and complex learn and utilizing under-standing of owner manager "best strategic learning process and practices" as informing frame of reference, both with regard to learning process and best entrepreneurship and small business strate-gic management practice as course content.

Our underpinning proposition is that both small business owner managers and students of enter-prise and entrepreneurship must constantly strive to be "man the good scientist" – and thereby fos-ter capability as the ever more effective and more resilient learner as key source of competitive ad-vantage in the predominantly hostile environment in which we all live and operate.

Integral to "man the good scientist" learning and development capability is a parallel ability to iden-tify, utilise and contextualize relevant existing "out-of-context" management knowledge and create own subjective "in-business-context" management knowledge. This we work to foster within our enterprise students through a blend of in-classroom teaching provision utilizing our own researched and written small business development case studies and exercises together with key areas of rele-vant existing literature-based management knowledge as well as "in-business-context" learning ve-hicles whereby students conduct a strategic development analysis of, and within, a successfully growing small firm and submit a consultancy report as assessment. Here we see the use of the world of small business practice as an intertwinement of learning and assessment processes and as key vehicle for student fostering of "man the good scientist" learning and development capability.

Example of the Learning Process in Action

- Each session within our undergraduate small business strategic management module pro-vides lecturer input and facilitation in terms of initial "learning frames of reference" which provide context and foundations of knowledge and understanding that are then enhanced by action learning activities. These are in the forms of case study and "case insight" assessment and analysis, critique of journal articles and formative understanding reinforcement and en-hancement development exercises. Most dimensions of the course are contextualized into the external operating environment of developed, developing and transitional economies (where our research has been conducted).
- The lecturer "learning frames" incorporate an opening summary of the objectives of the ses-sion and integral learning outcomes which the session facilitates.
- As an approximation, each session learning and development process involves:

» Lecturer deriving insight of students' existing perspectives and understanding as a start point (build-up of outline insight of students existing personal constructs).

» Lecturer provision of a "learning frame of reference" input – which includes highlighting the session objectives and learning outcomes and provision of foundation knowledge base of the new area of the course being delivered - this in effect is providing the stu-dents with new personal constructs of subject knowledge and insight to begin to "try on for size."

» Undertaking of "break-out" individual or group learning and development activities – in-dividual and interactive exercises which enable the students to reflect on and challenge their own existing personal constructs of the focal subject area and interact with each other and the lecturer to surface the personal constructs and perspectives of others and "try them on for size."

» Reconvening for reinforcement and enhancement activity in the form of in-class discus-sion, presentations and lecturer clarification input (again enabling the students to further challenge, adjust and enhance their existing personal constructs or to begin to develop new personal constructs).

» An end-of-session "takeaway" reinforcement and enhancement task to be completed as self- study.

» Commencement of the next day's session by lecturer provision of summary review of coverage and progress to date – and the taking of student questions to facilitate clarifica-tion and enhancement of their unfolding personal constructions.

» Maximization of small class size in ongoing provision of informal formative feedback to each individual student.

Interspersed with the above weekly classroom learning is:

Use of live small business practice: as intertwined learning and assessment process where there is a student undertaking of a live small business strategic development audit of a self-selected small business, including:

- Design and development of an innovative analytical framework to inform strategic assessment of their chosen small business.
- Undertaking of a strategic development audit (utilizing the analytical framework) to embrace assessment and analysis of:
  - o The historical development path of the business;
  - o current strategic position; and
  - o the identification of the small business potential future development path

This is undertaken by a combination of student interface on a small business site with the owner manager, observation of the business in action and analysis of internal documentation and external environment-related documentation such as economy and market reports.
The resultant strategic development analysis is submitted by the student for assessment in the

form of a consultancy report.

The PCT Foundations in Action

The teaching-learning process in its totality enables the student with the help of the lecturer, other students and practicing small business owner managers to identify constraints that have or continue to impact on adjustment to, or replacement of, deficient or inadequate own personal constructs re-garding understanding of the elements of the module and its potential for underpinning his or her effective development. Thus, key elements of the students' learning and development are addressed, including:

- Do "fixed student attitudes" exist?
- Do student existing personal constructs overly selectively focus the student (for example, by filtering-out key relevant issues)?
- Do "frozen meanings" exist in the mind of the student?
- What are the reasons for this:
  - » Student cannot understand the potential of the knowledge or insight under study due to his continuing personal construction of how he feels businesses should proceed or be-have.
  - » Student feels discomfort – dislikes being pushed beyond his existing comfort zone.
  - » Student fears losing control or independence regarding an issue or event (e.g.: through sharing of information).
  - » Student is unwilling to be sufficiently "open" and sharing to challenge his existing personal constructs.
  - » Student feels the need for a great deal of information before being prepared to move forward. Student is continuing to struggle to learn (has not "learned how to learn" effectively or rigorously and thus to effectively adjust and extend his existing personal constructs) – this can include a psychological or real fear of issues with which the student is con-fronted project.
  - » Student is suspicious of the views of others.
  - » Student would undergo "loss of face" if he was seen to be changing his views.

Examples of the Creative Dimensions of the Teaching Approach

Finally, we highlight the key dimensions of creativity and innovation embedded in the design, development and delivery of our small business strategic management provision:

- Unique knowledge base derived from lecturers' own action and case study research: not least of which is found in the grounding of the mainstream strategic management knowledge base in understanding of the distinctiveness of small business.
- And thus: unique knowledge and management abilities based upon "best small business strategic management practice" (offered to the student as 'guiding lenses' through which to view and enhance his or her existing personal constructs and associate understanding and abilities).

- Development of ability to utilise alternative strategic management theories as "guiding lenses" through which to view and consider an organisation in its environment – effectively, "trying on the personal constructs of others for size."
- And thus an integral ability to identify "grains of truth" in each theory – and use them as "complementary guiding lenses."
- Fostering of student ability to create their own subjective in-business context management knowledge (rather than solely rely upon textbook-based existing objective management knowledge).
- Focus not merely upon relevant course content – but also upon individual learning process: and thus on the nurturing of the ever more effective and ever more resilient student learner.
- The embedding of learning and assessment processes in the world of small business practice (intertwinement of learning and assessment processes).
- Building awareness of the transient and provisional nature of knowledge and how new knowledge is created, advanced and renewed – in personal construct theory terms, learning and development as successive approximation and re-approximation of the "reality" one encounters.

Integral to the above is the nurturing of student emotional competencies as a key facilitator of per-sonal learning – the refining of the ability to recognize, read and act upon own emotions and the emotions of others as well as the ability to empathize with others, to listen carefully, to recognise and get inside their personal constructs, see their standpoints and acknowledge underlying assump-tions upon which they are construing an issue. Then to use this understanding to reflect upon and challenge own personal constructs so as to be able to effectively "try on the constructs of the other person for size" to "see if there is anything in it for me."

And thus, the fostering of student ability to undertake "learning conversations" (Harri-Augstein and Webb, 1995; Wyer et al., 2010) to facilitate effective reflection on, and the challenging of, existing personal constructs and the developing of new constructs: we facilitate learning conversations with lecturer; learning conversations with co-students; learning conversations with practicing owner managers. And ultimately, learning conversations with student self, whereby the student progresses to take on full responsibility for ongoing self-learning and self- development.

In short, a nurturing of student as "man the good scientist" and "enterprising person" – thinking, acting and behaving like an entrepreneur. The ever more effective and resilient learner prepared for future career, be it as an entrepreneur or creative employee, and for lifelong learning across all as-pects of life.

CONCLUSION

We conclude by highlighting the utility of this own research-informed teaching-learning approach in undergraduate, postgraduate and small business management development contexts and of the potential for rich "partnership working" between academia and the world of small business practice. Both in the understanding and building the best entrepreneurship and small business management practice and in the learning and development processes of students and growth-seeking owner managers.

In many respects, small business management practice currently leads management theory. Howev-er, our utilization of personal construct theory as foundation to our "partnership working" with growth achieving small businesses is beginning to reveal richness of insight which when applied in a personal construct theory-based learning frame is starting to facilitate the development of low lev-el theory and innovative conceptualization capable of leading small business management practice. We acknowledge that we are not psychologists and that our work has progressed from the stand-point of a "layman" interpretation of Personal Construct Theory – but maybe Kelly would have ap-proved of that since, after all, we are personally theorizing about PCT and thus merely adopting our version of it. Our next step is to begin working closely with a PCT specialist to help us re-approximate our approaches in both our research and in our teaching.

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TIME IN ECONOMICS – A DISCUSSION ON ECONOMIC MODELS INVOLVING TIME AND ITS SIGNIFICANCE IN TODAY'S DYNAMIC MARKETS

Joanne Jankowski

ABSTRACT: *As many researchers have concluded throughout history, time is a key factor directly or indirectly affecting all economic exchanges. All changes made are possible only over a certain period of time. In this article the author attempts to present different economic models and understand the importance of considering time as a key factor in finding strategies to decision making in today's complex, globalised markets. Time as one of the most valuable commodities will be considered, amongst others, through the example of Becker's theory. Also static models will be analysed, as well as timing choices, where time to act is the choice to be made. As change is inevitable and directly impacts economic issues, one should attempt to understand the processes of adaptation to change in the context of time, in order to find the right strategies of reaction. After all 'time is money'.*

KEYWORDS: **time, economics, real time marketing, discounting.**

In the words of Aristotle: Time is the most unknown of all unknown things. The aspect of time has long been a baffling issue in the field of economics, mathematics, and physics alike. There has been much discussion on various opposing theories and models of time, which have brought up discussions both in the areas of micro and macroeconomics, approaching the subject matter from various perspectives. This paper attempts to provide a synthesized analysis of the aforementioned approaches and look into the most current findings on the topic from an interdisciplinary perspective.

According to Douglas C. North, Time as it relates to economic and societal change, is the dimension, in which the learning process of human beings shapes the way institutions evolve. He claims that beliefs, which societies hold that impact individual choices are a result of long term learning processes, which build up over time and are passed from generation to

generation through culture (Douglas, 1994). North, along with fellow scholars, researched processes of economic change attempting to answer, amongst others, such questions as: what are the sources of institutional change? How can we explain the diversity of economic performance through time? And can a dynamic theory of change be constructed? In his article titled: Economic Performance Through Time: The Limits to Knowledge (1994), he concludes that institutional change mirrors the choices of those who can alter rules in order to achieve competitive advantage.

He states that it is key to acquire knowledge of individuals' preferences because it is the mélange of preferences and beliefs, which impact choices. Game theory discusses the strategic interaction of human beings, but he mentions its limitations due to lack of "a description of the players' reasoning processes, and capacities as well as a specification of their knowledge of the game situation" (Bicchieri, 1993, p 127). It would be crucial to understand learning processes consisting of, in his words: cognitive activities of construction and modification of mental models and behavioral patterns as well as further analyze how and why they develop theories in the face of pure uncertainty, what makes those theories spread amongst a population or die out, and why human beings believe in them and act upon them (Douglas, 1994).

In his article, North, further discusses decisions made by societies in the face of uncertainty throughout history, and how from an economic point of view, an increase of material wellbeing had been achieved. The author claims that many historical success stories have been a result of unanticipated decisions and outcomes. Many decisions have, at the same time, caused much disappointment and led to human tragedies such as wars, famine, and death, to name a few. Through his analysis of various political and economic ideologies, as well as religious dogmas he concludes that the limitations, we as humans have, to solve complex problems may be the explanation as to why economic performance in history is so diverse and unpredictable. Furthermore, he claims that in order for us to predict the future we would have to be able to anticipate what we will learn in the future as well. At this point in time we may use the past as a predictor of the future, but with what success rate and level of certainty, remains to be the question (Douglas, 1994).

Nicholas Georgescu-Roegen, Romanian economist and mathematician in his book titled: The Entropy Law and the Economic Process (1978) stated that time is irreversible and it goes on, never going back, as opposed to space where we can move in various, multiple directions. Both Georgescu and John Hicks, fellow British economist, searched the answer to the question of how to build economic models where time matters because of its irreversibility. They both recognized physicist Arthur Eddington's notion of 'time's arrow' in economic models, whereby time always moves forward (Boland, 1978).

Furthermore, writer and philosopher Robert Prisig claims that, as opposed to the second law of thermodynamics, according to which all things 'run down', life actually 'runs up' converting low energy elements into high-energy chemicals. As opposed to the view that we are moving towards perfection, we should recognize that, as Prisig puts it: One could show that the degree to which an organism disobeys the law is a measure of its degree of evolution, therefore suggesting that we need to choose between a goal oriented evolution and one that expands levels of freedom (Boland, 1978).

Hicks, poses the question whether we can build models that explain the dynamics of the economy. In economics we deal with a variety of models, which have differing considerations of time. In static ones for example, all economic variables would refer to the same point in time. Time, in these models, is not considered to be factor. As opposed to this, in dynamic models there is a clear reference of variables to specific points in time. Moreover, they incorporate change and how an equilibrium or disequilibrium may be achieved and not only measure a given equilibrium's conditions. Thus static economics consider a state of perfection as opposed to one of dynamic change and are limited and less realistic by comparison.

Gary Becker and Bohm-Bawerk further treat time as a commodity, which is another form of the inclusion of time in economics. Becker, through his allocation in time research, laid the foundation for further studies of household production and time there utilized. He claimed that increasing time spent on household activities increases costs of lost opportunities (Pierre-AndrÃ© & Lewbel, 2015). According to Bohm-Bawerick's period of production model, the necessary working capital is considered to be the cost. This is increased within waiting time allocated to when a product is finished.

The aforementioned theories gave way to more modern ones such as time discounting. Intertemporal choices can be defined as: decisions involving tradeoffs among costs and benefits occurring at different times (al, 2002). Paul Samuelson introduced the Discounted Utility Model (DU) in 1937 in his article titled: A Note on Measurement of Utility. He claims that a majority of choices made by individuals and organizations are intertemporal. The closer to the time of making the decision the more appealing an identical positive outcome tends to be (Dilip, 2005).

Studies show that the value of both future costs and benefits are smaller than their value in the present. We are, for example, willing to sacrifice future higher operational or utility costs of an item for its lower price in the present. We can, however cite numerous studies that have challenged this model. Dilip Soman et.al introduced the example of a study by Kirby and Herrnstein (1995) who offered participants a choice between a smaller reward provided at an earlier time and one larger but provided later. Subjects showed a preference for the small-earlier reward when it had been offered straight away. Afterwards they added a delay to both of the outcomes, maintaining between them the temporal interval. The subjects majorly switched to the larger-later outcomes option, even for very small amounts of added delay (Dilip, 2005).

As we can see, intertemporal choice behavior can be explained by various accounts, amongst others the perception of time and how its perception in the present can impact discounting behavior for delayed outcomes. Researchers have also proposed strategies, which could reduce the negative effects of the perception of time, such as fun and filling in time, which makes the wait more bearable and makes it seem as though time is passing quicker (Katz, et al., 1991). Furthermore, Dilip Soman et. al suggest that cultural factors, perceptions of progress, and mental engagement can also have an impact on perceived time. Economists have long concluded that time preferences vary depending on cultural representations, as they influence the way people, and through this, institutional settings behave. Moreover, economists believe

that time preferences depend on socio-economic status as well as level of development.

Recent studies in the area of behavioral economics focus the discussion on how intertemporal choices are influenced by happiness and emotions. A study conducted by John Ifcher and Homa Zarghamee was discussed in the American Economic Review in 2011 in their article titled: Happiness and Time Preference: The Effect of Positive Affect in a Random-Assignment Experiment. The researches had examined the effect of positive affect on time preference in a laboratory experiment conducted at Santa Clara University on a group of 69 undergraduate English students. The researchers described the procedure as follows:

First, subjects read and signed an informed-consent form. Second, subjects were instructed (i) that they would be answering 30 time-preference questions; (ii) that their payment would be based on one of these questions; (iii) that the payment question would be determined randomly at the end of the session; (iv) that a mechanism would be used to provide an incentive for truthful responses; and (v) that they would receive certificates of guarantee for their payments that could be redeemed for cash off-site after the experiment. Third, the mood-inducement procedure was administered. Fourth, subjects answered the 30 time-preference questions. Fifth, subjects answered questions regarding their subjective well-being and mood. Sixth, payments were determined. Seventh, subjects answered questions regarding their demographic and psychological characteristics. Finally, subjects received their certificates of guarantee, which included detailed redemption instructions. In total, the experiment lasted approximately 45 minutes, and subjects received an average of $24 for their participation (John & Zarghamee, 2011).

The results showed that mild positive affect greatly increases the present value of a future payment. This increase is dependent on the value of this payment. Magnitude of the increase depends on the value of the future payment and the specification, which ranges from 4-30 percent of the payment. Research suggests that there are two potential mechanisms explaining why mild positive affect may reduce time preference.
Firstly, mild positive affect increases focus and attention, which in turn increases cognitive flexibility. Subjects become more open to information and have a higher ability of its integration. Therefore they may consider a larger amount of future net benefits. Mild positive affect has also been known to support, what in psychology is known as the 'dopamine hypothesis'. It states that: the release of dopamine (the neurotransmitter linked to rewards) in areas of the brain responsible for cognitive flexibility is the mediating factor in the effect of positive affect on behavior (Gregory, et al., 1999). Secondly, mild positive affect is known to replenish will power. Thus subjects after being induced would have had their will power replenished and as a result been more patient to await future payment (Alice, 2007).

Through the analysis and the discussion of chosen models, we can clearly see that time plays a huge role both in economics and business on a larger, strategic scale as well as in the everyday quest of organizations to achieve competitive advantage. Companies aim to achieve this through responding to stakeholders' needs in any given moment in time. As Elisa Rancati (2005) puts it, companies today are 'fighting the battle of time'. Markets impose tight timeframes of product delivery and time becomes an element of change of product

models, their quality and price, all dictated by market leaders. This moves products from standardization to differentiation. This also causes companies to adapt quickly, and time becomes the benchmark on which an organization's strategic behavior is dependent. Many companies introduce just-in-time and other such processes to meet the needs of dynamic markets, which quickly react to companies' actions (Elisa, 2005).

Time, in Rancati's words, is becoming a central element of the reorganization of all company processes, and of the review of the logics and methods that manage the relationship between company and market. Furthermore, as gaining a competitive advantage is time sensitive companies need to speed up their processes, which can be achieved by waste elimination, mass layoffs, and introduction of flexible production machinery (Elisa, 2005).

Companies are continuously creating strategies for time compression. In 1913, Henry Ford introduced the assembly line, which improved cycle time by 50% through minimizing the amount of employees required for production as well as increasing production and through this, cutting annual costs by two thirds by the 1920s. These processes allowed organizations to achieve economies of scale (Womack, et al., 1990).

Today, customers' demands have changed to high quality expectations along with uniqueness and supply on demand (E. & J.N.D, 1993). Total Cycle Time (TCT) systems as proposed by Jones and Towill can help achieve these goals through improved information and material flow within supply chains. They further discuss the importance of implementing time strategies to both production and information channels. Companies, through their supply chains, must consider providing chosen, unique products at highly attractive prices, on demand. This can only be achieved through a holistic approach combining both production and information channels. The reduction of cycle time of material flow, however significant, does not alone allow great increase of control over supply chain management. Speedy provision of accurate order information is key to the success of the process. The redesign of order usage information strategies is therefore recommended (Rachel & Towill, 1998).

Companies such as Wal-Mart through the implementation of TCT have reduced investment in stocks whilst sustaining high levels of customer service. Product choice had been enlarged with no additional investment in inventory, which provides customers with a larger variety of products at lower prices, which in turn are key elements to achieving success in retail (Rachel & Towill, 1998).

REAL TIME MARKETING

The final discipline, which the author would like to explore, that has been under significant time pressure in recent years, is marketing. In today's highly digitalized world consumers' expectations have drastically changed. Individuals have become highly impatient and are expecting instant gratification. Thus we have recently been observing a vast development of real time marketing, which directly correlates to the increased speed and time pressure within supply chains, as per discussion above.

Real time marketing can be defined as a process whereby reported data is used instantaneously in order for specialists to make decisions based on what is happening at a given moment. The focus is on immediate feedback from customers on most current trends, and their expectations. Rather than creating long term marketing plans, companies are connecting customers with what they need in the moment.

A famous example of real time marketing is Oreo. During the 2013 Super Bowl power outage, the company tweeted an image of its cookie with the comment: You can still dunk in the dark. Oreo sought out the opportunity of reaching a large audience through social media and the use of a real world event. The post started a conversation, which was then re-tweeted over 15.000 times (Sam, 2016).

Brand and analytics marketers need to work more closely than ever before to meet the needs of their customers. Creative minds must connect with those who can supply data to decide the best ways to engage target audiences. Mobile devices have become a channel through which an organization can start a conversation with a client in order to meet his or her needs as best as possible and in real time. Marketing is no longer a one-way broadcast of content, it is about observing behaviors and ensuring a timely discussion (Sam, 2016). The author further mentions the importance of gathering data from all digital platforms to create customer profiles, which then ought to be closely monitored to identify the changing preferences of these individuals and to deliver personalized content in real time. All this should be done discretely so that customers feel as though it is almost a coincidence that they are searching for something and various individually tailored options and offers happen to present themselves. The challenge for the future is to find the best way to build these relationships without overwhelming customers and creating yet more marketing information that consumers will ignore.

CONCLUSION

We can conclude that various disciplines are highly impacted by the aspect of time. The topic has been the focus of scientists throughout history and continues to strongly influence today's businesses. Nowadays, more than ever companies are feeling the pressure of time in all areas of operation, from marketing to supply chain management and sales. Decisions need to be made in the context of constant change, which makes achieving a competitive advantage, more challenging than ever. Organisations are expected to adapt to vastly changing customer preferences instantaneously, by identifying their needs in real time and delivering high quality products at a faster pace than ever before.

Players who manage create best strategies for fast paced decision-making, through data acquisition and analysis and will best accommodate the needs of their target audiences will become the market leaders of the future. Because after all *time is money.*

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FINANCIAL BOOTSTRAPPING TECHNIQUES: A SYSTEMATIC REVIEW OF THE LITERATURE

Krisztina Horváth

ABSTRACT: *Small and medium-sized enterprises (SMEs) constitute the overwhelming majority of the population of firms in any economy, and play a decisive economic role by providing goods and services to larger companies and to end consumers. Nevertheless, SMEs are generally faced with severe resource constraints that limit their activity and growth potential. In this sense, bootstrap finance—i.e., the set of cash management techniques—is often invoked as a solution to SMEs' financial constraints. While financial bootstrapping techniques may be a lifebelt for small firms in the short term, empirical evidence shows inconclusive results on the factors that enable their use and whether they contribute to sustained business performance in the long run. This study seeks to provide an analytical overview of the theoretical arguments and scholarly evidence on bootstrap finance developed over the last 25 years. By providing an exhaustive analysis of existing research, the conclusions of this paper provide useful implications for entrepreneurs and policy makers.*

KEYWORDS: **SMEs, financial bootstrapping, business performance resource constraints.**

Financial bootstrapping—that is, the set of cash management techniques or practices that affect the way businesses manage their assets as well as their relationship with stakeholders—has gained significant scholarly and media attention during the last 25 years. Although bootstrapping has been used by market agents (i.e., governments, businesses and families) since ancient times (e.g., via barter), the main reason for its increased media attention is the rise of the "startup era" and, more specifically, the matching between the objectives of entrepreneurial firms and these techniques, thus making financial bootstrapping a quite desirable strategy to follow. However, "media fashion" and entrepreneurial stories should be handled with a healthy level of skepticism and validated via the scientific exploration of the phenomenon, mostly because media transmit only a fraction of information about the types and the use of financial bootstrapping.

It is plausible to say that almost every—if not every—business bootstraps. However, against its

popularity and besides a valuable work by Miao et al. (2017), the comprehensive and systematic review of how bootstrapping works has been sidelined in the literature. Therefore, this study aims to present the collected scientific knowledge on financial bootstrapping—also called as bootstrap finance—accumulated over 25 years and introduces the most important milestones in the literature. Besides the analysis of academic publications; this work seeks to combine the academic review with a healthy portion of practical examples.

Since the term was first coined and developed in Bhide's (1992) famous article in Harvard Business Review, bootstrap finance techniques have increasingly drawn scholarly attention (see, e.g., Löfqvist, 2017; Winborg, 2015). In the analysis presented in the paper, I first introduce some definitions of bootstrapping found in the literature. After this, I argue why small businesses and not startups turn more to bootstrapping techniques. Following this argument, I present the most well-known and useful typologies of bootstrapping techniques. The role of social networks in mediating bootstrapping techniques is considered at utmost importance, together with the relevance of the entrepreneur's human capital. Finally, and building on existing studies, I evaluate the factors that determine the positive or negative influence of bootstrapping techniques on business performance. By providing an exhaustive analysis of existing research, the conclusions of this paper provide useful implications for both entrepreneurs and policy makers.

THEORETICAL EVOLUTION OF BOOTSTRAP FINANCE

WHAT IS BOOTSTRAP FINANCE?

How to *bootstrap* your company, your startup, or even your innovation are headlines one could come across more and more often over the last decade. Therefore, a first question arises logically: What does bootstrapping or bootstrap finance mean?

The term first appeared in the famous work by Bhide (1992) in Harvard Business Review, and its definition comes from the analogy of the English saying *Pull yourself up by your own bootstraps* that suggests improving your own (your business') situation by your own efforts.

Thus, Bhide (1992:110) first saw the relevance of bootstrapping in "*…launching ventures with modest personal funds*" that enables starting a business with limited financial resources. Later, in line with Freear et al. (1995a, b), Winborg and Landström (2001) extended the applicability to small businesses in general. Based on their contribution, the new bootstrapping definition covered "*…the use of methods for meeting the need for resources without relying on long-term external finance from debt holders and/or new owners*" (Winborg & Landström, 2001:235-236). This definition has been decisive for other scientific works, for example, in Ebben and Johnson (2006) and Horváth (2016). Winborg (2000:18) also defined bootstrapping as "*…methods for securing the use of resources at relatively low or no cost*", a definition that he used in his more recent work (Winborg, 2009:72). Grichnik et al. (2014:310) borrowed and refined this definition. These authors consider bootstrapping "*…as an alternative resource management approach directed at avoiding market-based resource transactions*". A recent study by Miao et al. (2017:1) viewed bootstrapping as "*…the pursuit of creative ways of acquiring resources in non-traditional ways*". Although only some of the applied definitions are introduced, *key motivations stand out clearly*

that concern perceived risk, ability and effort of the bootstrapping entrepreneur. Perceived risk may be high if the business lacks the capacity to access external capital; or is undercapitalized (low capital). Low perceived ability may be the consequence of little financial expertise. High perceived effort may occur when a business spends significant time on a unsuccessful capital acquisition (Carter et al., 2005). After a short familiarization with the method, three main questions will guide our discovery of this financing form in this study:

What businesses turn to bootstrapping techniques?
What types of bootstrapping techniques exist?
How can businesses access bootstrap finance?

In the following subsections I address these questions with the attempt to present a compelling answer from the scientific literature.

What businesses turn to bootstrapping techniques?
As Carter and Van Auken (2005) state, bootstrap finance is a financing form, presumably the most widely used one by businesses. It seems logical to argue that the intensity with which firms use these techniques varies across firms. More concretely, two important business characteristics may explain the intensity of use: the size—often coupled with age—and the growth ambitions. As for business size, Bhide (1992) suggests that business owners with modest initial capital are likely to turn to the "art of startups". By bootstrapping the entrepreneur mobilizes its entrepreneurial "brainpower" which would not have otherwise developed if external funding is not easily accessible. But, this does not necessarily mean that larger firms do not use bootstrapping at all. Empirical evidence shows that even businesses up to 500 employees apply bootstrapping techniques (Miao et al., 2017); however, extensive use of bootstrap finance is more prevalent among small businesses with less than 50 employees (Carter & Van Auken, 2005; Neely & Van Auken, 2012; Winborg, 2009). [1]

Various reasons support the notion that small businesses endorse and use financial bootstrapping more intensely. First, it is common knowledge that *many small and young businesses suffer from severe resource constraints*. This is partially due to their negative discrimination by financial institutions which is a reaction to information asymmetries—that is, one party having superior information as a result of the principal-agent relationship—and their generally low efficiency in risk management (Berger & Udell, 1998; Tirole, 2006). Second, potential novelty carries a risk factor that manifests in the "*asymmetry of expectations*" (Bhide, 2000:39). For instance, while startup owners can express confidence (overconfidence) about the success of their business idea, investors may not see potential in it. Besides, the business may *not even be eligible for external financing* (Harrison et al., 2004). Without question, these situations leave no choice but to bootstrap your business, and indeed empirical findings confirm that the main motives for bootstrapping in small firms

[1] The definition of SMEs differs by countries, for instance, in the USA the upper limit is 500 employees, while in the European Union the maximum number of employees is 250 (Organization for Economic Co-operation and Development [OECD], 2005). The author of this paper believes that firms with hundreds of employees do not share the characteristics of a resource-constrained small business.

are reducing costs, reducingrisks and the lack of capital (e.g., Carter & Van Auken, 2005; Winborg, 2009). However, it is also possible that small business owners *refuse to give up complete managerial and ownership control* over their business (Winborg & Landström, 2001) *or to take the higher costs* of external financing. *Lack of information* may play a role as well.

Looking at the media, another question arising is whether small businesses or startups—i.e., a modern way to call fast-growth businesses—turn more to bootstrapping techniques. To answer this question, first, we have to differentiate the two concepts. An unwritten rule in the business community is that startups have much higher growth ambitions. For instance, Todd Belveal, the CEO and founder of a connected laundry startup believes that the main difference between newly created small businesses—the original meaning of startup—and startups just like his company lies in the number of customers targeted by the firm (Belveal, 2018). Using Belveal's (2018) words, the decision can be made in a relatively intuitive way: "*Ask yourself right now how many customers you're going to have in five years. If it's 500, then you're a small to medium-sized business"... "If you're a startup…You're not looking for 1,000 customers, you're building for 100,000".* During the rest of the paper, we are using this simple differentiation between small businesses and startups.

In the early days of the bootstrapping literature, Bhide (1992) analyzed the cases of startup companies with the previously mentioned high growth ambitions. Although he acknowledged that investment from venture capitalists or business angels may help in realizing these ambitions, he believed that it may deprive the entrepreneur of both a valuable learning process—try-it, fix-it approach— and their entrepreneurial freedom. He stated that "*…the biggest challenge is not raising money but having the wits and hustle to do without it*" (Bhide, 1992:110). Actually, in most cases, bootstrapping is the only chance for a startup business to start its operations and the measure of how efficiently it uses the resources at its disposal may be crucial to access future funding from either traditional financiers such as banks or from venture capitalists. Above all, empirical findings by Patel et al. (2011) warn that bootstrapping techniques might be exploited to only a certain extent which may result in limited, decreasing growth after a certain period of time. Because of slower achievable growth, we agree with Belveal (2018) who states that bootstrapping cannot constitute a dominant financing strategy in startup businesses.

What types of bootstrapping techniques exist?

Because of the heterogeneous environments and situations in which businesses operate, bootstrap financing techniques may take several and constantly evolving forms as well. Although some of these may be customized solutions, similar patterns that brought about different classifications have been identified in the literature.

A first attempt by Freear et al. (1995a, b)—followed by Harrison et al. (2004)—categorized bootstrapping techniques based on whether they contributed to business development or product development. For instance, they considered leasing instead of purchasing assets and outsourcing key parts of the business as business developing techniques, while in their view, customer funded research and development (R&D) and development of products in spare time facilitates product development. Winborg and Landström (2001) introduced another stream of grouping that has become rooted in the subsequent studies (see Ebben & Johnson, 2006; Grichnik et al., 2014). This approach classified bootstrapping techniques into six groups, namely:

1. *owner financing methods*, such as loan from relatives/friends;
2. *minimization of accounts receivable*, such as use of interest on overdue payments;
3. *joint utilization*, such as sharing equipments with others;
4. *delaying payments*, such as delaying payment to suppliers;
5. *minimization of capital invested in stocks*, such as offering discounts to customers if paying in cash; and
6. *subsidy finance*, such as government subsidies.

This classification turned out to be not only practical and informative but techniques in different groups were found to be similarly used as well.

While Freear et al. (1995a, b) followed a more goal-oriented categorization, Winborg and Landström (2001) created a tool-based classification of bootstrapping techniques. Despite the usefulness of both, an important—if not the most important—aspect of the use of bootstrapping is the source that enables access to these occasionally lifebelt solutions. At least two recent contributions justify the relevance of this aspect. Horváth (2016) proposed that bootstrapping methods can be linked to a main stakeholder who enables their use. Based on this assumption, she identified seven groups of bootstrapping techniques: *1) internal business optimization, 2) customers, 3) external financiers, 4) owners, 5) business partners, 6) employees, and 7) suppliers.* Even more important, she found that some techniques are mutually beneficial to both the focal business and the concerned stakeholder (e.g., buying buy—called as symbiotic techniques—while other, parasitic techniques are unequivocally harmful to the stakeholder (e.g., delayed payment to the supplier). This calls attention about the ethical nature of techniques, which may be specific to the certain business situation. The relevance of social capital is considered as one of the most crucial sources of bootstrapping in Miao et al. (2017) as well. Therefore, in the next subsection we are going to have a look at how social capital may facilitate the access to bootstrapping methods.

How can businesses access bootstrap finance?

Before to use bootstrap finance one should know *where* to look for it and how to use it to gain the most advantage from the opportunity. The question of where has already been addressed in the previous section but *the way* entrepreneurs can (should) exploit these sources needs to be discussed. In the followings, two aspects will be detailed with utmost importance.

The role of stakeholders and therefore, networking is an essential component to access bootstrapping techniques. The question is: How should businesses manage their social networks? A related contribution by Carter et al. (2003) suggests the link between network tie strength and the likelihood of applying specific bootstrapping techniques. More specifically, they proposed three levels of network ties between stakeholders and the entrepreneur who relies on them to get general business advice. The authors associated strong ties with the family, multiple strong ties with mentors and weak ties with foundational advisors and professionalcounselors. Four types of bootstrapping techniques were considered: retained earnings, personal sources, leasing, and credit. In their analysis they found that if a business

relies on foundational advisors or professional counselors for advice, it is less likely that it turns to personal resources. Also, if the business relies on mentors it is less likely that it uses leasing. Another networking indicator, network diversity—defined as the number of stakeholders contacted by the entrepreneur for business advice—had a positive relationship with using personal resources. Note that the interpretation of these findings is not clear. For instance, the first finding may imply that professional parties can advise better, but adopting less risky financial forms to these businesses may be a last resort when they run out of internal resources. However, despite the missing causality link, the proposed networking variables are a relevant value added of the study.

Jones and Jayawarna (2010) followed the path initiated by Carter et al. (2003). In their work, they measured not just the existence but the intensity of interactions with different stakeholders (1= they never interacted, 5= they interacted very often). Based on a factor analysis, they differentiated three types of social networks: strong ties (e.g., friends, family), brokerage (e.g., professional and other business advisors), and weak ties (e.g., customers, suppliers). They found that 1) the use of brokerage and weak ties are positively related to payment-related methods; 2) strong ties are positively, while brokerage is negatively related to owner-related methods; and 3) strong ties, brokerage, and weak ties are all positively related to joint-utilization methods.

Based on this tradition, Grichnik et al. (2014) used different criteria to define the strength of the network tie, and analyzed the case of those entrepreneurs who were just about to start their business (nascent entrepreneurs). First, they considered whether the entrepreneur knew entrepreneurs among the different groups of stakeholders in person (role models). In addition, entrepreneurs had to indicate whether a certain group supported them. They revealed that weak ties (i.e., mostly business relationships) positively affect the presence of bootstrapping within the business, and except for internal self-financing, the use of specific groups of bootstrapping (e.g., customer-related techniques, joint utilization) as well. Strong ties were negatively and significantly related but only to joint utilization techniques.

Although one can have an extensive social network even with entrepreneurial experience, this is neither enough to run a business successfully nor—in our case—to use bootstrapping techniques in an efficient way. The entrepreneur's human capital can make a huge difference that several studies support in the field of bootstrapping research. For example, Carter et al. (2003) analyzed the effect of startup/ ownership experience on how the entrepreneur uses specific bootstrapping techniques. They found that if the entrepreneur does not have startup or ownership experience it is more likely that it turns to credit and retained earnings. This may be explained by the plausible use of techniques in the earliest years of the business or by liquidity problems. Neeley and Van Auken (2010) found a differentiating effect of education level that they explained with the gap between the explorations of solutions and problems among entrepreneurs with different educational background.

Politis et al. (2011) analyzed the role of entrepreneurship programs. They surveyed the level of preference for bootstrapping—that is, whether entrepreneurs valued access to resources independent from their ownership and using others' resources at no cost—among new entrepreneurs who participated in a university entrepreneurship/incubation program (student entrepreneurs) and new entrepreneurs who did not (non-student entrepreneurs). They found that student entrepreneurs are more open to use bootstrapping than non-student entrepreneurs and

that bootstrapping orientation is stronger if the entrepreneur has startup experience. Grichnik et al. (2014) provided an even more detailed analysis by distinguishing the effect of different types of human capital. The findings show that human capital is a complex feature that can exert a diverse impact on bootstrapping use. For instance, and controlling for education level, business training level, entrepreneurial experience and managerial experience, the authors found that entrepreneurial experience does not make any difference in the use of bootstrap finance. Education level is positively related to bootstrapping use in general and to the use of internal self-financing. Two forms of human capital seem to have the most extensive impact, namely business training and managerial experience. More concretely, the higher the level of these factors, the more likely it is that the business uses bootstrapping techniques, or more specifically, customer-related or joint utilization techniques.

HOW DOES BOOTSTRAP FINANCE INFLUENCE BUSINESS PERFORMANCE?

Financial bootstrapping is gaining scholarly attention as well as practical relevance due to its potential performance-enhancing capacity. However, academic literature does not offer crystal clear arguments about how and under which conditions this relationship takes place. It can be argued that different types of bootstrapping techniques result in different (positive or negative) effects, and that the type of performance metric also matters. For instance, Ebben (2009) reports a positive relationship between liquidity ratios and owner-related methods, but finds a negative relationship between return on sales (ROS)/return on assets (ROA) ratios and payment delays and customer-related techniques. However, according to Jones and Jayawarna (2010) a positive relationship exists between payment-related and joint-utilization methods and both turnover change and sales growth. When it comes to value added, calculated as sales less materials and services purchased, Vanacker et al. (2011) find that, in general, owners' own funds do not influence firm performance.

Nevertheless, when Vanacker et al. (2011) shaded their previous findings by integrating a time factor (age of the business), it turned out that the use of owners' own funds has a negative impact in the early stage which turns positive among incumbent businesses. Interestingly, sharing premises, joint purchases, and delaying payments do not exert any impact on business value added. A similar finding was added by Patel et al. (2011) who found that an inverse U shape relationship exists between the use of bootstrapping techniques and entrepreneurial growth. Decreasing growth is attributed to three issues deriving from an excessive use of bootstrap finance: 1) limited access to specific resources, 2) high costs of losing focus, and 3) the negative effect of intensive use of bootstrapping on the company stakeholders. However, a remarkable finding by Patel et al. (2011) is that a business strategy that combines strategic alliance diversity with bootstrapping techniques is conducive to employment growth and mitigates the downward effect of excessive bootstrapping use.

A description of bootstrapping practices in Hungarian SMEs provided by Horváth (2016) coincides with the previous findings. It suggests that the type of bootstrapping techniques, the age of the business as well as networking impact firm performance. She found that new firms mostly characterized by protective behavior—which punishes customers' opportunistic behavior—show the highest productivity. Also, established businesses that hardly turn to bootstrapping (passive users) are the most productive ones. Miao et al. (2017) conducted an extensive quantitative synthesis of scientificworks associated with the link between bootstrapping techniques and business

performance. Confirming my intuition, they conclude that, although prior evidence suggests a positive relationship between bootstrapping and performance measures, generalized conclusions on the link between bootstrapping and firm performance cannot be drawn. Yet, it is not evident whether an increased use of bootstrapping techniques induces poor profitability measures or poor profitability pushes enterprises towards the use of bootstrapping techniques. In practice, we could probably encounter both cases. It is worth noticing that the bootstrap-performance relationship is conditional on whether bootstrapping is the only way for the business to access finance.

Miao et al. (2017) propose a potentially differentiating role of industrial attainment on performance. The relevance of different bootstrapping techniques becomes evident in Horváth and Szerb (2018) who found that industrial characteristics may condition the effect of bootstrapping on labor productivity. Differentiating knowledge-intensive service activity (KISA) and non-KISA businesses, they showed that KISA firms benefit more from customer-related techniques, while non-KISA firms capitalize on digital and IT-based practices. The authors argue that the specific operational characteristics that make KISA firms more productive (e.g., higher adoption of digital technologies) explain the adoption of bootstrapping techniques more related to their customers, while non-KISA firms (e.g., manufacturing or consumer service firms) may profit more from the automation of specific stages of their operations.

CONCLUSION AND FUTURE RESEARCH AVENUES

This study provides a thorough literature review on typical cash management practices adopted by small businesses. Building on the accumulated academic stock of knowledge on bootstrap finance, I summarized the most important findings reported in the literature, trying to present the analysis in an easy-to-understand way.

To sum up, bootstrap finance may prove itself as a useful choice at the beginning of the life cycle of small businesses, which often have no access to external funding and are subject to severe liabilities of smallness and newness. However, it is not just a question of need but also opportunities. For instance, a nascent entrepreneur may learn the basics of how to manage a business, how to build business relationships and gain the most of them at relatively low financial risk. Nevertheless, a long-term, dominant business strategy should not be built on the use of bootstrapping practices. The key to business development is innovation and it requires additional resources. Entrepreneurs should also turn their attention to customized solutions when implementing bootstrapping techniques. This is evidenced in Wesley (2018) who showed that even the use of personal credit card as a bootstrapping technique does not necessarily fit every business, or at least the way they used it.

The existing literature has some limitations that in return constitute several future research avenues. Some suggestions follow:

1. *Case study analysis,* including information on the most important business stakeholders, their characteristics (e.g., industry, share of sales, business size, number customers) and the use of specific bootstrapping techniques. Combined with an access to the financial reports of the sampled business, case studies may offer valuable insights.

2. An interesting avenue of future research relates to the long-term evaluation of the effect of bootstrapping techniques adopted by small businesses and startups, paying special attention to the role of accumulated knowledge, perceived advantages and disadvantages.
3. Survey-based research should incorporate more questions about the context and motivations for using specific bootstrapping techniques, including, for example, the year when the technique was last used, the frequency of use, and the effect on stakeholders.
4. The shortage of longitudinal studies is a promising gap to fill. A longitudinal study would enable to better understand and identify cause-effect relationships, for instance, among different aspects of networking and the use of specific bootstrapping techniques.
5. A better differentiation of results and conclusions can be achieved if we analyze types of firms. For example, future studies should verify if a large business with more than 250 employees manages its financing and operation the same way as small firms do.

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THE ROLE OF INSTITUTIONS IN ACHIEVING SUSTAINABLE DEVELOPMENT

Judit Kozenkow

ABSTRACT: *: The impact of institutional factors as key determinants on macroeconomic performance has been proven by numerous scholars of economic and multidisciplinary sciences as a correction for the deficiencies of the mainstream neoclassical economics since the 1970s. However, the incorporation of institutions, defined by North (1990) as "the rules of the game", into applied development policies has still been marginalized. How does application of the institutional approach take place in the international development arena? How could the incorporation of institutional analysis significantly improve the potential to achieve the Sustainable Development Goals and further strengthen the development policies of the World Bank Group? To answer these questions this study looks at the evolution of institutional analysis as a reaction to the deficiencies of the neoclassical economic growth models and highlights the arguments of Acemoglu, North, Williamson and others. It synthetizes the effects of informal and formal institutions on economic development and emphasizes the difficulties of objectively and accurately measuring institutions as the biggest obstacle for further development and applicability of these explanatory variables. Moreover, the study investigates how deeply institutional factors are embedded in the global development agenda of leading international organizations and programs, namely the World Bank Group and the United Nations 2030 Agenda for SDGs. The study tends to conclude that institutions are seriously underrepresented in international development programs and their measurement difficulties should not be an excuse for the lack of application and of further research. It proposes to place the focus on informal institutions as the root of economic development to reach sustainable and inclusive growth.*

KEYWORDS: : informal institutions, economic development, sustainable development, SDGs, World Bank.

The impact of institutional factors as key determinants on macroeconomic performance has been proven by numerous scholars of economic and multidisciplinary sciences as a completion of the deficiencies of the mainstream neoclassical economics since the 1970s. The incorporation of institutions, defined by North (1990:3) as "the rules of the game", into extended empirical research has evolved from concentrating only on formal factors, such as the rule of law and property rights to informal factors, such as culture and social norms as well. Despite the highly criticized measurement challenges, social factors are gaining international recognition and deeper understanding. No better proof of this fact is the Nobel Prize in economics in 2017 being rewarded to Richard Thaler for his contributions to behavioral economics and his extensive work on behavior-based policy making (EMBED, 2017).

In parallel, the quantitative concept of economic growth evolved into economic development and then into the concept of sustainable development which has been gaining full steam with the adoption of the 2030 Agenda of the United Nations for Sustainable Development Goals (SDGs). The 17 goals target to achieve inclusive and sustainable development worldwide based on three essential pillars, namely the economy, environment and society.

Overall, the role of the 'society', described in this study as informal institutions have become an internationally accepted phenomenon in development studies backed by enormous amount of empirical evidences from different disciplines, including new institutional economics (NIE). However, the growing institutional literature has not been followed by applied development policies by most relevant actors.

How does application of the institutional approach take place in the international development arena? How could the incorporation of institutional analysis significantly improve the potential to achieve the Sustainable Development Goals and further strengthen the development policies of the World Bank Group?

This essay takes a qualitative approach and analyzes secondary data to answer these questions. First, it explains the definition and categories of institutions from a new institutional economic perspective. Then it critically looks at the evolution of the empirical institutional analysis as a reaction to the deficiencies of the neoclassical economic growth models and highlights the arguments for institutional change of Acemoglu, North, Ostrom and other scholars. It describes the difficulties of measuring institutions as the biggest obstacle for further development and applicability of these explanatory variables as well as determines and synthetizes the effects of formal and informal institutions on economic development. Furthermore, the study turns to practice and investigates how deeply institutional factors are embedded in the global development agenda of leading international organizations and programs, namely the World Bank Group and the United Nations 2030 Agenda for SDGs.

THE APPEARANCE AND DEFINITION OF INSTITUTIONS

The concept of economic growth broadened into economic development to reflect the qualitative characteristics of countries beyond the quantitative economic indicators of

real output, unemployment, inflation and others. Besides Gross Domestic Product (GDP), indicators to capture these qualitative aspects were developed, for instance the Human Development Index (HDI). Furthermore, the concept of sustainable development[1] gained dominance at the end of the 1980s and broadened the socio-economic focus into holistic socio-economic-environmental analysis. Overall, it was undoubtedly recognized that explaining a country's economic performance has required the application of more and different kind of variables in the mathematical and econometric models. Moreover, in order to make the explanation complete, the application of qualitative analysis has been indispensable.

The purely quantitative analytical methods of the mainstream neoclassical economics to some extent became impractical to explain newly surfaced complex economic problems. As a response, several new economic and multidisciplinary theories turned to applied and empirical research and started to explore new determinants of economic growth, among others structural and institutions variables.

Institutions per se have become increasingly important in explaining economic growth and economic development. These variables have been profoundly promoted by the field of new institutional economics (NIE)[2]. They have placed economic, legal, political and social institutions in the center of economic performance. (Brousseau & Glachant, 2008).

In order to move forward with the review, we need to learn the exact definition of institutions expressed by new institutional economists. One of the most widely accepted and applied definition originates from the respected and well-known Nobel laureate economist Douglass C. North. He described them as "the rules of the game in a society or more formally, are the humanly devised constraints that shape human interactions and they are formed to reduce uncertainty in human exchange." (North 1990:3) North defined formal and informal constraints as well as their enforcement mechanisms. By synthetizing theoretical and empirical studies of institutional scholars the following classification of institutions can be concluded:

- Formal economic institutions (such as security of contract and property rights, rule of law, dimensions of market efficiency)
- Formal political institutions (such as type of regimes, elections, constitutions, executive and legislative power, political rights)
- Informal/social institutions (such as religion, ethnic and historical background; civil liberties, civic communities; norms; cultural values).

Throughout the study the above mentioned definition and classification serve as reference.

[1] Sustainable development is defined in the Brundtland Report in 1987 as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".
[2] New institutional economics (NIE) is an evolutionary theory that provides complex and detailed studies on institutions from an applied perspective. Its methodology merges qualitative and quantitative tools and by being interdisciplinary it recognizes best practices from politics, sociology, psychology and other sciences.

EMPIRICAL EVIDENCE OF INSTITUTIONS AND INSTITUTIONAL CHANGE

Based on a wide variety of case studies, field experiments, comparative and cross-country regression analyses, over the years institutional research has been significantly developed and slowly directed from 'whether institutions do matter?' to 'how institutions matter?' As Voigt (2013:1) claims "the more precise version of the phrase might be that institutions matter crucially for economic development". This section highlights the conclusions of the main empirical studies focusing on specific institutional factors – formal and informal – affecting economic growth and specifically sustainability, scholarly works introducing a dynamic approach to analyze today's complex economic problems and to model institutional change, and the deficiencies of the new institutional economics. Finally, the empirical evidences are synthetized into a methodological scheme for further analysis.

FORMAL RULES AND INFORMAL CONSTRAINTS AS EXPLANATORY VARIABLES

The primary empirical evidences concentrated on the role of formal political and economic institutions in economic outcomes. This study briefly summarizes the main findings about these formal factors and concentrates more deeply on the informal ones as we believe those are the underlying determinants of economic development. Political institutions as explanatory variables were included in economic growth models by scholars, including Barro (1991, 1996) and Clague (1997). They concluded that political instability as an institutional factor have had direct and also indirect (through investments) negative effect on economic growth. Other studies (e.g. Knack & Keefer, 1995; Mauro, 1995; Lane & Tornell, 1999; Rodrik, 1999; Persson & Tabellini, 2003; Acemoglu et al., 2004: Acemoglu & Johnson, 2005; Dobler, 2009) focused on the rule of law, election system, corruption, democracy and other forms and characteristics of government and political regimes. Their results presented significant correlation between several of these variables and economic growth.

Barro (1991), Knack and Keefer (1995), Aron (2000), Pejovich (2003), Rodrik et al. (2004), Acemoglu and Robinson (2008, 2012) and others concentrated on economic institutional variables. State generated market bias, financial sector development, contract enforcement, security of property rights and others as determinants were proved to have a significant direct and/or indirect impact on economic growth.

The analysis of informal institutions has only begun after the millennium with the exception of a few early findings and it still endures. Barro (1991) emphasized that social characteristics (e.g. ethnical diversity, religious or colonial heritage) have impacted the construction of political regimes. Putman (1993), Knack and Keefer (1997) found that civic norms and trust have positively affected economic growth. Later results of Pejovich (2003), Helmke and Levitsky (2004), Tabellini (2005), Boettke et al. (2008), Williamson (2009), Bostan et al. (2016) and others concentrated on certain beliefs, norms and cultural characteristics. Trust, respect, self-determination and obedience proved to be crucial factors and dominant determinants of economic growth.[3]

[3] Four informal institutional variables, namely trust, respect, control over one's life and obedience, were of central attention of the first deeper analyses on informal institutions. The first three values proved to have positive impact while the latter one to have negative impact on economic growth.

Studies (e.g. Voigt, 2013; Williamson, 2009) were published about the interlinkages between formal and informal institutions and the effectiveness of their enforcement, as "factual enforcement depends on the behavior of the enforcers" (Voigt, 2013:10). They argued that institutions have connected to each other in four ways: complementary, accommodating, substitutive, or competing. Others (e.g. Spranz et al., 2012; Vachris & Isaacs, 2017) concluded the primacy of informal constraints, namely the culture, over formal institutions by highlighting the importance of its supportive or restraining nature.

Mostly based on the general findings and clear evidences of the above summarized scholarly works, numerous further publications have been developed during the last couple of years that have applied the institutional approach and especially informal institutions as key elements of their analysis. The context and the analytical frameworks have been slowly transitioning from the grand/macro scale to smaller, even micro-level empirical analysis. It has been recognized that informal institutions play a crucial role in identifying the driving forces of economic development. We need to examine and build on these norms and cultural characteristics in order to enhance future growth. If those social factors don't support the inclusive and sustainable development path, it should be considered to change them. Examples have been provided by different country and regional analysis of South-Eastern Asia, Africa and the transition economies of Central and Eastern Europe (e.g. Kozenkow, 2012), by sectoral implications from among others finances, legal system or resource management, as well as from local and international business operations (e.g. Hitt, 2016) and by generally entrepreneurship.

The research of Stoever (2012) and Wicher (2014) specifically linked institutions to sustainability and found a positive and statistically significant relationship between these factors. While Wicher pointed out that causality and the aspect of ecological sustainability has required further research due to lack of available data, he concluded "that institutions restrict behavioral options which possibly have a negative effect on sustainability and therefore stabilize expectations resulting in better outcomes" (Wicher, 2014:187).

INSTITUTIONAL CHANGE: THE IMPORTANCE OF A DYNAMIC APPROACH IN TODAY'S TURBULENCE

Besides analyzing the impact of specific institutions as factors on economic growth and development, well-known institutional scholars (e.g. Acemoglu, North, Ostrom, Williamson) have been dedicated their work to explaining the interdependence and causality of these variables and generally the dynamics of institutional change. North stated that "institutions reduce uncertainty by providing a structure to everyday life. They are a guide to human interaction." (North, 1990:3) Change in transaction and production costs were found to be crucial elements, therefore changes in relative prices and/or in human preferences and tastes could result in change in economic performance.

4. Stoever (2012) applied the Adjusted Net Savings rate (ANS) to measure the sustainability level of a country.

Williamson (2000) focused on the hierarchy and interlinkages among institutions by creating a four-level analysis – starting from (lower to higher) social embeddedness, formal institutional environment, governance of contractual relations to resource allocation and employment. He explained that change at lower institutional levels or a fragile social performance could indicate institutional change. Moreover, the higher institutional levels function as constraints on the level directly below them.

The studies of Acemoglu et al. (2004) as well as Acemoglu and Robinson (2008, 2012) focused on the economic and political institutions and explained the following interlinkages between them: economic institutions are determined by the decisions of different interest groups and individuals while they serve as incentives and constraints for the actors and shape economic performance. People with more political power could become dominant and enforce their interests. Furthermore, political institutions, de jure and de facto, and the allocation of resources determine political power.

Ostrom and Basurto (2011) emphasized the need for adequate tools to analyze the complex and constantly evolving, dynamic world that surrounds us today. They stated that "in the social sciences, we not only struggle to explain the process behind institutional change, but also how to identify what is changing" (Ostrom & Basurto, 2011: 318). Their fieldwork experiment in Nepal as a micro level analysis – which also demonstrates a potential way of measuring institutional change – could be concluded that internally or externally built rule systems generate significantly different economic outcomes. The expert knowledge (external) might be an asset in the creation of local resource systems but the application of a uniform set of formal rules and the ignorance of the local knowledge (internal) have significant drawbacks. Unfortunately, this type of institutional mono-cropping dominates much of social science thinking as well as that of development agencies.

DEFICIENCIES AND CHALLENGES

Overall, the notable amount of empirical evidences that have been provided so far about the role of institutions in economic growth cannot be mentioned without their potential deficiencies. Institutional analysis by NIE scholars is largely criticized along three directions based on the findings of Aron (2000), Glaeser et al. (2004), Voigt (2013) and Tamanaha (2015). Primarily, the definition problems are debated because the field does not accept one common institutional definition and the potential channels of impact on economic growth need further deeper explanations.

Secondly, the measurement of institutions is highly questionable and under serious criticism due to a variety of difficulties with data, methodology and identification of variables.[5] Glaeser et al. (2004) pointed out that many empirical studies have measured policies rather than institutions. Concerning informal institutions numerous studies identified (e.g. Voigt, 2013) the lack of objectivity of surveys

[5] Numerous studies argue the statistically significant relationships between institutions and economic growth. However, the applied models quite often fail to test the sensitivity of results to different model specifications, reverse causality or endogeneity between variables.

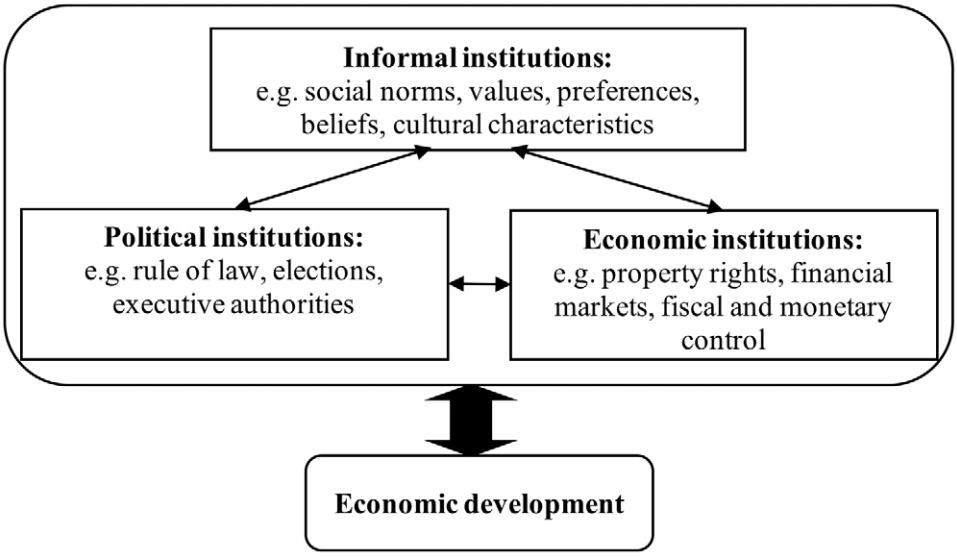
and the impossibility of comparison over years due to changing methodology as key challenges and suggested new, however still incomplete, ways of measurement.

Thirdly, the widely applied reduced-form growth regression models that replace investment as an explanatory variable of economic growth with a set of other variables that determine investment[6] are criticized. Several studies use incompletely sets and/or endogenous variables while it becomes impossible to distinguish the effects of institutions on growth and investment.

SYNTHESIS OF INSTITUTIONAL EVIDENCES

By taking into consideration the criticism and the already identified further necessary research in this field, based on the indisputable arguments of all the above mentioned scholars about institutional variables, institutional change and economic performance, figure 1 synthetizes the relationship between formal and informal institutions and economic development:

Figure 1. Relationship between institutions and economic development



Source: Kozenkow 2014

The institutional factors in economic development have become indisputable and now we are able to complement this statement with specifically recognizing the underlying role of informal institutions. As Spranz et al. (2012) argued "the interaction between newly imported formal institutions and persisting local informal constraints should be considered" (Spranz et al., 2012: 464). Voigt (2013) also stated[7] "the capacity to create external [formal] institutions

[6] Institutions exert indirect effects on growth through an increase in the volume of investment. The reduced-form growth regressions simply replace the investment variable with a set of institutional factors in the equation instead of using two different equations to capture the effects of institutions on investment, and the effects of investment on growth.
[7] The terms 'formal' and 'informal' are added by the author in […] to keep the consistent term use of the study.

that have a high chance of being factually implemented could thus be seriously constrained by the relevant internal [informal] institutions" (2013:4). The illustration above explains the primacy of informal institutions and their linkages with the formal political and economic institutions. These factors all depend on and influence each other but formal institutions need to be incorporated into the informal environment. They together determine the countries' development path and generate economic growth.

However, others have still questioned the potential applicability of these institutions in development policies due to the major challenges of common definitions and measurement highlighted in section 3.3. As Tamanaha (2015) concluded "the most ambitious knowledge and policy goals NIE scholars are pursuing cannot be achieved practically and in principle" (2015:106). However, he also recognized that legal, political, and economic institutions and their reforms are crucial and should continue. He further added that "to solve specific problems with locally tailored solutions is likely to be more fruitful than proposing grand institutional designs" (2015:106). We cannot agree more on this latter statement and take it as an indirect approval of the applicability of NIE approach.

If it indisputably proven that informal institutions contribute to economic growth, then why are development policies still not based on institutional analysis and especially informal institutional factors? We agree with Ostrom and Basurto (2011) who stated that development organizations have still been blinded with institutional mono-cropping. To find answers we look at the key operations of the World Bank Group as a leading internationally responsible organ for development and the United Nations' Agenda 2030 as the most recent and most comprehensive set of goals for achieving sustainability while acknowledging the work of numerous other development agencies.

INSTITUTIONS IN DEVELOPMENT POLICIES

"The role of institutions in promoting growth in developing and emerging economies has sparked renewed interest". (Aron, 2000:99)

WORLD BANK GROUP (WBG)

The world's leading international development organization, the World Bank Group (WBG), has incorporated institutions into its development policies from the beginning using a narrow definition but the number of institutional development projects remained insignificant until the 1970s. Gradually the volume increased and peaked around 250 projects per annum at the millennium (Figure 2.) when the World Bank Group shifted to a new development focus as a result of having acknowledged the mixed track record of the Bank's operations (WB, 2000). It began to combine quantitative and qualitative analysis including the assessment of institutional factors identified and defined by new institutional economic scholars.

In 2000 the WBG introduced the concept of good governance and effective public sector institutions into its strategy with the goal to eradicate poverty and to foster sustainable

development (WB, 2000). The strategy accepted the definition of institutions as "the rules of the game and the mechanisms through which they are monitored and enforced. Institutions can include organizational rules and routines, formal laws, and informal norms. Together they shape the incentives of public policy makers, overseers, and providers of public services" (WB, 2000:6). The strategy was already preceded and built on the findings of the annual publications: the World Development Report (WDR) from the year 1997 (The state in a changing world) which concentrated on the performance of governments, and the WDR of the year 2000 (Poverty and Development) which centered on good governance and institution building in the public sector. In practice, development projects considered exclusively formal institutions during their evaluations and mixed them slightly with policies[8] in the early stages: public expenditure management, tax policy, decentralization, legal/judicial reform, anticorruption, sectoral institution-building, etc.

The World Bank Group, alongside the new strategy, introduced the 'Institutional and Governance Review' (IGR), a new analytical report that monitors the effectiveness of the main public institutions. It provides policy recommendations for reforms and design of country strategies based on quantitative measures of government performance (Levy & Manning, 2002). The methodology of the reviews and the evaluated components on either sectoral, country or regional levels have evolved and became also the main themes of the 2002 and 2003 World Development Reports (Pillai & Lunde, 2006). To further extend the institutional analysis, the Doing Business Report series were launched in 2004 to assess the quality of business regulatory environment. As a well-known flagship initiative of WBG, Worldwide Governance Indicators measure the quality of governance at country level – as formal institutions – between 1996 and 2016 based on survey data collected from different think tanks, international and non-governmental organizations, and private companies (WGI online). However, these specific factors are mostly economic and political – formal – institutions from a political economic perspective as shown in Table 1.

[8] The problem of mixing policies with institutions is considered to be one of the main methodological deficiencies in the field of NIE.

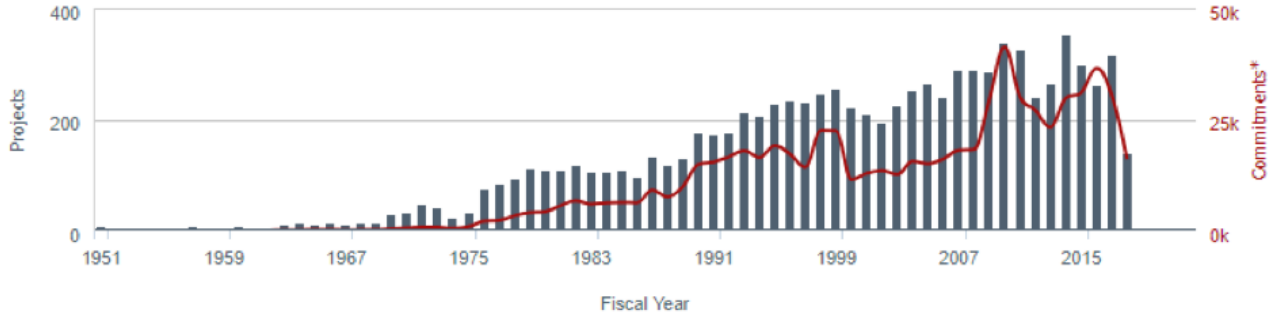
Table 1. Components of different institutional assessments within the World Bank Group

Worldwide Governance Indicators	Country Policy and Institutional Assessment	Doing Business Report
Voice and accountability	*Economic management*	Starting a business
Political stability and absence of violence	Monetary and exchange rate policy	Dealing with construction permits
Government effectiveness	Fiscal policy	Getting electricity
Regulatory quality	Debt policy	Registering property
Rule of law	*Structural policies*	Getting credit
Control of corruption	Trade	Protecting minority investors
	Financial sector	Paying taxes
	Business regulatory environment	Trading across borders
	Policies for social inclusion and equity	Enforcing contracts
	Gender equality	Resolving insolvency
	Equity of public resource use	Labor market regulation
	Building human resources	
	Social protection and labor	
	Policies and institutions for environmental sustainability	
	Public sector management and institutions	
	Property rights and rule-based governance	
	Quality of budgetary and financial management	
	Efficiency of revenue mobilization	
	Quality of public administration	
	Transparency, accountability and corruption in the public sector	

Source: WBG, 2017:88; WBG, 2018a:3; WGI online

The number of development projects, as shown in Figure 2, involving institutional elements further increased, although on a volatile manner, after the introduction of the different institutional analytical tools mentioned above. The negative impact of the 2008-2009 global economic and financial crisis caused further volatility and decline both in available funds and therefore in the number of projects. Since the launch of the new strategy the institutional development projects have averaged around 300 per annum with a peak of 344 projects in 2014. Up until May 2018 the total number of closed and active projects has reached 9,000 compared to the around 17,000 projects of the Bank overall with the same dynamics over the years. As of commitments the total cumulative value from 1947 (the first lending) to 2017 exceeds the 1 trillion USD with similar volatility pattern as the number of projects out of which around 700 billion USD is concentrated on institutions. Thus, the institutional projects represent more than half of all Bank projects in numbers and even a bigger share – around 70 percent – in commitments that indicates the strong significance of institutions, although mostly formal ones, in development policies.

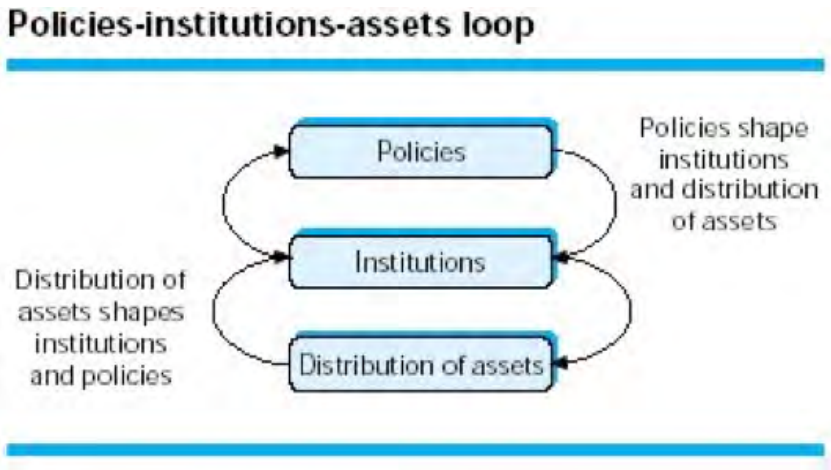
Figure 2. Number of projects and commitments (million USD) targeting institutions [9]



Source: WBG, 2018b

If we take a closer look at the evolution of informal institutions or social factors and their role in the Bank's development projects[10], we must start with the 2003 World Development Report entitled 'Sustainable development in a dynamic world' that concluded that for the population to improve its well-being sustainably a more responsible management of assets (physical, financial, human, social, environmental) is required. Besides formal institutions, the report emphasized the necessity of adequate social assets (mutual trust, ability to network, and security of persons and property) and developed a dynamic approach to demonstrate the linkages among policies, institutions and assets, shown in Figure 3, as the potential path of institutional change. The main implications of the report, among others, include more serious institution-building focus with an emphasis on inclusive[11] institutions in development strategies.

Figure 3. Development dynamics by the World Bank



Source: WB, 2003:2

[9] Among the World Bank Group projects & operations the word 'institutions' were applied as filter. The chart includes project with a status of active, dropped, closed, and in the pipeline.
[10] The World Bank Group uses rather the terms of social factors, social inclusion and social development than informal institutions. Therefore, regretfully, due to the lack of sophisticated filtering options we cannot prepare a comparison between the characteristics of institutional projects and informal institutional projects.
[11] The World Bank Group defines inclusiveness as the extent to which an institution incorporates the interests of all people (WB, 2003).

To evaluate the impact of specific reform processes on the well-being of various social groups the World Bank Group launched the 'Poverty and Social Impact Analysis' (PSIA) that created a framework of institutional, political and social analysis of policy reforms at three levels: from macro (country and reform context) through meso (implementation process) to micro level (policy impact) (WB, 2007). One of the diagnostic tools at the macro level is the 'Country Social Analysis' (CSA) that evaluates social, economic, political and institutional factors to realize the impact of the country context on development and policy outcomes (WB, 2007). CSA applies qualitative and quantitative data, among others the World Bank's Social Development Statistics which are organized into four categories:

a) country context
b) social inclusion
c) social cohesion
d) social accountability

At the meso level "the key element of the PSIA approach is to analyze institutions and organizations. Institutional analysis involves understanding how institutions, defined as formal and informal rules, mediate the impact of specific reform processes; which institutions need to be changed; and which players need to be brought on board for the reform to succeed. Organizational analysis in PSIA includes understanding the main organizational stakeholders, the underlying interests, and the formal and informal practices that link organizations at the national, regional, and local policy levels." (Pillai and Lunde, 2006:16) Overall, PSIA has become the tool for evidence-based, inclusive and transparent policy making as the key factor for successful development.

The social aspect has recently resurfaced with the establishment of the 'Mind, Behavior, and Development Unit' (eMBeD) within the World Bank Group and with the publication of the 2015 WDR entitled 'Mind, Society, and Behavior'. The Unit collaborates with internal and external partners to promote and apply human behavioral analysis (a behavioral science perspective) in the creation and implementation of development policies and put the main findings of the mentioned 2015 WDR into action. Currently, eMBeD runs around 80 projects in 50 countries in such sectors as health, education, environment, finances and more (EMBED, 2017).

The 2015 WDR highlighted that the neoclassical economic assumption about people's rational choices are outdated and incomplete, therefore it calls for a new set of development approaches based on a more comprehensive consideration of psychological and social factors: human behavior, decision-making, social context, etc. The report (WBG, 2015) presents a framework for the design of development policies based on three principles:

1. Thinking automatically (people most of time make automatic and not deliberate choices)
2. Thinking socially (people's decisions often based on the actions and thoughts of their surrounding)
3. Thinking with mental models (a society shares common views).

With these new elements for development policy making the WBG takes further steps away from the institutional mono-cropping towards a better understanding and shaping of the specific social context for more effective development.

SUSTAINABLE DEVELOPMENT GOALS (SDGS)

One of the leading topics of the 2012 conference of the United Nations on sustainable

development in Rio de Janeiro was 'institutions and sustainable development'. The comprehensive development framework of the United Nations, the Agenda 2030 adopted in 2015 acknowledged that "inclusive institutions are critical enablers of equity and are central to achieving the objective of leaving no one behind" (UN, 2016:61). Although it does not apply institutional approach and does not propose institutional models for national implementation, it outlines the principles of "inclusive and sustainable economic growth" (Goal 8), "peaceful and inclusive societies for sustainable development", and "effective, accountable and inclusive institutions at all levels" (Goal 16) (UN, 2015).

Goal 8 with the title of "Decent work and economic growth" calls for "promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (UN, 2015). Its main specific targets include per capita income and productivity growth, resource efficiency improvement in consumption and production, achieving full and productive employment and decent work for all women and men, protection of labor rights, promotion of safe and secure working environments for all workers, and strengthening the capacity of domestic financial institutions (UN, 2015). This goal is highly quantitative, based on the neoclassical description of economic growth factors and involves only a couple of formal institutions (labor rights, financial institutions). Moreover, informal institutions are completely missing.

The Sustainable Development Goals Report 2017 took stock of the progress achieved so far regarding the specific targets of the 17 goals (UN, 2017). The evaluation of Goal 8 argued that "sustained and inclusive economic growth drives development by providing more resources for education, health, personal consumption, and transport, water and energy infrastructure. Economic growth can also lead to new and better employment opportunities" (UN, 2017:34). The report highlights the potential consequences of economic growth, but it completely ignores the causes of economic growth and therefore any applicable development policies to generate that necessary economic growth.
Goal 16 with the title of "Peace, justice, and strong institutions" calls for "promoting peaceful and inclusive societies for sustainable development, providing access to justice for all and building effective, accountable and inclusive institutions at all levels" (UN, 2015). The goal's specific targets among others include reduction of all forms of violence, promotion of the rule of law and equal access to justice, reduction of corruption and bribery, protection of fundamental freedoms, building of transparent, accountable and effective institutions. (UN, 2015) From an institutional perspective we can conclude that there are only formal institutions and no informal institutions involved.

The evaluation of Goal 16 pointed out that "progress in promoting peace and justice, and in building effective, accountable and inclusive institutions remains uneven across and within regions" (UN, 2017:50). Adequate institutions and legal frameworks targeting increased availability of information and promotion of human rights have been initiated, but the implementation usually stays incomplete (UN, 2017). The involved formal institutions are well defined, targeting among others corruption, government finances, certain freedoms and human rights. However, we must again raise the issue of the complete lack of informal institutions because sustainable development that builds on the three pillars of economy,

environment and society cannot be reached without the inclusion of the latter through informal constraints.

Inclusive institutions are of special interest in the 2016 Global Sustainable Development Report (GSDR). The report argued that to strengthen inclusive institutions it is essential to understand the change of social norms and behaviors as well as to promote the coherence among economic, political and social institutions (UN, 2016). However, regrettably the general understanding of institutions, namely their definition, categories and especially their role in economic development, is rather weak and superficial. The issue of causality between economic growth and strong institutions remained undecided regarding its direction although clear evidences indicate the positive effect of institutions on economic growth in recent literature. The provided examples of national parliaments and national councils for sustainable development are organizations and not institutions by our definition. These councils might be an adequate way to educate and notify people about sustainability as well as representation of marginalized groups in parliaments might reflect better social inclusion. However, these organizations do not but mirror the institutions behind them. Organizations are based on institutions like formal economic and political rules that create national councils and parliaments or informal constraints that make people interested in promoting sustainability. It is crucial to clearly understand the key role of institutions for creating adequate development policies to be able to achieve sustainable development.

CONCLUSION

This essay elaborated on the questions of how the application of the institutional approach takes place in the international development arena and how the incorporation of the analysis and application of informal institutions could significantly improve the potential to achieve the Sustainable Development Goals and further strengthen the development policies of the World Bank Group. To conclude, weargue that to contribute to the better understanding of our complex world and to achieve sustainable development, the incorporation of both informal (social context) and formal (economic and political rules) institutional analysis into development policies are crucial.

The extent and constantly growing empirical literature of new institutional economics and other disciplines serves as indisputable evidences for institutions as key determinants of economic performance. We conclude that informal institutions have primacy over formal political and economic institutions, but all these factors depend on and influence each other. Therefore, formal institutions need to be embedded into the informal environment and they together determine the countries' development path. Only adequate informal institutions with complementary and/or accommodating formal ones can generate positive economic outcomes.

Regarding practice, the study looked at the development policies of the World Bank Group. We found that the WBG treats institutions as central elements and integrates institutional analysis into the design and implementation of their development projects based on specific tools and indicators for assessment, such as the Country Policy and Institutional Assessment,

the Doing Business Report components and the Worldwide Governance Indicators. Around 70 percent of WBG projects contain institutional elements that significantly improved their efficiency. Their efforts and continued focus on institutions and in recent years on informal institutions and social inclusion are respectful and highly encouraging.

However, after taking a closer look at Sustainable Development Goals 8 and 16 of the Agenda 2030 which focus on economic growth and strong institutions, we regretfully argue that the most comprehensive international framework for sustainable development misses the social context and concentrates exclusively on formal institutions.

Therefore, despite all skeptical views highlighting the incompleteness of NIE and challenges in measurements, we should not give up on measuring informal institutions and take the easy way by concentrating only on formal institutions as it is the case with SDGs. We should consider the efforts of the WBG as examples to follow and further develop our understanding about the effects and the exact channels via institutions influence economic development. Informal institutions, the social context provide the framework for all other formal institutions to operate and without understanding and taking into account the social context it is inefficient to create appropriate formal institutions for sustainable and inclusive growth. Even these social characteristics, human behavior can be changed for better if they are not the ones supporting development. Therefore, we must build on all current deficiencies and use them as catalysts for further research to make informal institutions more applicable in development policies to achieve sustainable and inclusive growth.

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