Technology imperative in the organizational culture and macro environment of startups – a comparative study

By

Eszter Fabriczki

Submitted to

Central European University

Department of Economics and Business

In partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Business Administration

Supervisor: Professor Davide Torsello

Vienna, Austria

Statement of the Doctoral Candidate

Upon submitting the doctoral thesis, here below I declare:

I am currently not involved in another doctoral procedure in Business Administration. I did not fail at a doctoral defense, nor was an application of mine for a doctoral procedure rejected during the last two years.

Budapest, February 5, 2024

Eszter Fabriczki

CENTRAL EUROPEAN UNIVERSITY
DEPARTMENT OF ECONOMICS AND BUSINESS

Author: Eszter Fabriczki
Title: Technology imperative in the organizational culture and macro environment of startups – a comparative study
Degree: Ph.D.
Date: February 2024

Hereby, I testify that this thesis contains no material accepted for any other degree in any other institution and that it contains no material previously written and/or published by another person except where appropriate acknowledgement is made.

Signature of the author: _____

Abstract

Technology is undisputedly a crucial part of communication and responsible business management. Falling behind on the latest Information and Communications Technology can lead to a business's untimely demise, however, implementing technology that a company is not prepared for, or choosing the wrong technology, can also result in a catastrophic outcome. Startups specifically have limited resources, but can be more flexible. The organizational culture is more informal, and responsibility is often equally divided between the founders, which may increase technology's weight on management outcomes. The present study examines the dynamic relationship between national culture, organizational culture, and technology in startups. Through three essays, the research aims to uncover the key drivers of startup success, the adoption of new management tools, and the influence of technology on organizational culture beyond national cultural and institutional boundaries.

In this comparative study, we use qualitative research methods, semi-structured interviews with relevant startups in two countries: Israel and Hungary. After conducting interviews with startups in each location, a coding frame was created for qualitative content analysis. Qualitative content analysis is an excellent method for organizing data to create quantitative statistical outcomes that are deeply rooted in up-to-date data from the field.

The first essay explores distinct cultural attributes in Hungary and Israel that impact startups. Our findings showed that government support significantly influences technology innovation and venture capital growth in both countries. The exploration of cultural influences on entrepreneurial behavior highlights the macroenvironment's impact on entrepreneurial success or hindrance. In the second essay, the study delves into the adoption of technology in startups and its impact on leadership and organizational culture. While technology displays similarities across cultures, cultural factors still play a vital role in how it is used, integrated, and adapted within organizations. Navigating this interplay effectively is crucial for startups to leverage technology's benefits while respecting their unique cultural contexts. The third essay focuses on decision-making and technology acquisition in startups, highlighting common models followed, and the shift towards more structured decision-making processes as startups mature. Factors influencing technology decisions are explored. Additionally, we proposed a novel categorization construct for the preferred knowledge management tools in startups.

Acknowledgements

First and foremost, I extend my deepest gratitude to Hashem, as without His guidance and blessings, none of this would be possible.

I express my heartfelt gratitude to my beloved husband, Haim, whose encouragement led me to pursue my Ph.D. He not only supported me in every conceivable way but also provided invaluable guidance. I am especially thankful for our three wonderful children—Eliad, Adir, and Sadie—all born during my Ph.D. journey. They have been my greatest source of motivation; they make everything more meaningful. Eliad, Adir, and Sadie, I love you so much!

To my entire family, including my parents and sisters. A special acknowledgment goes to my mother, whose unwavering support all my life, has paved the way for this achievement. I would also like to extend special thanks to my sister Fran, my editor in chief.

Sincere thanks to my supervisor Davide Torsello, who is one of the reasons I joined this Ph.D. program, for his constant encouragement, significant professional support, your guidance greatly contributed to the development, quality, and methodology of my dissertation.

My appreciation goes out to the staff members at CEU and the Department of Economics and Business, especially, Ildiko Torok, Katalin Szimler, Veronika Orosz, Andrea Szalay, and Dominika Dash for your administrative support and good humor. As well as Ana Belen Amil for helping me advocate for myself as a woman in a male dominated world.

I am thankful for my fellow Ph.D. colleagues, Ruth Gazsó Candlish, Katalin Amon, and Pardeep Singh Attri for all their advice and support, being in this together made these many years of work so much more pleasant.

Special thanks to Professor György Bőgel, for generously offering his time to assist me and providing valuable feedback on my dissertation. Professor Yusaf Akbar, for providing me with the opportunity to collaborate and be published for the first time, along with his essential feedback on

my dissertation. Professor Orly Yehezkel, for taking a chance on me, aiding in my fieldwork, and agreeing to serve as external committee member, offering valuable insights into my dissertation. Professor Ori Weisel, for trusting Professor Yehezkel and hosting me at Tel Aviv University, facilitating the collection of valuable data. Andrea Kozma for granting me access to the CEU iLab. A special acknowledgment for Professor Ádám Zawadowski, Professor Miklós Koren, and Professor Michael Labelle for helping me wrap things up in peace.

Table of Contents

Introduction

The rapid evolution of technology has revolutionized industries and economies, giving rise to a new breed of entrepreneurial ventures known as startups. These innovative entities operate in a dynamic and fast-paced environment, driven by the pursuit of disruptive solutions and rapid growth (Talaulicar et al., 2015, Oliva & Kotabe, 2019). However, the success of startups is not solely determined by their technological prowess; rather, it is intricately linked to the interplay between national culture, organizational culture, and technology adoption. This study delves into this intricate relationship through the lens of three distinct essays, each offering unique insights into the dynamics that shape startups' journeys.

For the purpose of this research, we define "cross-national" strictly for studies that explicitly compare data from two or more nations. Such research is crucial for confirming the universality of findings and the credibility of conclusions drawn from single-nation studies. It ensures that perceived patterns aren't mere peculiarities resulting from specific historical, cultural, or political conditions. Additionally, cross-national research is equally, if not more, important for challenging our interpretations, forcing us to accommodate cross-national variations and disparities that may elude single-nation investigations (Kohn, 1987). The study focuses on Hungary and Israel due to their unique cultural, historical, and socioeconomic contexts. This comparative approach aims to analyze the influence of cultural differences on startup environments in these two countries. By contrasting Israel's thriving startup ecosystem with Hungary's growth potential and challenges, the research gains a distinct perspective.

In an era where globalization has blurred geographical boundaries, understanding how national culture impacts startup success becomes pivotal (Tominc & Rebernik, 2007). The first essay sets the stage by exploring the drivers that propel startups to success within distinct cultural contexts. It delves into the national cultural attributes that foster an environment conducive to growth while also highlighting potential challenges. As startups often transcend borders, this examination sheds light on the ways national culture can either catalyze or hinder their advancement.

As startups navigate the landscape of management practices, the adoption of new management tools emerges as a crucial factor (Bani Ali et al., 2008). The second essay delves into how startups assimilate these tools and their broader implications for organizational culture. By scrutinizing the influence of technology on the fabric of startups' operations, the essay seeks to uncover whether technological adoption can transcend the confines of national and institutional contexts. This exploration acknowledges the significance of technology as a catalyst for change while also acknowledging the role of cultural factors that shape its integration.

The third essay ventures into the realm of decision-making, a pivotal aspect of startups' operational dynamics (Talaulicar et al., 2015). It probes the factors influencing decisions around the adoption of technology within startups. The essay goes beyond technological considerations, shedding light on the internal mechanisms startups employ for effective communication and feedback. Through this exploration, the essay not only uncovers the nuances of technology-based decision-making but also underscores the importance of well-structured communication channels as startups evolve. Furthermore, in this essay, we introduce a novel categorization framework for knowledge management tools tailored to startups.

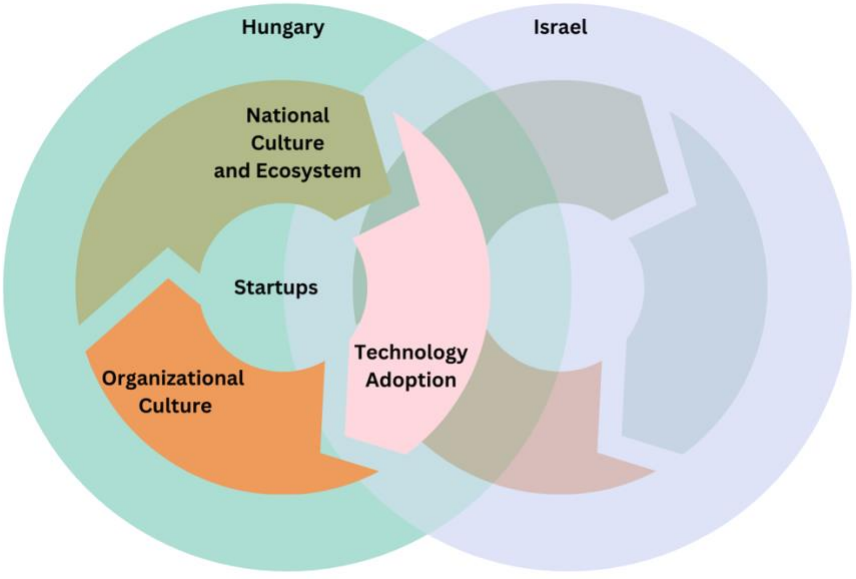


Figure 1- Conceptual model of the dissertation

By traversing these essays, this study seeks to contribute to a comprehensive understanding of the intricate interplay between national culture, organizational culture, and technology in the context of startups. The diverse perspectives offered through these essays collectively contribute to unraveling the complex tapestry that defines startup success. The insights gleaned from this exploration hold implications for policymakers, entrepreneurs, and researchers alike, offering a roadmap for navigating the challenges and harnessing the opportunities that arise within the dynamic startup ecosystem.

ESSAY 1 – Exploring the Vibrant Startup Cultures: Unveiling the Cultural Tapestry of Hungary and Israel

1. Introduction

1.1 Background and Rationale

The global startup landscape has experienced significant growth in recent years, with numerous countries emerging as hotspots for innovation and entrepreneurship. Among these nations, Hungary and Israel stand out as unique players in the startup ecosystem, each contributing distinct success stories and fostering vibrant entrepreneurial environments.

The selection of Hungary and Israel as the focal countries for this research is underpinned by their distinctive cultural backgrounds, historical experiences, and socioeconomic contexts. Hungary, with its rich history and cultural heritage, has faced unique challenges in its transition to a market-driven economy after the fall of socialism. Contrary to other countries in the region, Hungary, though a part of the Eastern Bloc, was never a part of the Soviet Union and implemented several early reforms in the late 1960's, leading to a more gradual path to democracy and market economy. On the other hand, Israel, despite its relatively small size and the geopolitical complexities it has navigated, has managed to thrive as a tech startup hub, often dubbed the "Startup Nation" (Senor & Singer, 2011). By comparing two countries with distinct cultural backgrounds (with a growing prominence of startups in both) and several comparable socioeconomic indicators we hoped to identify and analyze the impact of cultural differences on startup environments. This comparison allows for a deeper understanding of how national cultural factors contribute to the success or hindrance of startups in each country.

The decision to compare these two nations is not only fueled by their divergent cultural landscapes, but also by their similarities in certain key dimensions, such as population. Hungary has a population of 9,670,009 (CIA World Factbook, 2023 est.), Real GDP (PPP) of $326.186 billion (CIA World Factbook, 2021 est.), and Gini index of 30 (CIA World

Factbook, 2019 est.) while Israel's population 9,043,387 (CIA World Factbook, 2023 est.), Real GDP (PPP) of $393.861 billion (CIA World Factbook, 2021 est.), and Gini index of 38.6 (CIA World Factbook, 2018 est.). Data sourced from the World Bank from 2022, shows that Israel and Hungary held the 49th and 53rd positions, respectively, in the global ranking according to GDP, PPP (current international $), indicating that there are some economic similarities between the countries, despite their difference in GDP. According to Teruel, M., & De Wit, G. (2017) high-growth firms benefit positively from the size of the domestic market. Moreover, both nations share a cultural and linguistic isolation within a cluster of countries that speak a common or similar language in their respective regions. By juxtaposing two countries which have varying cultural backgrounds yet are comparable in certain dimensions like population size and GDP, this study aims to discern and analyze how these shared and divergent elements impact their respective startup environments.

The intersection of culture and entrepreneurship is a complex and multifaceted area, with potential implications on the importance of education, leadership styles, decision-making processes, risk-taking attitudes, and funding preferences.

In this exploratory research, our objective is to gain valuable insights and a deeper understanding of how startups and their ecosystems are shaped in specific macro-environments. By examining the impact of historical and socioeconomic factors on startup cultures in Israel and Hungary, we aim to shed light on leadership qualities valued by startup CEOs, societal perceptions of startups, and the types of government support available.

The rationale for conducting this research lies in its potential to offer valuable insights to policymakers, entrepreneurs, investors, and other stakeholders in the startup ecosystem. Understanding the interplay between national culture and entrepreneurship can inform the design of more effective policies, strategies, and support mechanisms to nurture and sustain startup ecosystems in both countries.

National culture has been shown to shape organizational values, practices, and decision-making processes. However, the specific influence of national culture on the unique challenges and opportunities faced by startups remains an underexplored area of inquiry.

In recent years, the study of startups and entrepreneurship has gained considerable attention from scholars seeking to understand the factors that drive entrepreneurial success and innovation. However, the literature on startups is still relatively new and evolving, leaving ample room for further exploration and empirical evidence.

By delving into the perceptions of startup CEOs and Founders regarding leadership values, attitudes towards culture, government support, and societal perceptions, this research aims to unveil the intricate relationship between national cultural differences and startup success or hindrance. The findings may shed light on how certain cultural traits can facilitate innovation, collaboration, and resilience, while others might pose challenges or limitations to entrepreneurial growth.

The findings of this research may offer novel perspectives on how national cultural attributes interact with organizational practices, shaping the behavior of startups and influencing their trajectories.

1.2 Research Aim and Objectives

Research Aim:

The aim of this study is to explore and analyze the impact of national cultural differences on the success or hindrance of startups in Hungary and Israel. By investigating the unique cultural contexts of these two countries, the research seeks to identify key cultural elements that may influence the startup ecosystem in each nation.

Overall, this research aspires to contribute to the broader academic literature on entrepreneurship and cultural studies while providing actionable insights for stakeholders

in Hungary and Israel's startup communities. By understanding and leveraging the cultural dynamics at play, the hope is to foster an even more vibrant and thriving startup culture in both nations and potentially inspire strategies that can be applied to other global startup ecosystems as well.

Research Objectives:

To examine the distinctive national cultural backgrounds, historical experiences, and socioeconomic contexts of Hungary and Israel that shape their respective startup environments.

To identify and analyze national cultural factors that contribute to the success of startups in Hungary and Israel, including leadership values, decision-making processes, risk-taking attitudes, and funding preferences.

To explore the challenges and opportunities faced by startups in each country due to cultural differences, including the role of education, societal perceptions, and government support.

To understand the interplay between national culture and entrepreneurship, specifically how cultural traits facilitate or hinder innovation, collaboration, and resilience in startups.

To investigate the perceptions of startup CEOs and Founders regarding the influence of national cultural attributes on organizational practices and behavior.

To offer valuable insights and recommendations to policymakers, entrepreneurs, investors, and other stakeholders in the startup ecosystem to enhance and sustain startup environments in both Hungary and Israel.

To contribute to the academic literature on entrepreneurship and cultural studies by providing empirical evidence on the relationship between national culture and startup success or hindrance.

To inspire strategies and best practices that can be applied to other global startup ecosystems based on lessons learned from Hungary and Israel's cultural dynamics.

1.3 Research Questions

The research question, “How do cultural differences impact success or hindrance in startup environments?”, serves as the central inquiry guiding this study. This question delves into the intricate relationship between national culture and the outcomes experienced by startups in Hungary and Israel. By focusing on the impact of cultural differences, the research seeks to uncover the ways in which distinct cultural contexts may contribute to or impede the success and growth of entrepreneurial ventures.

1.4 Scope and Significance of the Study

The exploration of national culture demands a nuanced approach, recognizing that cultural norms vary across a spectrum and can differ among different segments of society. In this study, we have undertaken a qualitative research approach to gain a comprehensive perspective on the impact of national culture on startup environments in two distinct countries: Hungary and Israel. By focusing on these two nations, we aim to capture a diverse range of cultural contexts and understand how cultural differences influence entrepreneurial ventures in each setting.

As Tominc and Rebernik (2007) pointed out, there is a need for comparative studies that encompass a wider range of countries, where cultural factors play a crucial role in shaping entrepreneurial growth aspirations. To the best of our knowledge, no previous research has specifically focused on culturally conditioned differences in growth aspirations of early-stage entrepreneurs across different countries.

Societal norms and institutions also significantly influence the entrepreneurial landscape. As Hofstede (2001) observed, societal norms contribute to the development and maintenance of institutions with distinct structures and ways of functioning, such as family, education systems, political systems, and legislation. Once established, these institutions reinforce the prevailing societal norms, and changes to institutions may not necessarily alter the underlying cultural norms.

Moreover, when basic cultural values are compared, in-country regions tend to cluster along national lines rather than be scattered and intermixed with the regions of other countries in the same cultural or geographic area (Minkov & Hofstede, 2012). This emphasizes the salience of national culture in shaping the behaviors, attitudes, and practices of individuals and organizations, including startups, within a specific country.

By adopting a qualitative approach and engaging with startup CEOs and Founders, we seek to uncover subjective perceptions of various aspects of firm performance, including survival, financial, technological, and marketing performance, in line with the multifaceted view of firm performance advocated by Brush and Vanderwerf (1992) and Van Praag (1999).

This research carries significant implications for policymakers, entrepreneurs, and investors in Hungary and Israel's startup communities. By unveiling the cultural drivers of entrepreneurial growth aspirations and performance, our findings can inform the design of targeted policies and support mechanisms that align with the cultural contexts of each nation. Additionally, the insights garnered from this study may inspire strategies applicable to other global startup ecosystems, fostering cross-cultural exchanges and international cooperation in entrepreneurship.

The contribution of this research extends beyond the immediate scope of Hungary and Israel, as it addresses a gap in the literature regarding culturally conditioned differences in entrepreneurial growth aspirations across diverse cultural contexts. By furthering our understanding of the interplay between national culture, institutional structures, and

entrepreneurial outcomes, we aim to contribute to the broader academic discourse on entrepreneurship and cultural studies.

In conclusion, this study seeks to uncover the nuanced relationship between national culture and the success of startups, offering valuable insights into the diverse factors that shape the entrepreneurial journey in Hungary, Israel, and beyond. By adopting a comprehensive approach and acknowledging the multifaceted nature of firm performance, we aspire to make a meaningful contribution to the advancement of startup ecosystems, fostering innovation, economic growth, and cross-cultural collaboration in the dynamic landscape of entrepreneurship.

2. Theoretical Framework

2.1 The Environment of Startups

Entrepreneurship has long been recognized as a crucial driver of economic growth and development in nations (Schumpeter, 1934; Wilken, 1979). The rate of new business start-ups varies significantly across countries, indicating that certain cultural values are more compatible with entrepreneurship than others (Baughn & Neupert, 2003). Cultural dimensions play a pivotal role in shaping the entrepreneurial landscape and influencing the success of startup ventures.

A country is more likely to foster entrepreneurship when it combines factors such as a supportive regulatory environment, access to venture capital, a strong educational system promoting innovation, and a sizable domestic market positively impacting high-growth firms. Collaborative markets with other countries are also suggested as a potential strategy for promoting entrepreneurship (Teruel & De Wit, 2017). Cultural factors significantly influence the regulatory environment, education system, and market dynamics, shaping the overall entrepreneurial environment. Attitudes toward risk, innovation, and failure, as well as cultural values promoting creativity and independent thinking, play pivotal roles in determining the prevalence of entrepreneurship within a society.

The national environment for entrepreneurship is a multifaceted web of institutions and actors, including government ministries, financial institutions, and societal norms. Within this environment, cultural values exert a profound impact on the orientations of entrepreneurs and the conditions that support or hinder the creation of new ventures. Notably, two critical dimensions, uncertainty avoidance and individualism, have been identified as shaping the formation of start-ups in culturally diverse contexts. For entrepreneurs, attracting early financing is a formidable obstacle, and the ability to access financial resources may depend on cultural norms and institutional arrangements. In some cultures, close-knit social networks or familial ties serve as backers for new ventures, while in other contexts, banks or venture capitalists play crucial roles. Additionally, the presence of a robust legal infrastructure is deemed essential in fostering the development of effective capital markets that support the growth of startups (Baughn & Neupert, 2003).

While formal institutions have received considerable attention in cross-national research on entrepreneurship, the role of informal institutions, including culture, has been somewhat overlooked. Yet, the significance of socially supportive institutional environments cannot be overstated, as they provide nascent entrepreneurs with access to vital resources, strengthening their self-efficacy and enhancing their chances of success (Hopp & Stephan, 2012).

Cultural dynamics are instrumental in enabling beneficial resource flows and legitimizing new ventures, particularly in the absence of established track records and profitability. Lounsbury & Glynn (2001) encourage further ethnographic studies to delve deeper into the mechanisms through which cultural entrepreneurship facilitates capital acquisition when entrepreneurs lack conventional resources or institutional support.

Institutional economics underscores the pivotal role of economic, political, and social institutions in shaping economic behavior and market functioning. Institutional entrepreneurs, adept at establishing and transforming institutions, play a crucial role in capturing economic value, and cultural dimensions are key in shaping the identity and legitimacy of entrepreneurial ventures (Pacheco et al., 2010).

Beyond resource access, the creation of operational ventures is challenged by the need for tangible and intangible support. Social capital, embodied in social networks and collaborative learning cultures, significantly influences the venture creation process (Hopp & Stephan, 2012). Entrepreneurs operating within these environments can leverage valuable networks and support systems to navigate the challenges of building new ventures successfully.

Moreover, the significance of socio-economic conditions and a culture of collaborative learning in regions fostering entrepreneurship is evident. The interplay of cultural dynamics, economic factors, and support structures influences the development of entrepreneurial culture in regions aiming to drive innovation and economic growth (Röhl, 2016).

In their work "Culture and Institutions" (2015), Alesina & Giulianothe argue against claiming causal superiority between culture and institutions. They emphasize the complementary interaction and mutual feedback effects between culture and institutions, highlighting that the same institutions may function differently in various cultures. They call for a better understanding of the mechanisms and channels of causality in this interaction, advocating for more structural analyses over linear regression methods. None the less the interplay between the two are undeniable.

In conclusion, the literature on the environment of startups illustrates the intricate interplay between cultural values, institutional frameworks, and resource access, all of which shape the landscape of entrepreneurship in diverse countries. Understanding how cultural dimensions influence entrepreneurial behavior, access to resources, and the formation of legitimate and successful ventures is paramount in comprehending the dynamics of startup ecosystems worldwide.

2.2 On National Culture and Hofstede

According to Hofstede (1991) national culture is value based, and individual values are acquired in one's early youth, mainly in the family and in the neighborhood, and later at school. Hofstede states that by the time a child is 10 years old, most of their basic values have been programmed into their mind. According to Fukuyama (1995), national culture is shaped by the ingrained ethical habits of a society, which include ideas, values, and relationship patterns that guide and govern behavior and are transmitted through cultural practices and social norms. Schwartz's framework (1994) provides a comprehensive way to understand and compare cultural values across different societies based on these three basic societal issues: (1) relations between individual and group; (2) assuring responsible social behavior; and (3) the role of humankind in the natural and social world. National culture is a multifaceted concept, for the purpose of the present research we will define national culture as the shared values and norms of a society shaped by a complex interplay of historical events, socioeconomic conditions, educational practices, and the collective experiences of the people living in that society.

It is important to examine the influence of societal norms on the development and maintenance of institutions within a country. Hofstede (2001) highlights that once established, institutions reinforce societal norms and ecological conditions, implying that cultural contexts are deeply embedded in the fabric of society, and changes to institutions may not necessarily alter the underlying cultural norms.

Hofstede's research on national culture has garnered both acclaim and criticism. While praised for its relevance and rigor, concerns have been raised about the quantitative survey-based methodology, sampling process, and stability of observed dimensions over time (Baughn & Neupert, 2003). Nevertheless, researchers recognize Hofstede's work as a seminal contribution in the field of cross-cultural research, making it the dominant culture paradigm (Sivakumar and Nakata, 2001).

Hofstede's early work in social anthropology attempted to identify common problems faced by societies worldwide, and he proposed three essential issues: the relationship to authority, the conception of self (including the relationship between individual and society

and the concept of masculinity and femininity), and ways of dealing with conflicts (Hofstede, 1991). Building upon this foundation, Hofstede identified five key value dimensions of national culture that have become fundamental to cross-cultural research.

The first dimension is the Power Distance Index (PDI), which measures the extent to which less powerful members of society expect and accept unequal distribution of power. High PDI societies endorse hierarchical structures and authority, while low PDI societies prefer more egalitarian and participative decision-making (Hofstede, 1991).

The second dimension, Individualism vs. Collectivism (IDV), explores the degree of emphasis on individual versus group interests. Individualist societies prioritize personal goals and independence, whereas collectivist societies emphasize group cohesion and interdependence (Hofstede, 1991).

The third emphasizes that while superficial manifestations of culture may appear similar at a global level, the underlying values that shape practices differ significantly between nations and organizations (Hofstede, 1991).

The fourth dimension is Uncertainty Avoidance Index (UAI), which measures the extent to which a society feels threatened by ambiguous or unknown situations and how much they try to avoid uncertainty. High UAI societies prefer strict rules and avoid risky or ambiguous situations, while low UAI societies are more accepting of uncertainty and change (Hofstede, 1991).

The fifth dimension, Long-Term Orientation vs. Short-Term Orientation (LTO), assesses the focus on future rewards and long-term planning versus short-term traditions and values. Cultures with a long-term orientation emphasize persistence, thrift, and pragmatic adaptability, while short-term oriented cultures prioritize stability, tradition, and immediate gratification (Hofstede, 1991).

Despite potential criticisms and limitations, Hofstede's cultural dimensions continue to serve as a foundational framework for cross-cultural research, enabling comparisons and understanding of cultural differences and similarities across the globe (Kolman et al., 2003). The importance of the nation as a unit of shared experience is emphasized in the context of educational and cultural institutions shaping the values of society. The impact of national culture remains significant despite the forces of globalization (Inglehart & Baker, 2000).

Hofstede (1991) also distinguishes between national and organizational cultures. He emphasizes that while superficial manifestations of culture may appear similar at a global level, the underlying values that shape practices differ significantly between nations and organizations (Hofstede, 1991).

Hofstede's examination of the balance between values and practices at the national and organizational levels clarifies the socialization processes that contribute to the acquisition of cultural elements. Early youth experiences, family, and school play a crucial role in instilling values, whereas organizational practices are predominantly learned through socialization at the workplace (Hofstede, 1991).

Hofstede's exploration of societal norms and their influence on institutional development highlights the profound impact of culture on various aspects of society. The interconnectedness between societal norms, institutions, and ecological conditions underscores the stability of certain cultural elements in relatively closed societies (Hofstede, 2001).

Moreover, Minkov and Hofstede (2012) show that cultural differences tend to cluster along national lines rather than intermixing with other countries within the same cultural or geographic area. This reinforces the significance of national culture as a distinct and influential factor in shaping entrepreneurial environments.

In conclusion, Hofstede's research on national culture, while influential, has faced criticism regarding its methodology and scope. Nevertheless, it has significantly contributed to the understanding of cultural dimensions and their impact on societal institutions, practices, and behavior. The complexities of culture demand further exploration to comprehend the intricacies of cross-cultural interactions and their implications in various domains, including startup ecosystems.

3. Methodology

3.1 Research Design

The present study is an appreciative inquiry with a participatory approach. Interviews were conducted in two countries with the stakeholders of the startup industry, namely CEO's and Founders.

The interviews were more extensive, however the interview questions utilized for the present chapter of the study were as follows:

- ◊ As a leader how is the communication of decisions conveyed to employees?
- ◊ What makes a good leader in your opinion?
- ◊ Do you believe that a startup requires a higher level of autonomy for its employees? Could you give me an example of this in your own organization?
- ◊ What aspects of your country's culture may support or hamper the successful development of startups?
- ◊ Are there government grants or other support available to startups such as your company?
- ◊ How is having/working for a startup perceived in your country?

The present study utilizes a combination of qualitative and empirical approaches. Both a thorough literature review and examination of historical and socioeconomic contexts and qualitative interviews were used to enrich the research findings and provide a more holistic understanding of the subject matter.

3.2 Data Collection Methods

In this study, a qualitative approach was employed to gain comprehensive insights into the national culture's impact on Israeli and Hungarian startups. The data collection process involved conducting 55 semi-structured interviews, offering a flexible framework for in-depth exploration of the research topic. Of these interviews, 26 were conducted with Hungarian startups, and 29 with Israeli startups. The interviews were conducted over a period of two years, allowing for a thorough understanding of the research area and capturing any potential changes influenced by external factors, such as the COVID-19 pandemic. Additionally, follow-up inquiries were made to determine the current status of the startups, including whether they are still active, have received further funding, or have closed.

3.3 Data Analysis Procedures

Thematic data analysis was conducted using the Dedoose software, with the primary objective of identifying themes and patterns that reveal best practices. Through this analysis, our aim was to delve into the realm of startups in Hungary and Israel, focusing on positive experiences, achievements, and successful practices within this context. By exploring and amplifying these aspects, we sought to shed light on valuable insights that can contribute to a deeper understanding of national cultural environment, the startup ecosystem and entrepreneurial practices in both countries.

3.4 Research Ethics and Limitations

The present research was conducted with the explicit upholding of research ethics, namely:

Informed Consent: Consent was obtained from participants before involving them in the study. Participants were fully informed about the research objectives, procedures, potential risks, and benefits, and they have the right to withdraw from the study at any time. They

were also informed that the interviews would be recorded, explicit permission was granted for the recording of interviews.

Confidentiality and Privacy: The personal information and data of participants were kept confidential and not shared without explicit consent throughout the course of the study. Anonymity has been maintained.

Data Management and Security: The research data was appropriately stored and managed at all times to ensure its accuracy, security, and confidentiality.

Conflict of Interest: It must be noted that the author of the present study is a Hungarian national, married to an Israeli citizen.

Scientific Integrity: The findings of the present study were reported accurately, the data was evaluated to the best of the researcher's abilities.

The present comparative study of Hungary and Israel offers valuable insights into the specific dynamics of these two countries, but it also has its limitations.

Contextual bias: The researcher's perspective or background may influence the selection of Hungary and Israel for comparison, in this case the Hungarian nationality of the author, may have lead to potential subconscious biases in the study design and interpretation of results.

Lack of diverse perspectives: By focusing on only two countries, the present study may fail to understand the complexities and variations that exist in different parts of the world. Comparative studies involving a more diverse range of countries can provide a broader understanding of global phenomena.

Limited scope: The study does not capture the full range of factors influencing the particular phenomenon of the effects of national culture on startup success or failure, due

to the narrow scope of comparing only two countries. A more comprehensive study with multiple countries can provide a broader and more nuanced perspective.

Overlooking regional dynamics: Focusing on two countries may overlook the regional dynamics and interactions between neighboring countries, which can be crucial in understanding certain phenomena. However, in the present research we consciously aimed to avoid doing so.

4. Startup Culture in Hungary

4.1 Historical and Socioeconomic Context

The foundation of Hungary is deeply rooted in a rich and complex history that spans over a millennium. The origins of Hungary can be traced back to the Magyar tribes, who migrated to the Carpathian Basin in the late 9th century (Sugar, et al., 1994). Led by their leader Árpád, the Magyars settled in the region and established the Principality of Hungary in the early 10th century. The coronation of King Stephen I in 1000 AD marked a significant milestone as Hungary embraced Christianity and evolved into a Christian kingdom.

Throughout its history, Hungary experienced various periods of expansion, territorial changes, and cultural influences from neighboring regions. The country endured invasions, occupations, and alliances with other European powers, shaping its geopolitical landscape Feudalism was the predominant socio-economic system in Hungary from the 9th century to the late 19th, characterized by the dominance of feudal lords and the hierarchical structure of land ownership and labor obligations. (Vásáry, 2005).

In the 16th century, Hungary faced the Ottoman occupation, leading to a tumultuous era of resistance and struggle for independence. The perceived heroic efforts of figures like Matthias Corvinus and the valiant defense of cities like Eger and Székesfehérvár became emblematic of Hungary's resilience (Molnár, 2001).

The Austro-Hungarian Compromise of 1867 marked the establishment of the dual monarchy of Austria-Hungary, granting Hungary more autonomy within the empire. However, after World War I, the Treaty of Trianon in 1920 resulted in significant territorial losses for Hungary, profoundly impacting the nation's identity and demographics (Pénzes, 2020).

Modern Hungary emerged after the fall of the Austro-Hungarian Empire and went through various political transformations, including communist rule during the 20th century. The Hungarian socialist state under the influence of the Soviet Union had a unique trajectory. One could say that a series of experimental Hungarian economic reforms throughout this period gradually led to the change of the whole system. The first official plans to modify the economic system for its improvement were adopted as early as 1954. The revolution of 1956 brought about an urgency for change, further reforms followed in 1966 and from 1979 onwards. In the 1980's the so called 'second economy' was legalized, having a profound effect on many aspects of the economy, one of them being the significant growth of small private industry and retailing (Berend, 1990)

Post-socialist Hungary

During the early post-socialist period in Hungary, the collapse of state socialism marked a pivotal moment in the nation's transformation. The swift restructuring of property relations was a significant aspect of this process, involving the replacement of the all-encompassing authority of the party-state with distinct properties in the hands of authorized owners. The establishment of new property relations necessitated the purposeful reallocation of productive wealth, the introduction of new systems of command and control, and the emergence of a new group of entrepreneurs. The formation of this new entrepreneurial stratum was influenced not only by the collapse of the old political system and large-scale privatization but also by a culmination of past-dependent factors. Future entrepreneurs had undergone long-term processes of preparation, acquiring diverse managerial, organizational, social, and cultural skills that paved the way for their success in a relatively short span of time (Laki & Szalai, 2006).

The journey of new entrepreneurs was not without challenges. They faced periods of difficulty, and some businesses even teetered on the brink of collapse, navigating sudden changes in regulations and the economic uncertainties of the early 1990s. Nonetheless, many companies demonstrated remarkable resilience, not only surviving the transitional recession but also expanding rapidly or undergoing significant reconstruction.However, public opinion in Hungary exhibited long-standing skepticism toward private big business and the emergence of the new entrepreneurial class. Many viewed the new capitalists with suspicion, even beyond the groups directly impacted by the transition. Highly educated urban populations and beneficiaries of the systemic changes shared this sentiment. Contrary to prevailing prejudices, the new entrepreneurs were not primarily former party members; rather, they represented a minority, and the proportion of former leaders in the HSPW or communist youth organization was relatively small. Education played a crucial role in shaping the success of these entrepreneurs. Many of them attended elite technical and commercial schools, which provided not only high-quality knowledge and skills but also instilled aspirations for further education and established valuable social connections (Laki & Szalai, 2006).

As time progressed, competition played an increasingly significant role in shaping the entrepreneurial landscape. Nonetheless, factors such as knowledge, culture, behavioral traits, motivation for upward mobility, innovation, flexibility, and quick adaptation continued to be crucial determinants of success. These qualities contributed to the new Hungarian entrepreneurs becoming more aligned with their counterparts in developed nations, further solidifying their place in the evolving economic landscape (Laki & Szalai, 2006).

Modern-day Hungary

Presently, Hungary stands as a nation that takes immense pride in its rich historical heritage and cultural diversity, which serves as a mosaic reflecting triumphs, setbacks, and an enduring pursuit of identity and sovereignty.

In recent times, scholars have delved into the paradoxical situation surrounding Hungarian democracy – positive assessments of its solidity prevailed until 2010, but contemporary Hungarian politics has challenged this perception (Bogaards, 2018). The 2010 Hungarian parliamentary elections witnessed the alliance of Fidesz (the Alliance of Young Democrats – Hungarian Civic Union) and the KDNP securing a majority of votes and a dominant two-thirds majority of seats. Fidesz, led by Viktor Orbán since 1993, secured a qualified majority in the National Assembly in the 2010, 2014, and 2018 elections. It must be noted that the electoral system was significantly modified in its favor. Hence, despite receiving just 45% and 49% of the popular vote in the latter two cases, Fidesz enjoyed the support, at times, of over 50% of the electorate, largely due to "generous, if selective, social policies" and EU financial support (Batory, 2022; Grzymala-Busse, 2019; Kelemen, 2017).

Between 2010 and 2019, the opposition to Orbán's government was a collection of fragmented center-left parties, comprising remnants of the Socialist Party, and newer liberal/green parties like Politics Can Be Different, Dialogue for Hungary, and the youth movement Momentum. However, this opposition faced significant challenges as it was marred by internal conflicts and irreconcilable ideological divisions with Jobbik, a conservative political party in Hungary, hindering its ability to present a cohesive and coordinated electoral challenge against the dominant party, Fidesz. (Batory, 2022).

During this period, the qualified majority in parliament was effectively wielded to solidify the ruling party's dominance across various spheres. This encompassed unilaterally adopting a new constitution, assuming control over ostensibly independent institutions, including elements of the judicial administration, and significantly influencing the media landscape. The strategic tailoring and constant readjustment of the electoral system to favor Fidesz's partisan interests further compounded the situation (Batory, 2022). As these transformations unfolded, Hungary experienced a notable decline in its standing concerning political rights and civil liberties. While still classified as a free country by Freedom House, the margin of freedom was slender. The declining rankings in political and civil liberties were met with growing concern among international observers, sparking

debates about the direction of Hungary's democratic institutions (Bogaards, 2018). The cumulative effect of these actions left little doubt that they amounted to a deliberate and intentional effort to erode the fundamental principles of democracy, representing a textbook case of de-democratization (Batory, 2022; Bakke and Sitter, 2020).

The significance of the government's quality is evident in Hungary, where a prevailing perception among the populace is that independent institutions lack the capacity to hold top-level policy-makers accountable. In this context, citizens feel a sense of helplessness and limited recourse when it comes to keeping those in power in check. The lack of trust in independent oversight raises concerns about the potential consequences for transparency, accountability, and the overall health of democratic governance in the country. This has resulted in alienation among citizens towards the EU's political system, feeling that EU institutions do not take their concerns into account, which led to significant Euroscepticism and further rise of populist parties. The perception that the EU fails to safeguard public resources adequately adds to the disconnection, leading to skepticism about the effectiveness of the EU's fiduciary obligations (Batory, 2021).

In summary, the Hungarian political landscape has undergone significant changes since 2010, raising questions about the nation's democratic values, institutional practices, and relationship with the European Union. As scholars continue to examine this complex situation, it becomes evident that Hungary's democratic trajectory requires critical assessment and constant vigilance to ensure the preservation of democratic principles and freedoms.

4.2 The Emergence of the Hungarian Startup Ecosystem

The modern startup landscape in Hungary began to take shape around 2008, inspired by the success seen in Silicon Valley and other global innovation hubs. The movement gained momentum and since then, the startup community has been actively participating in events and conferences, seeking to learn from the American model and explore international opportunities. As more entrepreneurs embrace the concepts of "Bootstrap" and "Death

Valley" they have adapted to the reality of building successful ventures with limited resources and navigating financial challenges (Veiszer, 2013). Central and Eastern Europe boasts a wealth of technology products and services, a testament to the region's innovative capabilities. The combined valuation of Enterprise Software startups in Central and Eastern Europe (CEE) stands at €80 billion, highlighting the healthy growth and economic impact of the region's technology ecosystem (King, 2022). Hungary boasts a robust pipeline of emerging startup success stories. Notably, Seon, bitrise, and AImotive, among others, have successfully secured funding from renowned global investors. Seon, a B2B fraud detection startup, stands out as one of the most highly valued startups in the ecosystem, having raised an impressive €87.1M in Series B funding (Müller, 2022). However, a significant challenge lies in the limited regional demand, hindering companies' ability to scale effectively. While the region's startups demonstrate immense potential and offer cutting-edge solutions, the size of the local market often proves insufficient to support substantial growth and expansion. As a result, entrepreneurs face the need to look beyond regional borders and seek international markets to achieve sustainable scaling and long-term success. By embracing global opportunities and fostering international collaboration, startups in the region can unlock their full potential and thrive in the dynamic and competitive global market (Karsai, 2022).

However, while the Hungarian startup scene shows promise, it faces both benefits and challenges in its development. For the venture capital industry to thrive and foster innovation, several critical factors must be in place. First and foremost, the freedom of entrepreneurship and a fair playing field in the market are paramount. The supporting infrastructure, including education and a skilled workforce with up-to-date knowledge and language proficiency, plays a crucial role in facilitating rapid technological advancements. Additionally, the availability of attractive share options and a smooth process for business formation and operation are essential for startup growth. Embracing digitalization and enabling remote work opportunities further enhance the region's competitiveness and attractiveness to global investors (Karsai, 2022).

On the positive side, the region boasts a pool of innovative ideas and skilled professionals, making it conducive to the growth of technology products and services. The widespread adoption of remote work during the COVID-19 pandemic has further created a favorable environment for startups in Central and Eastern Europe (Karsai, 2022). This has opened doors to global collaboration and expansion possibilities for ambitious entrepreneurs.

Despite some CEE venture capital-funded startups achieving remarkable success and becoming "unicorns", the size of venture capital funds in the region remains below the European average. On the other hand, state support in the form of aid and grants for enterprises was substantial in Hungary between 2007 and 2016, far exceeding the EU average as a percentage of GDP. However, an analysis of VC investments during this period revealed that while public resources increased significantly, the value of average yearly investment remained stagnant. In essence, public funding did not act as an additional source of finance but replaced private money, leading to softer project selection standards. This distorted funding landscape sends misleading signals to innovators and start-uppers, who may focus less on preparing their projects for market success, hindering long-term growth and competitiveness (Kállay & Jáki, 2019). This dual economy dynamic in the startup market results in some companies relying on state subsidies while others seek to thrive solely through market-driven efforts. Unfortunately, state-driven rescue packages during crises can further perpetuate this situation, hindering startups' efficiency and international success. Furthermore, this environment discourages global venture capital firms from actively participating in the development of the ecosystem (Karsai, 2022).

Education and fostering a skilled workforce play a pivotal role in unlocking the true potential of the Hungarian startup ecosystem. By investing in quality education, developing specialist knowledge, and encouraging entrepreneurship from an early stage, Hungary can build a foundation for a sustainable and vibrant startup culture. Emphasizing these elements will lead to a more robust venture capital industry and attract global interest in the region's startup ventures (Karsai, 2022).

In a recent interview, Gábor Bojár, a Hungarian entrepreneur and founder of Graphisoft, a leading AEC CAD company acquired by German Nemetschek AG in 2007, highlighted the tremendous potential of the IT revolution for Hungary. Bojár expressed his belief that the country could have seized a remarkable opportunity to create numerous software companies akin to Graphisoft, achieving success on the global stage. He emphasized that Hungary's renowned mathematical culture could have served as a strong foundation for such ventures. However, he lamented that this opportunity has been missed for the time being.

Bojár went on to express his concern about the state of mathematics education in Hungary, noting that it appears to be deliberately undermined. He firmly believes that nurturing a strong mathematical education is vital for the country's future success in the 21st century. In his view, Hungary had the potential to become one of the richest nations, transcending the challenges faced by developing countries, had it capitalized on its great traditions in mathematics (Connelly, 2010, Müller, 2022)

The entrepreneur also criticized the current focus on building battery factories, which he believes bring little economic benefit to the nation. Instead, Bojár advocates for prioritizing the development of software, an area where Hungary has abundant resources and potential for significant financial gains. He expressed skepticism about the effectiveness of state support for companies and asserted that true economic success lies in investing in education. Bojár emphasized that politicians often prioritize short-term gains and focus on securing votes, which hinder long-term investments in education and economic growth. He goes on to mention that the correlation between education spending and economic prosperity is evident, but Hungarian leaders seem to overlook this critical link. He pointed out that the current government's support is strongest among the least educated strata of society, reflecting a concerning correlation between educational investment and political support.

Based on the existent literature and the opinions of key players in Hungary's start-up ecosystem we see that ensuring market fairness, strengthening supporting infrastructure, and striking a balance between state involvement and private investment are critical steps to bolstering the country's startup landscape and enabling its startups to compete on a global scale. Policy efforts should be directed towards long-term improvements in the fundamental elements that foster an entrepreneurial society. In the short term, the focus should be on providing entrepreneurs with essential tools, such as information, skill development, and opportunity recognition, which enable them to take effective and decisive actions (Acs & Szerb, 2007). In a historical perspective, we see a preservation of the feudal mentality among the Hungarian petty nobility. This preservation was influenced, in part, by the prolonged domination of the Turks and the absolutism of the Hapsburgs. Consequently, democratic values struggled to find firm footing, resulting in recurrent displays of antidemocratic nationalism within the Hungarian political culture (Hanak, 1995, Kolman et al., 2003). Understanding Hungary's historical and socioeconomic context provides valuable insights into the nation's startup culture. The country's long-standing cultural traits, coupled with its political and economic transformations, have shaped the entrepreneurial landscape.

Table 1 Hungarian Ecosystem Stats 2022

Table data compiled from various sources: King, S. (2022), Müller, S. (2022), StartupBlink. (2023), The Times Higher Education. (2022)

Ecosystem Stats 2022	Hungary
Number of Startups	1632
Unicorns	2
Total funding raised	176M
Employees	15 000
Ecosystem value (billion USD)	14,2
Workspaces	21
Accelerators	96
Prominent industry	Edtech
Global ranking	50
OECD PISA Math Score	473 (OECD average)
Highest ranked University	Semmelweis University 251-300

5. Startup Culture in Israel

5.1 Historical and Socioeconomic Context

According to David Ben Gurion, the first prime minister of Israel, in his book "Israel – A Personal History" (1971), the modern-day State of Israel was officially established on May 14, 1948. However, its foundations were laid through years of dedicated efforts by various Zionist movements, such as the Kattowitz Conference in 1884 and the First Zionist Congress in 1897. Jewish immigration to the region long predated the formal Zionist Movement, with records of Yemenite Jews visiting Israel as early as 1489. The journey towards the establishment of Israel was a long and historical process, marked by the aspirations and endeavors of the Jewish people to reclaim their ancient homeland.

Even before the establishment of the modern State of Israel, key events took place which would set the stage for the later economic and entrepreneurial success of the nation. The kibbutz stands out as a unique experiment in agricultural collectivism, which thrived as a voluntary, democratic, and productive community (Rosenberg, 2018). The Histadrut (the General Organization of Hebrew Workers in the Land of Israel), beyond being a trade union, played a vital role in state-building and economy-building during the early 1920s until Israel's establishment in 1948 (Maman & Rosenhek, 2012). It provided a framework for working-class individuals to find employment, bridging the gap between labor and capital, and fostering economic growth and stability. There was an early and prominent role of universities in the Zionist enterprise, even when the economy had limited capacity for utilizing trained graduates. The Technion, established in 1924, and The Hebrew University, founded in 1925, were among the institutions dedicated to scientific, technological, and humanities education and research. These universities would produce numerous graduate engineers, scientists, and skilled technicians who later actively participated in the war effort during the 1940s (Rosenberg, 2018).

The formation of the modern State of Israel was a response to historical events, including the Holocaust, Jewish immigration, and geopolitical dynamics in the region.

After the War of Independence, which established Israel as a state, much of its infrastructure was damaged, but the human resources remained intact and were further bolstered by immigration and the continued growth of higher education in the subsequent

decades. Economic growth in the 1950s and the first half of the 1960s was remarkable, fueled by immigration, substantial state-directed capital investment, and effective government interventions to address infrastructure and housing needs (Rosenberg, 2018). State agencies extensively controlled the economy, aiming to ensure high economic activity and industrial growth. They had full authority over the allocation of crucial resources, including land and natural resources. The state exercised centralist control over infrastructure, agricultural and industrial production, foreign trade, investment, credit, labor market structuring, and the incorporation of different social groups in various sectors (Maman & Rosenhek, 2012).

In the aftermath of the Six-Day War in 1967, Israel experienced both significant economic growth and challenges that would shape its trajectory in the following decades. The 1973 war marked the end of the "Golden Age" of economic growth and the beginning of a period of deteriorating macroeconomic performance (Maman & Rosenhek, 2012). Despite the challenges, Israel's position as a regional power and the influx of immigrants brought diverse influences and flavors to the country, ending its partial isolation (Shapira, 2012).

In 1973, Israel faced devastating losses during the Yom Kippur War when an Arab coalition launched a surprise joint attack on the holiest day in Judaism on October 6th. This unexpected assault resulted in significant loss of life, internal conflicts among generals, and ultimately led to the downfall of Golda Meir, Israel's first and only female Prime Minister (Sachar, 1987; Shapira, 2012). In the 1970s Israel's economy was characterized by significant challenges and transformations including high inflation, budget deficits, and external debt. Consequently, a new middle class emerged, promoting capitalist ideals and individual rights. Calls for a free-market economy and decreased state involvement gained traction, leading to demands for change of government (Shapira, 2012). In 1977, the Likud party took office, vowing to combat inflation, corruption, and high tax burdens. A "New Economic Policy" aimed to promote investment and reduce the adverse trade balance, but it inadvertently fueled inflation and social inequities. The new regime's policies, including currency convertibility and devaluation, contributed to a disastrous inflationary crisis. The

government's response to strikes and labor disputes lacked resolve, leading to a series of economic challenges and a subsequent new election (Sachar, 1987).

The 1970s was therefore described by Maman & Rosenhek (2012) as the "lost decade" of the Israeli economy. However, these challenges also paved the way for future policy shifts and reforms that would shape Israel's economic landscape in the years to come.

In the 1980s, Israel faced a profound political-economic crisis, marked by a loss of state autonomy and control over economic processes. In the 1981 elections, the outcome was closely contested, and Likud managed to maintain a slim one-seat advantage. This narrow victory enabled Menachem Begin to form a government, though with only a minimal majority. The following year the First Lebanon War broke out, causing further turmoil (Shapira, 2012). This crisis culminated in the hyperinflation of 1984-85. To address this critical situation, a comprehensive program of economic stabilization was implemented in 1985 with active involvement from the US government and economists from Israel and the US. The program aimed to achieve short-term goals, including significant reduction of the fiscal deficit, improvement of the balance of payments, and curbing inflationary pressures by removing mechanisms of automatic wage indexation and anchoring inflation expectations. This period also saw a significant shift in state economy relations, characterized by the adoption of neoliberal policies such as deregulation of the labor market, liberalization of financial markets, and increased involvement of foreign capital in the local economy, alongside privatization of public assets (Maman & Rosenhek, 2012).

In the 1990s, Israel once again underwent significant transformations in its economic and political landscape. By this time, the country shifted from a centralized state with a collectivist worldview in the 1950s to a proponent of free-market principles, private enterprise, and reduced state intervention. Approximately one million Russian immigrants arrived in Israel during the period of 1989 to 2005. Considering that the total Jewish population in Israel in 1989 was 3,717,100, this influx created a ratio of 1 immigrant to every 4 Israeli Jews in the country (Smooha, 2008) These educated immigrants brought vast technological and scientific knowledge, doubling the number of engineers and doctors

in Israel The influx of skilled immigrants from Russia also contributed to Israel's emergence as a high-tech powerhouse in the global arena. The high-tech industry became one of the country's leading sectors, driving economic growth and export success (Shapira, 2012). Moreover, the gradual development of peace between Israel and its neighbors further facilitated economic growth. The peace process, which coincided with the wave of immigration, brought political optimism and economic opportunities, contributing to Israel's prosperity in the first half of the 1990s (Rosenberg, 2018).

Since 2000, Israel has experienced a mix of challenges and accomplishments. The Second Intifada brought about a period of intense conflict with increased tensions between Israelis and Palestinians, leading to significant loss of life (Pressman, 2003). Despite this turmoil, Israel emerged as a global leader in technology and innovation during the High-Tech Boom, earning the title of "Startup Nation" with successful startups and research centers flourishing (Senor & Singer, 2011). In 2005, Israel implemented the Gaza Disengagement Plan, evacuating settlements in Gaza and parts of the West Bank, a move aimed at promoting peace but met with opposition (Rynhold, & Waxman, 2008). The Lebanon War in 2006 further added to regional hostilities. Despite facing the impacts of the 2008 Global Financial Crisis, Israel's economy continued to grow steadily, driven by its thriving high-tech sector. Diplomatically, Israel achieved peace treaties with Egypt and Jordan and established normalization agreements with several Arab countries. The Abraham Accords were a series of historic agreements signed in 2020, normalizing relations between Israel and several Arab countries, including the United Arab Emirates, Bahrain, Sudan, and Morocco, fostering new diplomatic ties in the Middle East (Guzansky & Marshall, 2020). However, challenges remain, such as conflicts with Hamas, presenting humanitarian and security issues. Throughout these complexities, Israel has maintained its reputation as a resilient nation, navigating both prosperity and adversity.

Modern-day Israel, seventy years after declaring independence, stands as the world's tenth oldest continuous democracy, boasting universal suffrage, including Arab citizens, and maintaining civil liberties and free elections without interruption. It has been consistently rated as a free country by Freedom House for nearly half a century, a remarkable feat

considering its ongoing conflicts, wars, terrorism, and diverse population (Wilf & Mor, 2018).

Israel's focus on defense remains a significant aspect of its budget and resources due to its unique security challenges (Beeri, I. 2021). The deeply polarized political system, operating under a proportional representation framework, has fostered a multi-party structure defined by a prominent right–left ideological schism that originated in the 1970s. Right and left partisan identities have become central in Israeli politics, with growing attention to animosity between partisans in recent years (Bassan- Nygate & Weiss, 2022) However, the country's journey from its inception to the present day has been shaped by its commitment to democracy, its security concerns, and its ability to adapt to various challenges while maintaining its position as a leading nation in technology and innovation (Wilf & Mor, 2018).

More recently however, tensions between the right and left blocs have overshadowed other divisions, and affective polarization in Israeli society warrants careful evaluation (Beeri, I. 2021; Bassan-Nygate & Weiss, 2022). On July 24, 2023, Israel's judiciary overhaul, known as the "reasonableness" law, was passed with the support of the coalition members while the opposition MKs boycotted the vote. The law eliminates judicial review of government decisions based on reasonableness, raising concerns among critics that key democratic "gatekeepers," including the attorney-general Gali Baharav-Miara, could be removed. The law was rushed through parliament despite objections, including those of President Isaac Herzog and US President Joe Biden, leading to concerns about its impact on investor confidence and national unity. Israel's resilient image has taken a hit with this divisive move (Horovitz, 2023).

5.2 The Emergence of the Israeli Startup Ecosystem

During a TedEx interview in November 2015, the renowned statesman Shimon Peres, who served as the 8th Prime Minister and 9th President of Israel, was asked about his biggest mistake in life. He candidly responded, "My greatest mistake in life was that my dreams

were too small, so my advice to you is to dream great, don't dream small." Throughout his illustrious career, Peres was a strong advocate for science and technology, and in 1996, he founded The Peres Center for Peace and Innovation. His enduring dedication to promoting innovation and his role as a symbol of Israeli ingenuity became even more pronounced late in life. This notion of creating something out of nothing and daring is a hallmark of the Israeli entrepreneurial spirit.

In 1985 Shimon Peres, the finance minister at the time, implemented a stabilization plan, crafted in collaboration with prominent figures like U.S. Secretary of State George Shultz, IMF economist Stanley Fischet, and Herbert Stein, the former chairman of President Nixon's Council of Economic Advisers. The plan successfully reduced public debt, imposed spending limits, initiated privatizations, and reformed the government's involvement in capital markets (Senor & Singer, 2009, Maman & Rosenhek, 2012). However, despite these efforts, Israel still lacked a vibrant and dynamic entrepreneurial economy. For the economy to flourish, three crucial factors were needed: a new wave of immigration, a new war, and the emergence of a new venture capital industry (Senor & Singer, 2009).

The emergence of the Israeli ecosystem as a global leader in technology and innovation since the 1990s has been shaped by various factors. While the development of peace between Israel and its neighbors has often been overlooked, it has played a critical role in fostering a conducive environment for the high-tech economy to thrive (Rosenberg, 2018). Additionally, the Bank of Israel has been instrumental in promoting institutional changes aligned with neoliberal principles, fostering fiscal and monetary discipline, and facilitating financial liberalization (Maman & Rosenhek, 2012).

The experience of many Israelis who ventured to Silicon Valley during the "lost years" of the 1970s and 1980s facilitated market intelligence acquisition and the creation of valuable connections, contributing to the pool of entrepreneurial talent (Rosenberg, 2018). The phenomenon of attracting talent from around the world to contribute to Israel's

entrepreneurial success is described in Senor & Singer's book “Start-up Nation” (2009) as “brain-circulation”.

Israel’s ability to divorce the security threat from its economic growth opportunities is a notable aspect of its entrepreneurial spirit. The confidence of Israelis that their start-ups can survive during war and turbulence has been a crucial factor in attracting investors. This sentiment is reflected in Warren Buffett’s perspective on Iscar’s value, where he emphasizes that the talent of employees, loyal customer base, and brand are the true assets of the company, not its physical facilities. Even in the face of the sole existential threat from Iran, operating through proxies like Hezbollah and Hamas, the perception of political risk in Israel has not significantly deterred the local or global business community (Senor & Singer, 2009; Rosenberg, 2018).

The aforementioned massive influx of immigrants from the former Soviet Union in the 1990’s brought with them a significant number of skilled engineers and professionals. This sudden surge in highly educated talent prompted the government to explore strategies to effectively utilize and employ this valuable workforce. Recognizing the potential of these new arrivals, the government sought ways to integrate them into the country’s burgeoning economy and capitalize on their expertise to further drive technological innovation and economic growth (Avnimelech et al., 2006).

In 1991, the Israeli government took a proactive approach to foster technology innovation by creating twenty-four technology incubators. These incubators provided resources and financing to scientists, many of whom were recently arrived Russian immigrants, to kickstart their R&D work. However, while the program succeeded in developing technology, it faced challenges in effectively commercializing and selling these innovations due to the lack of start-up venture experience among government financiers (Senor & Singer, 2009). Yet other forms of government support, particularly through the Yozma program, played a pivotal role in building the venture capital industry, attracting substantial investments, and nurturing the startup-intensive high-tech cluster (Baygan, 2003; Avnimelech et al., 2006). The Yozma program was introduced in 1993. The

government invested $100 million to establish ten new venture capital funds, partnering with Israeli venture capitalists in training, foreign venture capital firms, and Israeli investment companies or banks. The allure for foreign VCs was the potential upside, as the government offered a 40% equity stake in the new fund with an option to buy it out cheaply, along with annual interest, after five years if the fund proved successful. This unique approach provided investors with substantial rewards while sharing the risk with the government, making it an attractive and successful initiative. Between 1993-2000 investments were made in approximately 200 startups (Senor & Singer, 2009; Avnimelech et al., 2006).

Ecosystem Stats 2022	Israel
Number of Startups	8685
Unicorns	47
Total funding raised	15.73B
Employees	141 000
Ecosystem value (billion USD)	298,9
Workspaces	11
Accelerators	21
Prominent industry	Software and Data
Global ranking	3
OECD PISA Math Score	458 (below OECD average)
Highest ranked University	Tel Aviv University 176-200

Table 2 - Israeli Ecosystem Stats 2022

Table data compiled from various sources: IVC Research Center. (2023). The Times Higher Education. (2022)

The Israeli workforce's high level of education and technological expertise, including a substantial number of engineers, has been a key asset in driving the country's high-tech success (Malach-Pines et al., 2004). Israel's startup ecosystem thrives on the synergy of education and military service. Elite IDF units function as the nation's equivalent of prestigious universities, and military experience is highly valued in job interviews. The workforce is well-educated, with a significant number of engineers and professionals who gained expertise during their military service. The technology and skills developed in military R&D quickly found applications in civilian sectors, spurring the growth of innovative startups (Senor & Singer, 2009; Malach-Pines et al., 2004; Rosenberg, 2018). This unique combination drives Israel's vibrant startup culture.

The Israeli ecosystem's development went through several phases, with a rapid quantitative growth of venture capital and startups during the 1990s leading to the emergence of the

high-tech industry (Avnimelech et al., 2006). Despite challenges, including the global financial crisis in 2008, Israel demonstrated resilience and a short recession period (Rosenberg, 2010). However, the economy's success in certain sectors, often serving a protected domestic economy, has not fully addressed issues like low labor productivity and persistent poverty rates (Rosenberg, 2018). Additionally, venture capital investing in technology companies experienced fluctuations, with investments falling to $735 million in 2009, a decline from previous years (Rosenberg, 2010). Nonetheless, Israel's ability to adapt and innovate remains a driving force behind its startup ecosystem's growth and success.

6. Findings and Comparative Analysis

6.1 Cultural Perspectives and Startups: Comparative Findings in Israel and Hungary

In this qualitative comparative research, we collected and analyzed data from 55 semi-structured interviews conducted with startup CEOs and Founders, 29 of whom were based in Israel and 26 in Hungary. The data analysis was carried out using a coding frame and the software Dedoose, enabling a comprehensive exploration of the startup cultures in these two distinct countries and shedding light on the role of historical and socioeconomic factors.

Our findings regarding leadership qualities valued by startup CEOs in Hungary and Israel revealed that Israeli leaders are highly regarded for their ability to lead by example, motivate, possess a clear vision, emphasize collective wisdom, and actively listen to their employees. On the other hand, Hungarian CEOs place emphasis on leaders who effectively communicate expectations, have a strong vision, value collective wisdom, motivate their teams, and aim to serve.

Figure 2 – Qualities of a good leader Israel & Hungary

The responses from Israeli CEOs exhibited greater diversity, suggesting a wider range of views on what constitutes a good leader. In contrast, Hungarian respondents demonstrated higher consensus, with the top ten answers capturing a substantial 84% of all responses, compared to only 67% among Israeli respondents. This disparity reflects potential cultural variations in expectations and perceptions of leadership roles within startup environments. These findings are further analyzed in Chapter 2.

We will be keeping these leadership values in mind when analyzing the data with the aim of answering our research question.

The research sought to explore how elements of national culture in Israel and Hungary can either support or hinder the development of startups. During the interviews, when asked about elements of their national culture that could influence the development of a startup, Israeli respondents tended to begin with positive aspects, whereas Hungarians typically started with negative aspects. This pattern serves as a clear indicator of the cultural differences between the two nations. The findings reinforced this observation. Out of the 29 Israeli interviewees, 92 positive and 17 negative responses were coded, while among the 26 Hungarians, 51 positive and 54 negative responses were coded. The contrast in the number of positive and negative responses further highlights the differing cultural perspectives and orientations towards discussing their respective national cultures' impact on startups.

The top ten responses were as follows:

Positive Israel: Boldness, Participation in Israeli Defense Forces, Creativity, Strong networks, Flexible, Ability to criticize management, Speaking openly, Informal, Open-minded, Independence

Negative Israel: No long-term planning, Speed, Over-confidence, Lack of discipline, Lack of focus, Bureaucracy, Unable to change direction, Turbulent environment, Pressure to have family, Language barrier

Positive Hungary: Tenacious, Creativity, Hard-working, Strong networks, Talent allocation, Flexible, Perfectionism, Open to learn, Open-minded, Speaking openly

Negative Hungary: Pessimistic, Closed mindedness, Turbulent environment, Lack of entrepreneurial education/mindset, Risk averseness, No accountability, Not innovative, Lack of trust, Modesty, Language barrier

The term "Chutzpah", which is commonly used in Hebrew/Yiddish, was categorized as "Boldness" to facilitate a broader understanding of its meaning. It is essential to acknowledge that some other attributes coded could be encompassed by the concept of chutzpah, such as the ability to criticize management and speak openly. Among the coded responses, "Boldness" emerged as the most frequently cited trait, with a code count of 12, accounting for 13% of all answers. Following closely was the mention of the Israeli Defense Forces (IDF), with 11 out of 12 mentions.

The significance of the IDF as a support system and springboard for startups was an undeniable and prominent theme in the results. It became evident from several responses that the IDF is deeply ingrained in Israeli culture and serves as a source of great pride. Particularly noteworthy was the impact of the Israeli Intelligence Corps unit 8200, known as "shmone matayim," which produced several startup founders and engineers. Many of

them based their entrepreneurial ventures on the work they had accomplished during their service in the IDF.

The association between "Chutzpah" and the IDF highlights the cultural value placed on fearlessness, audacity, and the willingness to take bold and innovative risks – a mindset that has evidently influenced the entrepreneurial spirit and success of Israeli startups.

Further analysis of the data revealed interesting differences in how Israeli and Hungarian CEOs approached the topic of their national cultures and their impact on startups. Israeli respondents showed a reluctance to discuss negative aspects of their culture, as evidenced by only 17 responses being coded as negative. The top three negative responses were "No long-term planning" (code count 3), "Speed" (code count 3), and "Over-confidence" (code count 2). These aspects were mentioned in the context of their potential adverse effects on startups in the long term or the acknowledgment that they may not be ideal for sustainable growth.

One respondent offered insights into the cultural elements or valued qualities in Israel that can benefit startups. However, the respondent also highlighted their potential negative side in the long term. The need for improvisation and flexibility in startups was acknowledged as positive attributes, but it was noted that excessive emphasis on these qualities might hinder long-term planning and discipline. As the respondent expressed, "[…] in startups […] you really need to improvise and to be flexible. So those things were quite good, but not too much in long term plan or […] discipline planning." (S.K., age 55, interviewed on 03/24/2022). This perspective illustrates a nuanced understanding of the cultural dynamics in the Israeli startup environment, recognizing the potential challenges that certain cultural attributes may pose in the long run.

Among the Hungarian respondents, 19% (code count 10) of the coded answers depicted Hungarian culture as pessimistic. This perception was followed by references to "closed-mindedness", "turbulent environment", and "lack of entrepreneurial education/mindset" each accounting for 15% of the responses, respectively. Since several interviewees initially

focused on negative aspects when discussing their national culture, the results on pessimism were unsurprising.

The data indicates that a significant portion of the Hungarian respondents identified certain cultural traits that they perceived as pessimistic or potentially hindering the growth and development of startups. These findings highlight the importance of understanding how cultural attitudes and beliefs can shape entrepreneurial endeavors and potentially influence the overall startup ecosystem in Hungary.

Israel	Hungary
Boldness	Tenacious
Israeli Defense Forces	Creativity
Creativity	Hard-working
Strong networks	Strong networks
Flexible	Talent allocation
Ability to criticize management	Flexible
Speaking openly	Perfectionism
Informal	Open to learn
Open-minded	Open minded
Independence	Speaking openly

Figure 3 Positive aspects of national culture for startups

Among the Hungarian respondents, the top three positive responses were as follows: "Tenacious" (Code count 9), "Creativity" (Code count 8), and "Hard-working" (Code count 6). The term "tenacious" refers to individuals holding tightly onto something or maintaining a determined opinion. Similarly, "hard-working" describes individuals who diligently work to achieve a goal, even in the face of difficulties or challenges.

It is worth noting that the term "tenacious" although categorized as a positive response, is often used in the context of "against all odds", which could be perceived as having a slightly negative connotation overall. Nonetheless, it underscores the resilience and unwavering determination of Hungarian entrepreneurs, who persistently strive to overcome obstacles and pursue their objectives with dedication and commitment.

During the conducted interviews, an intriguing observation emerged regarding the open-ended question that asked interviewees to briefly describe their background and role. Several Israeli respondents chose to share personal family details in their responses, whereas Hungarians tended to focus primarily on professional details.

Israel	Hungary
No long term planning	Pessimistic
Speed	Closed mindedness
Over-confidence	Turbulant environment
Lack of discipline	Lack of entrepreneurial education/mindset
Lack of focus	Risk averseness
Bureaucracy	No accountability
Unable to change direction	Not innovative
Turbulant environment	Lack of trust
Pressure to have family	Modesty
Language barrier	Language barrier

Figure 5 Negative aspects of national culture for startups

When asked to share a few details about his job, role, and background Israeli respondent M.P. age 37 replied "And I worked and [am] still working in the industry field as developer, automation, and robotics. […] I'm also a lecturer [I] give lectures about startups. And usually [I'm] a good husband." (Interviewed on 01/27/2022)

The contrast in the responses shed light on potential cultural differences between the two groups. Israeli interviewees' inclination to share family information might reflect a cultural value placed on interconnectedness and the significance of family ties within their society. On the other hand, the Hungarian respondents' emphasis on professional details could indicate a stronger emphasis on maintaining a professional boundary and perhaps valuing a sense of privacy when discussing personal matters.

This finding underscores the importance of considering cultural norms and values when conducting interviews and interpreting responses. Cultural nuances play a vital role in

shaping communication patterns and self-disclosure, providing valuable insights into how individuals perceive and present themselves within their respective cultural contexts.

The research also inquired about the types of government support available to startups in each country and society's overall perception of startups.

When asked about the types of government support available to startups, the responses from Israeli and Hungarian respondents provided interesting insights. Among the Israeli respondents, an overwhelming 100% replied affirmatively, indicating the widespread availability of government support. Half of them specifically mentioned grants, and one third highlighted the Israeli Innovation Authority specifically as a significant source of support.

O.Sh., the CEO of an Israeli company which is currently still active and has received additional funding since the interview, said they received approximately $2 million in grants from the Israeli Innovation Authority and the Beard Foundation. "Yes, we got about $2 million in grants from the Israeli innovation authority and from Beard Foundation." (O.Sh., age 48, interviewed on 07/22/2021)

According to A.Sh., the CEO of one of the Israeli startups, the Israeli Innovation Authority allocates significant government spending on research and development projects, making Israel a global leader in per capita government spending on R&D. This funding is primarily channeled through the private sector, supporting startups like theirs. A.Sh. highlighted that their company received part of its investment as a grant from the Innovation Authority, which aims to support high-risk and young startups. Moreover, Israel's participation in the European Horizon Program also provides access to additional funding opportunities. Overall, there is substantial access to government funds to promote innovation and growth in the country. (A.SH., age 51, interviewed on 06/14/2021)

Similarly, the majority of Hungarian respondents described some level of government support, with 76% of the coded answers indicating affirmative responses. However, unlike

their Israeli counterparts, the Hungarian respondents did not provide any specific mentions or details about the types of government support available to startups.

In connection with the above findings, it is noteworthy that several of the interviewed Hungarian startups expressed their stance on government support. Despite the availability of government assistance, these startups asserted that they deliberately chose not to engage with it. Some went as far as to proudly state their decision to refrain from using such grants.

"Theoretically, I think that yes, practically, we have never tried to […] apply for […] […] any kind of grants, we wanted to be on one hand […]as far as possible from the Hungarian politics in general. And this is a kind of statement about the current Hungarian system." (Cs.H., age 51, interviewed on 06/30/2022)

"They're trying but it's not efficient […] A few ones but […] it was like, based on a friendship […]" (G.B., age 34, interviewed on 02/25/2022)

The millennial CEO of a Hungarian startup which secured a position in the top quarter of Dealroom's prestigious "Top 100 Startups to Watch in Hungary" (2023) discussed their relationship with Hiventures, a state-owned capital investor funded by the Hungarian Development Bank (MFB). The CEO acknowledged that Hiventures received government funding, and they had a good working relationship since 2019, achieving success together. However, the CEO pointed out the need for improvement in the system, suggesting a shift in mindset from thinking like a bank to adopting an investor's perspective, as occasionally, certain Key Performance Indicators (KPIs) posed challenges.

"They got the money. So Hiventures got the money from the government, I think, […] and there are no problems with it, actually. But, for instance, we have a good relationship with Hi Ventures. So, we work together since 2019, and good relations, […] we made some success together and etc. But the system has to be improved in the next years. They [have] to change the mindset, because they think […] as a bank, you know, as a big, big bank.

And […] not […] as an investor always. So, the problem is sometimes the KPIs that fall out, actually." (G.Sz., interviewed on 11/14/2022)

Another CEO expressed concerns regarding Hiventures, describing it as financing destructive ecosystems. The CEO criticized Hiventures for favoring certain venture capitalists (VCs) that they finance, which they considered subpar. The CEO highlighted the issue of the Hungarian ecosystem lacking significant success stories and suggested that the government should focus on building the ecosystem first rather than financing VCs with high failure rates due to non-competitive market conditions.

"I think they are like financing destructive ecosystems through Hiventures. And they are also having their own favorite […] VCs that are financed by them. But these are like, crappy […] VCs, in my opinion, Hiventures could be okay. But if you need money, for example, but the issue with the Hungarian ecosystem is that it misses […] the big success stories. So there is no not a huge ecosystem being […] built. So, I think they're putting the money in the wrong place, they should be building the ecosystem first, rather than financing VCs who are having […] 99% failure rates, because […] they are not living from the market and it's just not competitive." (A.N., age 39, interviewed on 11/03/2022)

One participant went to as far as linking the overall negative attitude to the unstable institutional environment:

"If you're talking about culture, what is the disadvantages is that our regulation is really strict in one way and incoherent in another way. So, it's really hard to push something through. This already affects culture. And this [comes] down to motivation. So, what I see is that people tend to be more pessimistic here. And I think it's 90% of the regulation[…] and authorities, not only now, but this is how […] people get used to bad regulation and bad […]authorities, slow authorities. And that's why they start to be more pessimistic about business development and making new technologies available." (B.F., age 40, interviewed on 03/11/2020)

The varying attitudes towards government support among startups in both Israel and Hungary provide valuable insights into the diverse approaches taken by entrepreneurs in navigating their business ventures. Such insights can be instrumental in understanding the motivations and preferences of startups in these respective countries and shed light on the complex interplay between governmental initiatives and the self-sufficiency of entrepreneurial endeavors.

The data underscores the prevalence of government support for startups in both countries, albeit with varying levels of specificity in responses. This information is crucial for understanding the role of governmental initiatives in fostering startup growth and innovation within the entrepreneurial ecosystems of Israel and Hungary.

When examining society's perception of startups, 60% of Israelis expressed a positive view, while 17% indicated that it varies. The remaining respondents used terms like "risky" or mentioned that people are "unphased", each representing 11% of the responses respectively. Similarly, among Hungarians, 59% held a positive perception of startups, 24% perceived it as varying, and 17% deemed it risky.

The remarkable similarity in responses can be attributed to the environment in which these CEOs operate. Many explicitly mentioned living in a sort of "bubble" surrounded by other entrepreneurs, which indicates a strong industry bias. This industry bias likely shapes their views and contributes to a shared positive outlook on startups.

Israeli CEO U.B., aged 62, expressed that working for a startup is viewed very positively in Israel. The perception of startup careers has elevated to such an extent that it is now comparable to the traditional aspirations of becoming doctors or lawyers, with Jewish mothers encouraging their children to pursue careers as high-tech engineers. This cultural shift reflects the growing significance of the tech industry and entrepreneurship in the country's collective mindset. "It's perceived very high, […] every Jewish mother used to want her kids to be doctors and lawyers, now they want them to be high tech engineers" (U.B., 62, interviewed on 06/13/2021)

According to L.O., a female respondent from Israel, working in a startup is considered a very appealing and prestigious opportunity. In Israel, there is a sense of glamour and excitement surrounding startups, making it a highly sought-after career choice. The positive perception is further bolstered by the success stories of individuals who have earned significant wealth while working in startups, contributing to the overall allure and positive outlook on startup careers in the country.

One Hungarian respondent, T.C., expressed that within their circle of contacts, which largely consists of people connected to startups, there is a positive view of startup culture, considering it a cool and exciting field. However, T.C. mentioned that friends outside the startup world, working in corporate or public administration, often view startup employees with sympathy, "Well that's a good question. I mean […] I'm totally surrounded with people somehow related to startup, so we think it's cool but […] if I meet a friend who is somehow in the corporate world or in public administration, they usually think that Oh, poor guy, so…" When asked about the general perception of startups in Hungary, T.C. admitted to being immersed in the startup bubble and acknowledged the surprising success of the startup scene in the country. Overall, T.C's take on startups is positive, and they believe that many others also consider startups to be a cool and appealing venture. (T.C. interviewed on 01/08/2020)

We conducted a follow-up study to determine the current status of the interviewed startups and explore potential differences between the two countries. The descriptor set was categorized into three fields: 1) "Active", indicating startups that were still in operation, 2) "Active and received additional funding", representing startups that were still active and had received additional funding after the initial interview, and 3) "Closed", signifying startups that had ceased operations.

The findings revealed that a relatively small percentage of startups had closed, with 14% of the Israeli startups and 15% of the Hungarian startups falling into this category, indicating a comparable closure rate between the two countries.

However, a more notable difference emerged concerning the growth of the startups. Only 8% of the interviewed Hungarian startups had received additional rounds of funding since the initial interview. In contrast, a significantly higher proportion, 31% of the Israeli startups, had successfully secured additional funding post-interview, suggesting a more robust growth and funding environment for Israeli startups compared to their Hungarian counterparts.

In conclusion, the data analysis provided valuable insights into the startup cultures of Hungary and Israel, highlighting significant cultural differences in leadership values, attitudes towards culture, and perceptions of government support and societal attitudes. The findings of this research contribute to a deeper understanding of how historical and socioeconomic factors shape startup ecosystems and entrepreneurial success or challenges in these two nations. By considering these insights, we aim to address the research question of whether and how cultural differences can drive success or hindrance in startup environments.

7. Discussions

7.1 Navigating Power Distance Index (PDI) in Startup Leadership

The results of this study shed light on the perspectives of startup CEOs in Israel and Hungary regarding leadership qualities and their alignment with Hofstede's cultural dimensions. The findings provide valuable insights into how cultural differences impact leadership expectations and practices in the context of entrepreneurial ventures.

Firstly, the study revealed distinct leadership qualities valued by Israeli and Hungarian CEOs, reflecting their respective national cultures. Israeli CEOs placed great emphasis on leading by example, motivating employees, and emphasizing collective wisdom. These qualities are in line with a lower Power Distance Index (PDI) culture, where there is a preference for consultation and interdependence between leaders and subordinates. This suggests that Israeli startups may adopt a more participative and egalitarian leadership

style, where employees are encouraged to actively contribute to decision-making processes. In contrast, Hungarian CEOs focused on effective communication, strong vision, and valuing collective wisdom, which align with a somewhat higher, moderate PDI culture, indicating a more hierarchical leadership approach. In such a context, leaders may be expected to exert greater authority and direction over their teams, leading to a more top-down decision-making process. It is reflective of a balance between acknowledging authority and encouraging collaboration and input from various members of the organization. The hierarchical structure exists for convenience, but there is a recognition of the benefits of inclusivity and shared decision-making (Hofstede Insights, 2001, 2010).

The integration of Hofstede's cultural dimensions into the analysis of startup CEOs' perspectives enhances our understanding of how cultural variations shape leadership expectations and practices in these two countries. The Power Distance Index, as proposed by Hofstede, provides a useful framework to comprehend the extent to which less powerful members within institutions and organizations expect and accept unequal distribution of power.

According to these scores, there is indeed a discernible difference in Power Distance Index (PDI) between Israel and Hungary, albeit not a significant one. The quantitative data from Hofstede's research indicates that Hungary has a higher PDI score of 46 compared to Israel's lower score of 13, signifying a greater acceptance of hierarchical power structures in Hungarian society (Hofstede Insights, 2001, 2010). However, our qualitative research findings provide a deeper understanding of this difference, revealing that Hungarian CEOs view hierarchy as a matter of convenience rather than a rigid power dynamic. This perspective is reflected in their emphasis on collective wisdom, the efficient allocation of human resources and knowledge within their startup ventures. Despite the variance in PDI scores, the qualitative insights suggest that Hungarian startups adopt a more pragmatic approach to hierarchy, fostering collaboration and knowledge-sharing among team members. This nuanced interpretation highlights the importance of combining quantitative and qualitative research approaches to gain a comprehensive understanding of the cultural nuances that influence leadership and organizational dynamics in different contexts.

In conclusion, the alignment of the perspectives of Israeli and Hungarian startup CEOs on leadership qualities with Hofstede's cultural dimensions highlights the influence of national culture on leadership expectations and practices in the startup environment. The integration of Hofstede's dimensions into the analysis enhances our understanding of the ways in which cultural variations shape leadership behaviors, contributing valuable insights for entrepreneurs, managers, and organizations operating in culturally diverse contexts. By acknowledging and appreciating these cultural nuances, startup CEOs can effectively adapt their leadership approaches to foster innovation, collaboration, and success in their ventures.

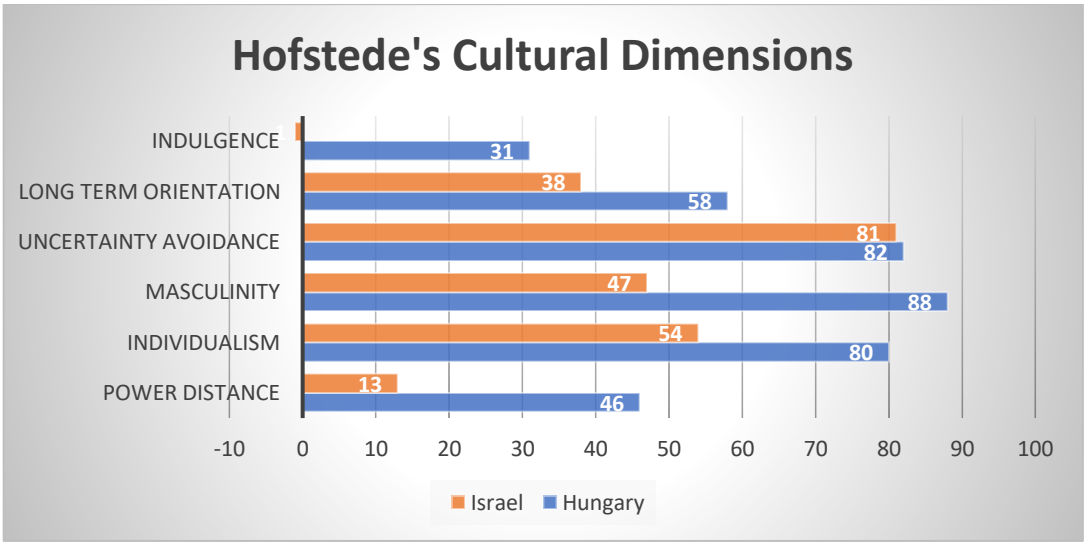


Figure 6 – Hofstede's culture dimensions Israel and Hungary (Hofstede Insights, 2001, 2010)

7.2 Exploring the Impact of Uncertainty Avoidance on National Culture in Startup Environments

Academic researchers have proposed that effective future strategists will leverage an entrepreneurial mindset, characterized by the capacity to swiftly perceive, take action, and mobilize resources, particularly in uncertain conditions. They believe that the foundation of such a mindset is, to some extent, rooted in cognitive abilities (Ireland et al., 2003; Haynie et al., 2010).

Hofstede emphasizes that uncertainty avoidance is distinct from risk avoidance. While risk is focused on specific objects or events with a probability of occurrence, uncertainty is a diffuse feeling without a clear object or probability. Uncertainty avoidance cultures seek to reduce ambiguity by creating structures that make events more interpretable and predictable. Paradoxically, they may engage in risky behaviors to mitigate uncertainties and maintain a sense of control. Uncertainty avoidance goes beyond mere risk reduction and influences how cultures approach ambiguous situations in their organizations, institutions, and relationships (Hofstede, 1991, p. 116).

The research findings from our qualitative interviews with startup CEOs in Israel and Hungary provide valuable insights into the influence of national culture on entrepreneurial ventures. Despite both countries scoring high on Uncertainty Avoidance with 82 for Hungary and 81 for Israel according to Hofstede's dimensions (Hofstede Insights, 2001, 2010), our study reveals the specific ways in which these high scores manifest in distinct characteristics within their national cultures, it elucidates the nuanced expressions and unique cultural traits that emerge from this shared characteristic in each country's context.

In Hungary, the emphasis on risk averseness, lack of entrepreneurial education/mindset, turbulent environment, and closed-mindedness reflects the country's higher Uncertainty Avoidance, with an inclination towards seeking stability and minimizing uncertainty (Zeira et al., 1997). On the other hand, Israel's attributes, such as no long-term planning, bureaucracy, and a turbulent environment, exemplify a high Uncertainty Avoidance cultural orientation (Hofstede, 1991). The lack of long-term planning might be a reflection of the culture's adaptability, allowing entrepreneurs to be more agile and responsive to rapidly evolving market conditions. Moreover, the turbulent environment, rather than being perceived as a source of anxiety, may be seen as an opportunity for growth and experimentation, encouraging Israeli startups to take risks and seek innovative solutions. These traits indicate a cultural context that thrives in dynamic and unpredictable settings, fostering a spirit of resilience and adaptability among entrepreneurs in Israel.

These contrasting manifestations of high Uncertainty Avoidance underscore the importance of studies like ours in providing context-specific insights. Understanding how cultural dimensions play out in different national contexts is crucial for policymakers, investors, and entrepreneurs to develop strategies that align with the strengths and challenges of each cultural environment.

Additionally, our research sheds light on the relationship between uncertainty avoidance and formalization in startup environments. In line with Pfeffer and Leblebici's (1973) assertion, start-ups in high-uncertainty avoidance cultures may adopt higher levels of formalization and control as a response to the need for stability and structure. However, it is crucial to strike a balance, as excessive formalization can stifle innovation (Yehezkel & Lerner, 2009). Based on the insights garnered from our research and considering the socioeconomic and historical context of the chosen countries, it is evident that formalization can be viewed as a direct response to the high levels of uncertainty avoidance prevailing in these nations. The cultural inclination towards reducing ambiguity and seeking structure and predictability in organizational settings may lead to an increased emphasis on formalization. Achieving formalization in startup environments can be effectively facilitated through the strategic utilization of technology, as outlined in essays 2 and 3.

7.3 Individualism and Collectivism: Cultural Shifts in Hungary and Israel

The Hofstede dimension of Individualism versus Collectivism (IDV) distinguishes societies based on the prevalence of individual interests over group interests. In more individualistic cultures, employees enjoy personal autonomy and derive individual accomplishment, with performance-related incentives linked to personal achievements. Conversely, less individualistic cultures emphasize strong collective groups, where economic life centers around collective interests and group memberships (Rajh et al., 2016). In collectivist societies, incentives and bonuses are granted to the group rather than individuals. The association between individualism and economic development is robust, with collectivist nations exhibiting lower per capita GDP (Amzaleg & Masry-Herzallah,

2022). Additionally, Hofstede's ecological factor analysis suggests a significant correlation between power distance and individualism, indicating these dimensions may stem from the same underlying dimension (Smith et al., 1996).

The high individualism score for Hungary in Hofstede's Cultural Dimensions, as discussed by Falkné Bánó (2014), is challenging to interpret due to methodological issues. The scores for Hungary were based on replications or estimates rather than the original IBM database, possibly leading to surprising results. The sample used for Hungary comprised 98 students aged 18–24, who may exhibit different value orientations than older, working individuals. Moreover, there is a discrepancy between Hofstede's high Individualism score and fieldwork findings indicating some collectivist tendencies among Hungarians, as effective teamwork is not a strong characteristic feature of the Hungarian workforce (Falk Bánó, 2008).

This interpretation is supported by Lantos (2020), who suggests that Hungary's historical traumas and a vulnerable sense of national identity contribute to a lack of autonomous individualism. Centuries of oppression have fostered a pessimistic victim mentality, hindering the establishment of robust individualistic values. The dominant ideological values of the Enlightenment, such as individualism and the emergence of an autonomous bourgeoisie, were late to reach Hungary, further complicating the understanding of its cultural dimensions. Lantos (2020) contends that this absence of autonomous individualism makes Hungarian society vulnerable to simplistic government messages exploiting collective narcissism and emphasizing external enemies and victimhood. Our research supports this notion, as Hungarian respondents clearly emphasized "pessimism," "closed-mindedness," and a "turbulent environment," as negative aspects of their national culture.

Israeli society has shifted from a dominant collectivist value system to increasing individualism since the 1960s. This transformation, marked by growing differences in income, power, and lifestyles, aligns with a more Western-oriented perspective influenced by modern mass media and international communication in the 1990s. The religious marker

became a significant differentiator, challenging the perception of societal homogeneity. The 1990s witnessed a global confrontation between tendencies to cross borders and isolationism, reflected in the orientations of religious groups towards in-group collectivism and secular adolescents towards a more universal, individualist approach (Sagy, et al.,1999).

Hofstede (1984, 2016) asserts that the Jewish society in Israel displays characteristics of both collectivism and individualism, a phenomenon attributed to the distinctive nature of the Jewish community in Israel, formed by diverse waves of Jewish immigrants from various global regions. Consequently, the Jewish society in Israel comprises a multitude of distinct cultures, categorizing it as a multicultural immigrant society (Amzaleg & Masry-Herzallah, 2022). Our study reveals that economically, Israel and its flourishing ecosystem exhibit characteristics typical of a Western individualist society, as evident in responses highlighting “boldness”, “creativity”, and the “ability to criticize management”. However, the enduring roots of collectivism, influenced by Israel's uniquely turbulent environment, are evident in responses emphasizing the significance of the IDF and the presence of “strong networks”.

7.4 Cultural Influences on Entrepreneurial Behavior

According to Hayton & Cacciotti (2013) The Theory of Planned Behavior (TPB) provides a valuable framework for understanding the impact of cultural and institutional factors on entrepreneurial intentions. Beliefs about the desirability of entrepreneurship and entrepreneurial self-efficacy can be shaped by the cultural environment, while institutions may moderate the influence of perceived behavioral control on entrepreneurial intentions. Despite the conceptual plausibility, current studies have not fully elucidated the process through which culture influences entrepreneurial intentions. More research is needed to unravel the complex interplay between culture, institutions, and entrepreneurial behavior. Haynie et al. (2010). assert that understanding how entrepreneurs perceive and respond to their environments necessitates a careful consideration of contextual factors.

Research findings suggest that entrepreneurs' values may diverge from those of the dominant culture (Baum et al., 1993). Additionally, traits such as achievement, control, flexibility, and risk tolerance are commonly observed among entrepreneurs (Baum et al., 1993; McGrath, MacMillan, Yang, & Tsai, 1992). However, the intricate interplay between individual differences and national norms, as well as the cognitive mechanisms underlying these interactions and their outcomes, remains relatively unexplored (Hayton & Cacciotti, 2013).

Our study reveals a significant contrast in the focus of Israeli and Hungarian respondents regarding the positive and negative aspects of their national culture's impact on startups, shedding light on a research gap concerning cultural perspectives and their role in shaping entrepreneurial mindset development. The positive attributes associated with Israeli culture, such as boldness and creativity, seem to foster a risk-taking and innovative entrepreneurial culture. Conversely, the emphasis of Hungarian respondents on negative attributes like pessimism and closed-mindedness raises potential challenges in cultivating an entrepreneurial mindset in Hungary. This finding highlights the crucial role of cultural perspectives in fostering a conducive entrepreneurial ecosystem.

Our findings suggest that while individual attributes may be common among entrepreneurs, the macroenvironment, particularly the national culture, can significantly influence entrepreneurial success or hindrance. In some cases, relocation to a more conducive cultural environment may be necessary to overcome these challenges. Nonetheless, exceptions, like Unicorns, can defy such cultural constraints.

Understanding the influence of cultural perspectives on entrepreneurial mindset development is vital for fostering a conducive entrepreneurial ecosystem in different countries. The findings highlight the role of culture in shaping entrepreneurial perceptions, intentions, and actions, underlining its significance as a critical determinant of entrepreneurial activity across nations (Dheer, 2017). By comprehending the interplay between culture and entrepreneurship, policymakers and stakeholders can implement strategies to enhance entrepreneurial opportunities and support startups worldwide.

Our findings suggest the contrasting performance outcomes of Israeli and Hungarian startups, with Israeli startups displaying a higher likelihood of not simply staying active but experiencing growth. This observation underscores an important research gap in understanding the intricate relationship between the national cultural environment, it's effect on entrepreneurial mindset, and startup performance.

7.5 Exploring Cultural Influences on Public Perceptions of Startups

The findings from the research indicate that the majority of Israeli respondents held a positive view of startups, while Hungary's societal perceptions varied based on exposure to the startup world, highlighting potential research gaps in understanding cultural influences on public perceptions of startups.

Despite its complexities and socioeconomic gaps, life in Israel fosters a strong sense of connection and meaning for most citizens. The average Israeli identifies with a special nation that emphasizes proving talent, inventiveness, and unique creativity. The Israeli model of excellence encourages imaginative thinking and draws inspiration from complex models of innovation deeply rooted in Jewish thought. The unique structure of Israeli society acts as a "special compensation mechanism," enabling individuals to feel meaningful and important. This mechanism encompasses three elements: the Jewish past and the sense of "chosenness," the present as a "start-up nation" excelling against all odds, and the Israeli free spirit and chutzpah that empower individuals to express themselves extensively (Doron, 2021). A crucial outcome of the Israeli chutzpah is its propensity to instigate debate, challenge authority, and question prevailing norms and assumptions. This attribute serves as a pivotal cultural catalyst for fostering innovation, driving disruption, and catalyzing breakthroughs in Israel. It epitomizes the distinct mindset that fuels the nation's entrepreneurial ecosystem and propels it towards success. Hence, it comes as no surprise that the perception of nascent entrepreneurs is viewed positively in Israel.

Hungarian respondents within startup circles had a positive view of startup culture, considering it exciting and cool. However, individuals outside the startup world often

viewed startup employees with sympathy, indicating differing societal perceptions. The Hungarian society, as described by Csepeli (2018), perceives itself as bound by familial ties and exhibits strong individualistic tendencies within their community. However, they harbor deep mistrust towards individuals outside their family circle. Safety and security are paramount in their values, which may be attributed to their constant struggle with overwhelming anxiety (Kopp, 2008). In addition, there has been long-term skepticism toward the new capitalists, and criticisms of the new entrepreneurial strata have been widespread, reflecting historical and anti-capitalist orientations (Laki & Szalai, 2006). Given Hungary's historical background, it is remarkable that the country's startup bubble sustains a positive perception of entrepreneurship. Further research could delve into the mechanisms that enable entrepreneurs to break free from their national environment and explore how the interplay between the ingrained national culture and contemporary startup culture shapes entrepreneurial attitudes and behaviors.

Overall, the cultural differences in perception directly influence the mindset, resilience, level of support, and regulatory environment for startups in each country. These factors can significantly impact the success or hindrance experienced by startups, as they determine the level of enthusiasm, resources, and opportunities available for entrepreneurs to build and grow their ventures.

7.6 Entrepreneurial Education and Mindset

Hyrsky and Tuunanen (1999) argue that in order to gain a comprehensive understanding of the variations in business behavior, it is essential to examine factors such as ideology, norms, rewards for behavior, individual and national aspirations, religious doctrines, and education in relation to entrepreneurship on a comparative basis.

Through our comprehensive historical and socioeconomic analysis of Israel and Hungary, we have discovered that both nations share a strong historical emphasis on education. Hofstede (2001) explains that societal norms play a crucial role in shaping and maintaining various institutions within a society, such as family structures, education systems, political

systems, and legislation. Once these institutions are established, they serve to reinforce the prevailing societal norms and the environmental conditions that initially led to their formation. In relatively closed societies, these norms and institutions tend to be resistant to significant changes. While institutions themselves may be subject to modification, it does not automatically lead to a transformation of the underlying societal norms. The research findings underscore the significance of entrepreneurial education and mindset in shaping the success of startups in Israel and Hungary.

Dheer (2017) proposed that there is an indication of a negative relationship between the level of education in societies and their rates of entrepreneurial activity. This implies that societies with higher education attainment tend to exhibit lower levels of entrepreneurial engagement. At an individual level, education is viewed as an investment people make to enhance their social status and overall life satisfaction (Bathmaker et al., 2013; Hout, 2012). As a result, the opportunity cost associated with embarking on new business ventures might be higher for individuals with higher levels of education compared to those with lower levels. In essence he asserts that, educated individuals may have access to more secure and well-paying employment opportunities, which could lead them to perceive entrepreneurship as a riskier endeavor. On the other hand, individuals with lower levels of education might view starting a new business as a more appealing option, given their relatively limited access to lucrative career paths and opportunities for social advancement. Our research findings contradict these notions.

In Israel, a positive perception of startup careers is evident, driven in part by a culture that values innovation, risk-taking, and entrepreneurship. This cultural emphasis on entrepreneurship is complemented by the country's strong support for educational institutions, particularly in the fields of science, technology, and engineering. In his book "Israel: A personal history" David Ben-Gurion says "To the extent that we increase knowledge for the workingman, we will increase his enjoyment of his work and make him more productive. The more the entire people come to know the fundamentals of science, the more scientific research will develop. The very fact that science has become a decisive factor in health, security, and the economy makes it imperative that the bond between the

scientist and the workingman be strengthened, to give every individual a basic understanding of science." (Ben-Gurion, 1971, p. 5) Based on our research, this sentiment has become an integral part of Israeli society, as it emphasizes the value of education and its impact on various aspects of life. Remarkably, although there exists a fundamental difference between the population serving in the army and the Ultra-Orthodox community (who do not), the concept of individual excellence aligns closely with the Ultra-Orthodox ethos. Within these communities, tens of thousands revere sages and prodigies for their exceptional learning abilities, seen as geniuses in their respective generations and experts in the Torah (Doron, 2021).

Israeli society places high value on educational achievements and views careers in high-tech engineering as prestigious and appealing, comparable to traditional professions such as medicine or law. The educational foundation laid through specialized knowledge and expertise gained in universities and the Israeli Defense Forces (IDF) serves as a springboard for many startup founders, who leverage their military experience to build successful ventures. After successfully navigating the post-war era's severe global economic crisis with sound macroeconomic policies, Israel now faces the more formidable task of developing its human resources for the long term. Meeting these challenges requires significant investments in education and social welfare programs, which may contradict the fiscal policies pursued in the past two decades (Rosenberg, 2010).

One of the main strengths of Hungarian startup ecosystem is its highly educated workforce. Budapest ranked 6th in Developers per Capita according to Startup Heatmap Europe. (2023). According to a recent report by McKinsey, "Fueling the Hungarian start-up ecosystem" (2023) Hungary boasts several economic advantages, including a vibrant culture of scientific innovation, a pool of innovative talent, and its strategic proximity to major European markets. These strengths form a solid foundation for nurturing a thriving start-up ecosystem within the country. By incorporating the best practices from successful start-up hubs worldwide, Hungary has a genuine opportunity to enhance the resilience and competitiveness of its economy even further (Bacso et al., 2023). Investing in education and fostering a skilled workforce are pivotal for unlocking the true potential of the

Hungarian startup ecosystem. By emphasizing quality education, nurturing specialized knowledge, and encouraging entrepreneurship from an early stage, Hungary can establish a strong foundation for a sustainable and vibrant startup culture. This approach is expected to lead to a more robust venture capital industry and generate global interest in the region's startup ventures (Karsai, 2022). Moreover, it is crucial to address potential barriers in the educational system that might hinder the development of an entrepreneurial mindset. The fact that Bojár Gábor – successful entrepreneur and founder of the Aquincum Institute of Technology (AIT), a specialized educational institution focused on information technology and entrepreneurship – expressed concern about the state of mathematics education in Hungary underscores the importance of nurturing a strong educational foundation for future success in the country. By addressing such concerns and promoting a supportive educational environment, Hungary can create a conducive ecosystem for entrepreneurial growth (Bojár, 2023). The historical significance is highlighted by Laki & Szalai (2006) who describe that given the abundance of benefits in knowledge, skills, connections, and prestige, it is no longer surprising that Hungarian interviewees still consider their secondary education years as among the most crucial periods of their lives, even after several decades. It is clear that regardless of their immediate post-graduation choices, a common trait shared by those fortunate enough to attend elite vocational high schools is the upward trajectory in their careers and a continued pursuit of further education (Laki & Szalai, 2006, p. 336). Our findings have shown that a lack of entrepreneurial education is one of the weaknesses of the Hungarian ecosystem which suggests that the education system must be fine-tuned more purposefully to benefit an innovative ecosystem.

In conclusion, our findings on Entrepreneurial Education and Mindset has shed light on the critical role of education and cultural attitudes in shaping the success of startup ecosystems in Israel and Hungary. The historical emphasis on education in both countries has contributed to their economic strengths and potential for fostering thriving startup environments. Contrary to the notion that higher education leads to lower entrepreneurial activity, Israel’s positive perception of startups demonstrates the significance of its innovative culture and strong support for education.

Meanwhile, Hungary's strength lies in its highly educated workforce and economic advantages. To maintain their edge, both countries must continue emphasizing education to nurture a skilled and competitive workforce. Fostering a supportive educational environment will ensure their startup ecosystems remain vibrant and successful, attracting global interest and sustaining their economic growth.

In light of our research, it is evident that cultural attitudes, education, and entrepreneurial mindset play a pivotal role in shaping the success or hindrance experienced by startups in different regions. To gain a comprehensive understanding of entrepreneurial behavior, it is crucial to examine these factors on a comparative basis, as suggested by Hyrsky and Tuunanen (1999). Moving forward, further research is needed to delve deeper into the intricate interplay between cultural attitudes, education, and startup success, providing valuable insights for policymakers, entrepreneurs, and stakeholders seeking to promote vibrant and successful startup ecosystems around the world.

7.7 Government Support and its Impact on Technology Innovation and Venture Capital

Government support plays a significant role in fostering technology innovation and venture capital industry growth in both Israel and Hungary. In 1991, Israel proactively established technology incubators to support R&D work for Russian scientists among new immigrants. However, challenges in commercializing innovations emerged due to the lack of start-up venture experience among government financiers. Nevertheless, the Yozma program, introduced in 1993, played a pivotal role in building the venture capital industry in Israel and attracting substantial investments (Baygan, 2003; Avnimelech et al., 2006). Based on our findings, Israeli respondents generally expressed satisfaction with the level of government support; however, some mentioned encountering challenges in obtaining government funding. They highlighted that the definition of "innovative" is limited to specific sectors, which could restrict access to funding for certain startups. Additionally, some respondents perceived a decreasing need for government involvement due to the abundance of capital available from the private sector.

On the other hand, Hungary's state support in the form of aid and grants for enterprises has been substantial, exceeding the EU average as a percentage of GDP. However, public funding did not act as an additional source of finance, but rather replaced private investment, leading to softer project selection standards and hindering long-term growth and competitiveness (Kállay & Jáki, 2019). This is in line with our findings. Despite the availability of government assistance, some Hungarian startups deliberately chose not to engage with it, expressing a preference for independence and a desire to distance themselves from the Hungarian political system (Cs.H., interviewed on 06/30/2022). Additionally, some CEOs criticized the allocation of funds by state-owned capital investors, suggesting the need for a shift in mindset to focus on building a thriving ecosystem rather than financing underperforming venture capitalists (G.Sz., interviewed on 11/14/2022; A.N., interviewed on 11/03/2022). The varying attitudes towards government support among startups in both countries provide valuable insights into the complexities of governmental initiatives and their impact on entrepreneurial endeavors. Unlike in Israel, despite its efforts the government's initiatives has not yielded the expected results, highlighting a need for careful evaluation and refinement of government support programs to ensure their effectiveness in fostering entrepreneurship and innovation. Understanding the motivations and preferences of startups in both countries can inform policymakers in tailoring initiatives that best support the growth and success of startups in their unique entrepreneurial ecosystems.

7.8 Cultural Attitudes and Their Impact on the Hungarian Startup Ecosystem

Our findings reveal that among Hungarian respondents, a considerable portion, 19% of the coded answers, perceived their national culture as pessimistic. This perception was followed by references to "closed-mindedness," a "turbulent environment," and a "lack of entrepreneurial education/mindset," each accounting for 15% of the responses, respectively. These results shed light on the significance of cultural attitudes and beliefs in shaping entrepreneurial endeavors and potentially influencing the overall startup ecosystem in Hungary.

The identified cultural traits of pessimism and closed-mindedness may have implications for startups' growth and development in Hungary. Negative cultural perceptions might hinder the risk-taking and bold decision-making often required in the startup world. Additionally, a perceived lack of entrepreneurial education and mindset could deter potential entrepreneurs from pursuing innovative ventures, affecting the overall entrepreneurial landscape.

However, amidst the perceived pessimism, there are positive traits that stand out among Hungarian entrepreneurs. The top three positive responses were "Tenacious," "Creativity," and "Hard-working" showcasing the resilience and determination of Hungarian entrepreneurs to overcome challenges and pursue their goals relentlessly and reflecting back on the long history of scientific achievements discussed in the previous section.

To contextualize these findings, it is essential to consider the broader cultural aspects of Hungary. The Hungarian national character, as described in literature, portrays a sense of overwhelming negativity and isolation from the collective Other. This feeling of not being understood in a hostile world adds to the suffocating sense of "We are alone." Hungarian is a unique language, bearing no similarity to any in the region. In fact language barrier was one of the negative cultural aspects mentioned by Hungarians in our findings. This linguistic isolation can stir feelings of being misunderstood, touchiness, and the inclination to blame the Other and reproach them become inevitable, forming what is referred to as the "collective victim identity". Research on the outgroup-image of Hungarians reveals a model where xenophobia, anti-Semitism, and antiziganism are the core elements, bound together by exclusionary nationalism (Mészáros et.al., 2017; Kende et al., 2018; Csepeli, 2018). Such cultural attributes may influence the way startups interact with diverse teams, international partners, and potential investors, potentially limiting collaboration and access to global markets.

Negative self-presentation and a culture of levy, based on distrust and suspicion, might hinder the establishment of a supportive and cooperative entrepreneurial ecosystem. We

see this in the current mistrust of government, discussed in our findings about government support. The prevalence of envy and skepticism towards success could affect startup founders' self-belief and hinder collaboration within the startup community.

The historical context of Hungary, marked by wars, persecution, and exclusion, has instilled a survivalist mindset focused on individual self-preservation (Csepeli, 2018). This survival-oriented approach, while understandable in historical context, might hinder the development of a collaborative and supportive startup community that is essential for fostering innovation and growth.

Forgas and Lantos, in their article "Understanding populism: Collective narcissism and the collapse of democracy in Hungary" (2020), argue that Hungarians exhibit collective narcissism, stemming from a traumatic history that has shaped a deep sense of grievance and a narcissistic national identity. Despite pervasive pessimism, around 80 percent of Hungarians consider Hungary the best place in the world, indicating a romantic, narcissistic, and fictional nationalism. This collective narcissism manifests in low expectations and a skeptical view of the socio-political system, coexisting paradoxically with an exaggerated sense of the nation's value. This narcissistic perspective is reflected in Hungarians positively evaluating themselves for desirable events while disassociating from responsibility for negative events in folk stories and textbooks. Collective narcissism might offer a potential explanation for the prevailing pessimistic sentiments regarding national culture, contrasting with the positive responses. It also poses a challenge for the startup community, where a culture of taking responsibility is crucial for growth. However, embracing the positive aspects could elevate beliefs and contribute to fostering a successful entrepreneurial ecosystem. Regardless, addressing the concept of collective narcissism within the culture is essential for a comprehensive understanding of these dynamics and a successful ecosystem down the line.

To foster a vibrant and resilient startup ecosystem in Hungary, there is a need for a comprehensive understanding and recognition of cultural attitudes and their potential impact. Efforts should be made to address negative perceptions, promote a growth mindset,

and cultivate a supportive and cooperative entrepreneurial environment. Initiatives focusing on entrepreneurial education and fostering an ecosystem that encourages risk-taking and innovation can help overcome the challenges posed by pessimistic cultural traits. Moreover, fostering a sense of trust and collaboration within the startup community can contribute to a more resilient and competitive entrepreneurial landscape in Hungary.

In conclusion, cultural attitudes play a significant role in shaping the Hungarian startup ecosystem. While certain pessimistic perceptions and survival-oriented mindsets may present challenges, the tenacity, creativity, and hard work exhibited by Hungarian entrepreneurs offer valuable opportunities for growth and development. By understanding and addressing these cultural nuances, Hungary can nurture a more vibrant and successful startup ecosystem, unlocking its true potential for innovation and economic growth.

7.9 The IDF's Influence on Israeli Startup Success

During the interviews, Israeli respondents predominantly highlighted positive aspects of their national culture. The top ten positive attributes identified were boldness, the influence of the Israeli Defense Forces (IDF), creativity, strong networks, flexibility, ability to criticize management openly, informality, open-mindedness, and independence.

U.B., an experienced CEO from Israel, eloquently emphasized the significance of chutzpah and the influence of the IDF on the startup ecosystem. He highlighted the importance of daring and the military's role in nurturing young talents, providing them with unique opportunities to handle significant projects and learn valuable skills that they later apply in civilian life. U.B. also pointed out Israel's ability to assess and allocate talent, even in the absence of traditional resumes, which has been adopted by international companies like Google. He praised Israel's unstructured and innovative culture, describing it as "balagan," which roughly translates as chaos and has contributed to the country's entrepreneurial success. "So, we have elite technology units where […] youngsters, they get such a huge opportunity to handle large, huge projects. And money is not the issue because it's national security. So they learn so much. And they get so much which they then use in civilian life.

This is also one of our uniqueness, is our ability to allocate the right talent, as they enlist. Think of a 17-18 year old boy or girl, they have no resume […]" (U.B., 62, interviewed on 06/13/2021)

The IDF has played a central role as a symbol of the state in Israel. Historically, conscription was widespread, except for a few exemptions, and both left and right viewed the IDF as the people's army. Even opposition intelligentsia circles had a soft spot for the IDF from their younger days and did not criticize it along with the regime. Reserve service provided an egalitarian experience for all levels of society. Serving in elite units was seen as a pathway into Israeli society, particularly for new immigrants who saw a military career as an opportunity for advancement. Unlike political parties, the IDF was perceived as standing above political rivalries, and equality was valued within the institution despite the military hierarchy (Shapira, 2012).

The Israeli army, which previously delayed self-actualization, has now become a pathway to remarkable success at a young age. Some Israeli startups actively seek out talented individuals as young as 16 or 17, similar to how army units identify potential recruits. Rather than aspiring for traditional professions like doctors or pilots, Jewish mothers now hope their children will serve in prestigious intelligence units, offering opportunities for self-fulfillment away from the battlefield. (Doron, 2021).

Particularly influential was the IDF's Intelligence Corps unit 8200, known as "shmone matayim," which produced numerous startup founders and engineers, and is known for producing highly skilled programmers. Many entrepreneurs based their startup ventures on the experiences and skills gained during their service in this elite unit, showcasing the profound impact of the IDF on the startup ecosystem in Israel.

The research findings highlight that the IDF experience instills a sense of camaraderie and teamwork among individuals, fostering a collaborative spirit that is often reflected in the startup ecosystem. Israeli entrepreneurs often rely on their military networks and connections to form partnerships and access resources. The IDF's emphasis on teamwork

and resourcefulness during service translates well into the startup environment, where entrepreneurs often work together in close-knit teams and must find innovative solutions to overcome obstacles.

The army's culture fosters strong connections among its members, creating a network of talent that extends beyond their service. These connections and friendships formed during military service often lead to the recruitment of skilled individuals into the startup world, contributing to the overall success of the Israeli startup ecosystem.

Despite Israel being ranked tenth and fifteenth in military expenditure as a percentage of GDP and USD value, respectively, the significance of the Israel Defense Forces (IDF) in the Israeli ecosystem goes beyond mere military spending metrics (World Bank, 2022). In fact, there is far more evidence to the contrary, studies show that increased military spending, as measured by armed forces personnel, arms exports, arms imports, and overall military expenditures, generally has negative effects on business regulatory measures and growth-specific factors (Zaman, 2019). In the case of the United States, which boasts the world's largest military spending but ranks only 15th in terms of the percentage of GDP, veteran involvement in startup ecosystems is not as widespread. Instead, it is notably concentrated in specific locations like Washington, D.C., and Austin, and specific sectors such as cybersecurity (Dempsey et al., 2019). It is essential to highlight that Israel's military expenditure, accounting for 4.5% of its GDP, is comparable to other countries in the region and those experiencing frequent armed conflicts. Specifically, Qatar allocates 6.9% of its GDP to military expenditure, while Kuwait and Armenia allocate 4.5% and 4.3%, respectively (World Bank, 2022).

The successful technology transfer from the defense to the civilian sector in Israel is largely attributed to individuals. Defense firms' attempts at commercializing defense technologies have often been unsuccessful. Instead, engineers, scientists, managers, and officers who transitioned from the defense industries or the military to the civilian sector have played a significant role in applying their knowledge and training to civilian projects. A study estimated that a substantial number of entrepreneurs in Israeli "Start-Ups" had R&D

training during their military service, with a significant percentage of them being officers in the IDF. The close relations between the defense and civilian sectors in Israel are facilitated by the common denominator of military service, which becomes a formative element in the education and attitudes of most of the country's citizens. (Dvir & Tishler, 2000)

The culture of risk-taking and resilience instilled by the IDF also plays a critical role in the success of Israeli startups. Military service often involves dealing with high-stress situations and making crucial decisions under pressure, preparing individuals for the uncertainties and challenges of entrepreneurship. Israeli entrepreneurs are known for their ability to take calculated risks and bounce back from failures, essential qualities for building successful startups.

The mandatory military service in Israel exposes young individuals to a highly challenging and intensive environment, where they learn skills such as leadership, problem-solving, and adaptability. These qualities are highly valued in the startup world, where entrepreneurs must navigate uncertain and dynamic landscapes.

Moreover, the IDF's culture of mission-driven work aligns with the vision and purpose that drives many startups. Just as soldiers in the IDF work with a sense of purpose to protect their country, many Israeli entrepreneurs are motivated by a desire to create innovative solutions and have a positive impact on the world through their startups.

However, it is essential to recognize that the IDF's influence on the Israeli startup ecosystem also comes with potential challenges. The strong emphasis on technological innovation can sometimes lead to a focus on short-term gains and product-oriented startups, potentially neglecting the development of business and marketing skills necessary for sustainable growth.

In contrast, Hungary's startup ecosystem operates in a different context, where the influence of the military on entrepreneurship is not as pronounced. The lack of a similar

mandatory military service means that Hungarian entrepreneurs may not benefit from the same level of exposure to teamwork, leadership, and technology as their Israeli counterparts. However, Hungary has other strengths, such as a highly educated workforce and a culture of scientific innovation, which if nurtured, can contribute to the success of startups in the country.

In conclusion, the IDF's influence on Israeli society and culture has played a significant role in shaping the success of startups in the country. The military experience instills valuable skills, mindsets, and networks that are highly relevant to the startup ecosystem. However, it is essential to balance these strengths with the need for diversity and a focus on long-term sustainability in the startup ecosystem.

8. Conclusion

The aim of this study is to explore and analyze the impact of national cultural differences on the success or hindrance of startups in Hungary and Israel. Recognizing that each country possesses a unique cultural context, we sought to delve deeper into how these cultural elements might influence the startup ecosystem in each nation. By understanding the cultural nuances, attitudes, and behaviors that prevail in the respective entrepreneurial environments, we aimed to shed light on the factors that contribute to the growth and success of startups in each country.

Central to our exploratory investigation was the research question, "How do cultural differences impact success or hindrance in startup environments?" This guiding inquiry propelled our exploration into the complex interplay between national culture and the outcomes experienced by startups in Hungary and Israel. We recognized that national culture encompasses a wide range of dimensions, including values, attitudes, social norms, and historical context, all of which can profoundly shape the behavior and mindset of entrepreneurs, investors, and policymakers in each country.

To address this research question comprehensively, we conducted in-depth qualitative research and performed an extensive literature review to gather relevant insights and data. Through

interviews with startup CEOs and thorough analysis of existing literature, we were able to gain valuable perspectives on leadership qualities, entrepreneurial behavior, government support, and public perceptions of startups in both countries. Our research findings have provided nuanced and context-specific insights into the influence of cultural differences on various aspects of the startup ecosystem.

8.1 Key Findings: Implications for Management

In Hungary, certain cultural attributes, such as pessimism and a high power distance index, may present challenges for startups. However, the country's highly educated workforce and historical emphasis on education contribute to the success of startups. On the other hand, in Israel, the Israeli Defense Forces (IDF) play a significant role in shaping the success of startups, instilling valuable skills and mindsets. However, Israel's informal and unstructured culture may also present challenges for startups, such as a lack of long-term planning and difficulty in changing direction.

Our research also highlighted the significance of government support and its impact on technology innovation and venture capital industry growth in both countries. In Israel, initiatives like the Yozma program played a pivotal role in building the venture capital industry. In Hungary, although state support has been substantial, some startups preferred independence, expressing concerns about allocation practices by state-owned capital investors.

The exploration of cultural influences on entrepreneurial behavior revealed that while individual attributes may be common among entrepreneurs, the macroenvironment, particularly the national culture, can significantly influence entrepreneurial success or hindrance. Understanding the interplay between culture and entrepreneurship is essential for fostering conducive entrepreneurial ecosystems worldwide.

8.2 Contributions to the Field

This research makes several valuable contributions to the field of entrepreneurship and cultural studies. By investigating the impact of national cultural differences on startup success in Hungary and Israel, we have provided context-specific insights that enhance our understanding of how cultural variations shape leadership behaviors and entrepreneurial practices.

The integration of Hofstede's cultural dimensions into the analysis has offered valuable perspectives on the ways cultural nuances influence leadership expectations and practices in the startup environment. Entrepreneurs, managers, and organizations operating in culturally diverse contexts can utilize this knowledge to adapt their strategies and foster innovation, collaboration, and success in their ventures.

Our findings also shed light on the relationship between uncertainty avoidance and formalization in startup environments. Understanding how cultural dimensions play out in different national contexts is crucial for policymakers, investors, and entrepreneurs to develop strategies that align with the strengths and challenges of each cultural environment.

Furthermore, the research highlights the role of culture in shaping entrepreneurial perceptions, intentions, and actions, underlining its significance as a critical determinant of entrepreneurial activity across nations. Policymakers and stakeholders can implement strategies to enhance entrepreneurial opportunities and support startups worldwide by comprehending the interplay between culture and entrepreneurship.

Moreover, our study has brought attention to the contrasting performance outcomes of Israeli and Hungarian startups and the influence of national cultural environments on these outcomes. This observation underscores an important research gap in understanding the factors that contribute to the success of startups in diverse cultural contexts, opening avenues for further investigation.

Overall, the research provides valuable insights into the influence of cultural differences on various aspects of the startup ecosystem in Hungary and Israel. The findings have

practical implications for entrepreneurs, policymakers, and investors, offering guidance in navigating the complexities of cultural environments and fostering vibrant and successful startup ecosystems worldwide.

ESSAY 2 – The influence of technology on the organizational culture in startups

1. Introduction

1.1 Background and Motivation

Research on the use of technology dates to the 1960's in the shape of Management Information Systems. Ackoff (1967) declares that MIS are outright detrimental unless "managers for whom it is intended are trained to evaluate and hence control it rather than be controlled by it.". With the emergence of the internet the weight of these technologies shifted, and in recent years technology and therefore communication and management tools have been a transformative presence in modern society and business. Simultaneously in this new fast paced world a unique organization emerged in the realm of entrepreneurship, known as the startup, defined by opportunities for disruptive innovation in an uncertain environment (Shane & Venkataraman, 2000). The literature on technology-led organizational change reveals that employee involvement in decision making can have a direct effect on change within the organization (Cabrera, 2001), hence we cannot negate the role of leadership.

The extent to which technology can transcend a given national cultural and institutional context and influence organizational culture in startups remains an underexplored area of research. This study aims to address this gap by conducting a comparative analysis between two distinct contexts: Israel and Hungary.

Israel and Hungary provide an interesting contrast due to their unique national cultural and institutional backgrounds. Israel, often referred to as the "Startup Nation", has gained global recognition for its vibrant startup ecosystem and entrepreneurial culture. Whereas Hungary despite not having a reliable explicit innovation policy (Havas, 2002) and disreputable state of democracy (European Parliament, 2022) has shown surprising potential for growth through extensive financing opportunities.

1.2 Research Question

To contribute to the research gap presented above, the following research question was formulated:

RQ1: How does the adoption of **technology**, influence **Leadership** and **Organizational Culture**, regardless of the given national cultural and institutional context?

1.3 Objectives and Research Approach

This study wishes to provide clarity regarding the importance of modern management tools in terms of organizational culture of a startup. To achieve this goal, the study builds on the existing theoretical frameworks of culture in information systems and leadership in entrepreneurship.

This paper is an exploratory qualitative research study, semi-structured interviews were conducted with relevant startups in each jurisdiction. Semi-structured interviews provide a flexible yet strong tool to accurately reflect the ways people make meaning of their experience (Rabionet, 2011).

A coding frame was created based on the 55 interviews, 26 in Hungary and 29 in Israel with founders and CEOs of relevant startups. Dedoose, a cross-platform application for analyzing qualitative text was used for the coding and thematic analysis. Qualitative content analysis is an excellent method for organizing data in order to create quantitative statistical outcomes that are deeply rooted in up-to-date data from the field (Hsieh & Shannon, 2005)

1.4 Significance and Contribution

By delving into the noteworthy effects technology, and specifically management tools may have on the leadership practices and organizational culture of start-ups we hope to open the door to further empirical enquiry using technology as an independent variable. By observing the transformative power of technology, we hope to lay the groundwork for a new approach to cross-culture IT literature, which has been predominantly biased towards exploring culture's effect on IT rather than the other way around (Leidner & Kayworth, 2006). The notion that technology has the potential to shape and transform organizational practices, norms, and values can have vast managerial implications and can create exciting new avenues for future research.

2. Theoretical Framework

2.1 A Brief History of Technology Research

As technology itself has continually transformed over time, the study of technology's impact on organizations has also evolved significantly. This section provides a brief history divided into two time periods: the 1960s to 1980s and the 1990s to the present day. We aim to explore the main areas of research, popular theories, and the notable works of researchers.

During the 1960s to 1980s, technology research primarily focused on the impact of computerization on organizations. The emergence of mainframe computers and early information systems created a newfound interest in understanding how technology could influence the organization. Russell L. Ackoff, emphasized the need for organizations to adapt their system's thinking to accommodate technological advancements. Ackoff's article "Management Misinformation Systems" (1967) highlighted the limitations of traditional management information systems and called for the integration of technology to improve decision-making processes, stating that information in and of itself can be a burden on managers rather than value, it is filtering the information that can be helpful.

By 1980's the desktop computer appeared and was rapidly taking over sales from the mainframe (Sanger, 1984), focus shifted on evaluating the success of information systems. During this time comprehensive frameworks were created for assessing information systems, considering various factors such as user satisfaction, system quality, and impact on organizational performance (DeLone, 1988). A notable scholar from this era is William H. DeLone, whose framework, commonly known as the "DeLone and McLean IS Success Model" with Ephraim R. McLean, became widely cited and influential in technology research.The framework aimed to provide a comprehensive understanding of the factors that contribute to the success of information systems in organizations and consists of six dimensions:

1) System Quality: This dimension evaluates the technical aspects of the information system, including its functionality, reliability, usability, and performance.
2) Information Quality: This dimension assesses the quality of the information provided by the system, including accuracy, completeness, and relevance.
3) Service Quality: Service quality pertains to the support and assistance offered to users when they encounter issues or need help using the system.
4) User Satisfaction: This dimension focuses on user perceptions of the system's overall usability, functionality, and their overall satisfaction with its use.
5) Usefulness: Usefulness refers to the degree to which users perceive the system as beneficial and helpful in their work tasks.
6) Net Benefits: Net benefits represent the positive outcomes or advantages that organizations gain from implementing the information system. These benefits can include improved efficiency, productivity, decision-making, and other organizational goals.

Beginning from the 1990s technology research expanded beyond the narrow focus on computers to encompass a broader range of information technologies, bringing about a significant expansion of research on technology's impact on organizations, driven by the

rapid emergence of the internet, mobile devices, digital platforms, and other information technologies (Grover et al., 1998).

During this time there was widespread interest in the sociotechnical perspective of technology adoption and implementation. The role of critical mass in technology adoption was explored, providing insights into the social aspects that drive technology acceptance and diffusion within organizations (Markus, 1990). The need to consider the sociotechnical aspects of technology implementation, acknowledging the interplay between technology and social systems within organizations was also highlighted (Orlikowski & Robey, 1991). Wanda J. Orlikowski made several key contributions to the literature during this time. She proposed the concept of "technological frames" as a lens for understanding how individuals and organizations interpret and make sense of technology. There was an emphasis on the duality of technology as both a material artifact and a social phenomenon, challenging conventional perspectives in the understanding of technology's multifaceted effects on organizations (Orlikowski, 1992).

In the late nineties research began to investigate the diverse effects of IT on the organization, questioning traditional positivist research approaches, emphasizing the contextual factors that influence IT outcomes. The use of qualitative studies, especially in-depth interviews are viewed to provide significant insight into the complex relationship between IT implementation and its effect on the organization (Robey & Boudreu, 1999).

In the early 2000's the subject of IT governance and the business value of IT emerged presenting frameworks for effective IT governance, highlighting its impact on organizational performance and competitiveness. There was a newfound emphasis on the importance of aligning IT strategies with business objectives to enhance organizational value (Weill & Woodham, 2002).

Organizational capabilities were also investigated in the context of technology. Lines of research such as the effects of e-commerce adoption on organizational performance, were

able to shed light on the relationship between technology and organizational capabilities (Lee et al., 2010).

In recent years, research has expanded to include areas such as digital transformation, virtual work, artificial intelligence, and data analytics. Theories such as the Technology-Organization-Environment (TOE) framework and the sociotechnical perspective have gained prominence, emphasizing the interplay between technology, organizational context, and external factors (Nguyen et al., 2022).

Overall, technology research in relation to organizations has evolved from a narrow focus on computers to a broader examination of various information technologies. The field has grown to incorporate interdisciplinary perspectives and theoretical frameworks, attempting to understand the complex dynamics between technology and organizational phenomena.

2.2 Organizational Culture and Leadership in Startups: Definition and Characteristics

2.2.1 Organizational Culture

Edgar H. Schein described organizational culture as "the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 1984: 3) He defines three distinct levels of culture (a) observable artifacts, (b) values, and (c) basic underlying assumptions. In his view technology would fall under artefacts, which are not easily deciphered, despite being the most visible. Hofstede defined organizational culture as "the collective programming of the mind which distinguishes the members of one group or category of people from another." (1991, p.5). It is not lost on us that the term "programing" is often used in connection to technology. Weber and Tarba (2012) defined organizational culture as the evolving set of beliefs, values, and assumptions shared by managers

regarding how to manage the organization effectively in its environment. It emphasizes the importance of management practices and styles in shaping culture, facilitating measurement and evaluation of corporate values, ceremonies, and other aspects at a low cost.

Considering the nuances of organizational culture, and the many elements affecting it, it is entirely plausible that a major transformational tool can in fact influence it. If an organization must ensure that all occupational communities speak the same language in order to learn (Schein, 1996), then surely the universal language of technology can inform organizational cultural practices. With the increasing interconnectedness of the world, technology has facilitated the convergence of organizational practices across different cultures. Digital tools, communication platforms, and standardized software enable the adoption of common work processes and facilitate collaboration regardless of geographical boundaries (Isaacs & Tang, 1997, Romano et al., 2002, Hong & Vai, 2008). Organizational culture is influenced by the learning experience, drawing from both social trends and the business environment dynamics. Members adopt attributes from the community and business environment, with the community potentially exerting cultural influence on the organization through its members (Nguyen & Aoyama, 2014; Uddin et al., 2013; Gibbs, 2012). In their book "In Search of Excellence" (1982) Peters and Waterman found that after conducting an extensive examination of 46 top-performing corporations in the United States, they were able to identify eight key traits of outstanding organizational cultures. These encompass rapid decision-making and problem-solving, leadership characterized by autonomy and entrepreneurship, and organizational efficiency driven by its members. In this study we will establish how technology can facilitate these traits, thereby transforming an organization's culture and leadership.

2.2.2. Leadership Theories

Early Era (1800s-1940s)

One of the earliest theories is the Great Man Theory proposed by Thomas Carlyle in the 1840s. It suggests that leaders possess inherent qualities that set them apart from non-leaders. Trait Theory of Leadership, further developed by Francis Galton – also known as the father of eugenics (Aubert-Marson, 2009) – in 1869, identifies specific personality traits that differentiate leaders from non-leaders. It gained popularity and remains influential today, emphasizing that leaders are "born, not made".

The idea that entrepreneurs tend to have specific characteristics was explored early on by Schumpeter (1934) in 'The Theory of Economic Development'. Schumpeter not only identifies the so called "entrepreneurial-spirit" but says that entrepreneurs as a result of their personality, have the capability to drive innovation.

Contingency Era (1950s-1980s)

Fiedler's Contingency Theory (1967) argues that an individual's leadership style is shaped by their life experiences, making it challenging to change. Rather than teaching a specific style, Fiedler suggests matching leadership style to the situation at hand. Path-Goal Theory of Leadership (House, 1971) posits that a leader's behavior impacts subordinates' perceptions of goals and their attractiveness. It emphasizes directive, supportive, participative, and achievement-oriented behaviors.

Modern Era

Transformational Leadership, introduced by James MacGregor Burns (1978), focuses on the leader's influence on followers' beliefs, needs, and values. It contrasts with transactional leadership, which centers on the leader–follower relationship. Situational Leadership, developed by Hersey and Blanchard (1977), recognizes leadership style and the readiness level of individuals or groups. It emphasizes delegating, supporting, coaching, and directing. The extent to which a leader is transformational, is measured first, in terms of his influence on the followers (Bass, 1990)

The very purpose of leadership is to take advantage of the challenge and opportunity that innovation and change present (Graen & Uhl-Bien, 1991). It is then understood that there must be some inherent interaction between the leader and technology, especially in the case of startups where the basis of the organization is technology and innovation (Davenport, 1998).

An interesting concept for our purpose developed by Suddaby, R. et al. (2016) is the idea that "reflexivity – a generalized awareness of the constraints and opportunities created by the institutional environment in which the individual is embedded" (2016, p. 242) is an important factor in institutional stability and change. This notion can be extended to start-ups: what level of awareness do entrepreneurs have, and how does their environment effect the success or failure of their venture?

The literature on communication and entrepreneurship is far less extensive than that on personality types. Modrea, A. (2012) has published a paper on communication from an entrepreneurial perspective, but the work is highly theoretical and not at all in depth.

Henry Mintzberg, a renowned management theorist and professor, is known for his views on leadership that emphasize a more holistic and practical approach compared to traditional leadership theories. He argued against the notion of a single "correct" leadership style and instead proposed that effective leadership emerges from a combination of various roles and behaviors, depending on the situation and context.

Mintzberg's view on leadership is often associated with his concept of "managerial roles", he identified ten roles that managers typically engage in, which can be grouped into three categories: Interpersonal Roles, Informational Roles, and Decisional Roles. Mintzberg believed that leadership is not just about a single person at the top of the hierarchy but rather involves various roles that are distributed throughout the organization. Effective leaders, according to his perspective, are those who can balance and adapt these roles based on the specific demands of the situation and the needs of the organization. In essence, Mintzberg's view on leadership is more nuanced and practical, focusing on the dynamic

and multifaceted nature of managerial and leadership roles. His approach resonates with the idea that leadership is a complex process that involves a range of behaviors, interactions, and decisions rather than a fixed set of traits or behaviors (Mintzberg, 1973). In this study, through our extensive qualitative data collection, we observed how technology can assist leaders of startups in assuming managerial roles. This examination sheds light on how technology has the potential to transform leadership within organizations.

2.3 Technology and its influence on Organizational Culture

There are several seminal works that provide insights into how technology might affect organizational values, structures, decision-making processes, and employee behavior. According to Orlikowski (1992), technology can be perceived in two distinct ways: as a given, objective reality or as a dynamic, human construction. The former perspective, known as the technological imperative school, views technology as playing a deterministic role, while the latter perspective, referred to as the strategic choice school, emphasizes the interpretive and socially constructed nature of technology. These contrasting views highlight how technology both shapes and is shaped by social interests and motivations. We aim to contribute to the former.

Barley (1990, 2015) argues that technologies can induce change by reshaping workers' roles and tasks, thereby altering the nature of their interactions within the organization. Such changes may extend to the composition of their role set, including interactions with robots or cobots as coworkers. These shifts in role relations are pivotal in driving changes within the social network, ultimately leading to transformations in the organization's work system (Cascio & Montealegre, 2016).

Organizational forms, can engender certain types of technologies, which, in turn, reinforce or transform structural configurations over time. For example, the flexibility of interactions with technology can be associated with different organizational forms. This suggests that the alignment between technology and organizational structure influences the adoption and

use of technology within an organization (Mintzberg, 1979). Therefore, it is important to study these phenomena in various contexts and different types of organizations.

McDermott and Stock (1999) delve into the relationship between organizational culture and Advanced Manufacturing Technology (AMT) implementation effectiveness. They stress AMT's significance in improving organizational aspects like work flows and communication. Notably, their model uncovers significant negative associations between competitive performance and internally-oriented culture variables. This suggests that, within their sample, an internal focus was detrimental to competitive benefits, while at least one externally-oriented culture showed positive associations. Furthermore, the study finds that developmental culture may not have fostered competitive benefits due to the mismatch between growth and innovation focus and AMT implementation. This shortfall in innovation potentially led to underperformance in the marketplace. Conversely, rational culture positively correlated with competitive performance. Rational cultures, per the competing values model, prioritize productivity and profit broadly, whether through technology adoption or alternative strategies. The study's emphasis on identifying conducive organizational cultures for successful AMT implementation that leads to organizational benefits may appear somewhat circular, clearly outlining the complex relationship between organizational culture and technology. McDermott and Stock advocate for further research to understand these relationships better and their implications for manufacturing strategy.

The values embedded in specific technologies and IT cultures can often be in conflict, leading to what is conceptualized as "vision conflict" (Leidner and Kayworth, 2006). However, studies indicate that embedded IT values and IT cultures may eventually align, leading to "vision agreement". The dynamic nature of IT culture suggests that during an IT implementation, degrees of both vision conflict and agreement can be evident, and individuals' personal cultural dispositions towards IT play a crucial role in shaping their reactions and acceptance of technology (Abubakre et. al, 2015).

Successful technological innovations require a fit between the technology and the organization's current structure and culture, or a reshaping of the organizational structure and culture to accommodate the demands of the new technology (Cabrera et al., 2001). Technological changes can disrupt other key organizational subsystems, necessitating the adaptation of organizational structures, decision-making processes, and job assignments. Achieving a new equilibrium in the face of technological change requires vertical fit (alignment with capabilities and strategy) and horizontal fit (integration between social and technical subsystems) within the organization (Cabrera et al., 2001).

Leadership characteristics, such as involving subordinates in decision-making and providing appropriate communication, have a positive effect on the acceptance of change (Reichers et al., 1997). Failure to involve subordinates and inform them adequately can lead to resistance toward change. Organizational culture, encompassing national, occupational, and organizational aspects, plays a significant role in how individuals react to technology and the success of its implementation. Understanding individuals' cultural dispositions toward technology can provide insights into their reactions and facilitate successful implementation.

We observe that Technology is not merely a neutral tool but has the potential to shape and be shaped by organizational values, structures, leadership, and decision-making processes. There is extensive research on successful implementation of technology and the requirements needed to achieve it such as considering the fit between technology and organizational structures, as well as understanding individuals' cultural dispositions. Despite the existence of a well-rounded theoretical framework, the gap in the literature is evident as stated by Leidner & Kayworth (2006) "Furthermore, IT-culture research should consider the possibility of applying both organizational and national level values […] at different levels of analysis." (p.381). By examining the influence of technology on leadership and organizational culture, within a very specific context, this article contributes to the understanding of how technology can transcend national cultural and institutional contexts and influence leadership and organizational culture.

2.4 National Cultural and Institutional Context: Relevance for Startups

Understanding the national cultural and institutional context is crucial for startups as it shapes the constraints and opportunities they face. It can be argued that reflexivity, which refers to entrepreneurs' awareness of the institutional environment, plays a key role in institutional stability and change (Suddaby et al. 2016). This notion can be extended to startups, exploring the level of awareness entrepreneurs have and how their environment affects the success or failure of their ventures as well as the manner and the extent to which it has an influence.

The organizational effects and responses of startups vary across sectors. While there are similarities in trends and effects, companies approach the organizational implications differently. For technology-oriented startups, international market activity and collaboration with startups from other countries become crucial in achieving success in niche markets (Halmosi, 2019)

Supportive public policies can foster entrepreneurial activity and drive economic growth. This underscores the importance of creating an institutional environment that encourages and nurtures startups (Acs and Szerb, 2007). Research in the are has also highlighted the importance of policy interventions at different stages of the entrepreneurial process to foster innovation and technological advancement in startups (Avnimelech, 2008). The role of networks in entrepreneurship in a specific cultural context is also significant, we must consider the importance of social networks, partnerships and collaborations in facilitating knowledge exchange, resource acquisition, and market access for startups (Elfring and Hulsink, 2003).

More specifically in the context of Hungary, Acs et al. (2007) discusses the potential of replicating the Irish Miracle, where Ireland, a small country experienced incredible economic growth through entrepreneurship. They also shed light on the need for favorable institutional conditions, access to resources, and supportive policies to create such an entrepreneurial ecosystem conducive to startup success.

3. Research Design and Methodology

3.1 Comparative Study of Israel and Hungary

The research design for this comparative study between Israel and Hungary involved conducting semi-structured interviews and employing a qualitative approach to gain insights into the two countries' contexts. A total of 55 interviews were conducted, with 29 interviews conducted in Israel and 26 interviews conducted in Hungary. The interview questions which can be found in detail in Appendix C, were divided into 5 main sections. The purpose of the first two sections was to create future descriptors for the analysis of the data. The remaining three sections were created based on the proposed research questions and aimed to explore the organizational culture and leadership in each given context as well as the specific national cultural and institutional contexts of startups in each country.

Hungary and Israel were selected based on their differences. When in a cross-national comparison, the country is used as a context of study, the more diverse the selected countries, the better (Kohn, 1987) Israel has a well-established startup ecosystem 6th in the world (Compass, 2015), Hungary has the potential to become one, due to low costs and high talents, but lacks capital (Diaconu, 2017). By observing two countries that have different institutional environments and cultural contexts we can with greater certainty draw conclusions on the effects of technology.

The interviews were recorded and transcribed using Otter AI, an automated transcription tool. This allowed for accurate and efficient conversion of the interview data into written text for analysis purposes. The transcripts formed the primary data source for the study.

To analyze the qualitative data, a coding frame was developed. The coding frame consisted of predefined categories and codes based on the research objectives and interview questions. The coding frame facilitated the systematic organization and categorization of the data, enabling the identification of patterns, themes, and relationships within the interview responses. The analysis was conducted using Dedoose, a qualitative data analysis

software, which provided tools for coding, organizing, and analyzing the data. A free coding approach was used where deemed necessary all the while taking intercoding reliability into account (Campbell et al., 2013)

The research design adopted a comparative approach, which is an excellent method to ensure that indicators are valid, the individual cases are truly independent, with fewer cases the collected data is more reliable, and attention can be given to details and concepts are not overexaggerated. (Lijphart, 1975) The focus was on the similarities and differences between Israel and Hungary in terms of the effect of management tools on their leadership and organizational culture in the context of their national cultural and institutional environment, with an effort to try and measure the weight of their impact on the organizational culture of startups. By conducting semi-structured interviews, transcribing the interviews using Otter AI, and analyzing the data with a coding frame in Dedoose, the purpose of this study was to gain a comprehensive understanding of the research topic and generate insights into the relationship between technology and organizational culture in startups in national contexts.

Overall, this research design combined qualitative data collection, transcription, and analysis methods to create exploratory qualitative research study from which we expected to find indications of technology transcending national culture and the institutional environment, creating similar best practices in leadership both jurisdictions (Birkinshaw et al., 2011). In cases such as ours where the existing literature is fragmented and the outcomes are not clear from the onset an inductive content analysis is suggested (Elo & Kyngäs, 2008).

3.2 Data Collection Method: Semi-Structured Interviews

A qualitative approach was used to gather rich insights into the organizational cultures and national and institutional environment of Israeli and Hungarian startups. The data collection process involved conducting 55 semi-structured interviews, which provided a flexible framework to explore the research topic in depth. 26 interviews conducted with Hungarian startups and 29 interviews with Israeli startups. The interviews were carried out

over a span of two years, allowing for a comprehensive understanding of the research area, and capturing potential changes influenced by external factors such as the COVID-19 pandemic.

3.3 Sample Selection and Participant Characteristics

The Hungarian sample for the interviews was primarily drawn from startups affiliated with prominent incubators such as CEU iLab, MKB Fintechlab, and OTP Lab. These incubators provided access to a diverse range of startups, ensuring a representative sample for the comparative study. The Israeli sample was created during field work in Israel, as guest researcher at Tel Aviv University. The sample was generated by randomly reaching out to startups via email, sourced from a comprehensive database available on https://finder.startupnationcentral.org/.

The timing of the interviews was significant, as some were conducted before the COVID-19 pandemic, while others were conducted during or after it. More specifically, ten of the interviews conducted in Hungary were in-person interviews in early 2020. All post-COVID interviews were conducted using Zoom, the cloud-based video conferencing platform. A convenient function of the tool is the option to record the interviews within the application. This unique timing of the interviews allowed for an exploration of how technology usage and its influence on organizational culture might have evolved in response to the pandemic's impact. The post-COVID period witnessed a more widespread adoption and reliance on technology, potentially shaping the organizational cultures of startups in both countries, which was addressed in the interviews.

3.4 Data Analysis: Coding and Thematic Analysis

The analysis utilized a coding frame and was performed using Dedoose. Key demographic descriptors such as nationality, gender, generation, and the size of the startup were taken into consideration. To ensure accuracy and comprehension of the concepts covered, we went beyond a simple text search, code words were subcategorized and viewed in context.

The primary purpose of such qualitative content analysis is to pay attention to content as well as contextual meaning (Hsieh & Shannon, 2005) Furthermore, the transcripts were reread and recoded in entirety multiple times in order to achieve an accurate understanding of the data set.

The coding frame (see Appendix D) comprised three main categories: Organizational Culture, Technology, and National Cultural Environment. Within each category, several sub-codes were established to capture specific aspects.

The analysis of the coding and thematic analysis provides insights into the influence of technology, in a given national cultural environment, and organizational culture in startups. By considering key demographic descriptors and employing rigorous coding techniques, the findings contribute to the understanding of whether technology can transcend national and institutional contexts in shaping organizational culture.

4. Findings and Analysis

4.1 The Influence of Technology on Leadership and Organizational Culture: Cross-Cultural Perspectives and Patterns

The goal of this study was to determine whether technology can influence leadership and organizational culture, and if so, can it achieve this despite national cultural and institutional differences. As described by Leidner & Kayworth, 2006 in their rather comprehensive review of IT/IS literature in the context of culture at large “only a handful of articles consider the impact that IT can have on culture” (p. 381), which is precisely the gap we aimed to fill with the present study. In addition, we wanted to find out how the acquisition and use of management tools in startups affect leadership.

The results of this study support the idea that technology can have a transformative effect on an organizations culture, however, the idea that it can do so while also transcending the national cultural and institutional environment is far less clear.

To account for other variables that could influence outcomes we used descriptors in three categories:

Demographics, which included the core differentiator of our study, Nationality, as well as Gender and Generation

Startups: descriptors related to the maturity of the startup, Size, Rounds of Funding, and Current status

Interview: which included the date the interview was conducted and whether it was pre- or post-COVID.

4.1.1 Leadership

To gain insights into the baseline cultural context in addition to conducting a thorough review of the existing literature, we asked individuals from both countries about their perception of a good leader "What makes a good leader in your opinion?". See also Essay 1; 6.1. In Hungary, the most frequently coded response was "Clearly communicate expectations" (code count: 12). This indicates that Hungarian interviewees place great importance on leaders who can effectively articulate their expectations to their teams, there is a clear emphasis on communication which was clearly observable later in their answers in relation to the influence of technology on leadership. Additionally, the recurring mentions of "Collective wisdom" (code count: 11), "Vision" (code count: 11), "Motivate" (code count: 10) and Serve (code count: 9) underscore the importance of leaders who inspire and provide clear direction, emphasizing the role of shared knowledge and forward-thinking perspectives in effective leadership practices.

In contrast, among Israeli participants, the most prevalent response was "Lead by example" (code count: 12). This suggests that Israeli culture values leaders who demonstrate their desired behaviors and set a positive example for others to follow. This is in line with the more innovative culture in Israeli society, and the less hierarchical organizational culture observed in startups. "Motivate" (code count: 8), "Listen" (code count: 7), "Collective Wisdom" (code count: 7) and "Vision" (code count: 7) were also frequently cited by Israeli interviewees, emphasizing the importance of leaders who actively listen to their team

members, inspire them, and provide a clear sense of direction. In the dataset with Israeli respondents, we observed a diverse range of responses creating a more even distribution, in the Hungarian data set however there was a more noticeable emphasis on specific responses creating a less evenly distributed pattern.

Leadership can encompass a wide range of qualities and behaviors that influence and guide individuals or groups towards achieving common goals (Leitch & Volery, 2017). It involves the ability to inspire, motivate, and influence others, as well as effectively communicate a vision and expectations. However, the specific attributes and emphasis placed on different leadership dimensions can vary across cultures. We aimed to see whether these differences would translate into the participants answers to questions about the effect of technology.

The findings from interviews conducted in Hungary and Israel revealeds some distinct cultural preferences regarding leadership attributes, however there was significant overlap in the responses, as collective wisdom – the shared knowledge, insights, and experiences that are pooled together from a group of individuals, motivating one's team and creating a clear vision for the organization were significant in both data sets. This indicated that startups in both nations could benefit from transformational leadership which has been linked with startup success (Baum et al., 1998; Peterson et al., 2009, Zaech & Baldegger, 2017). Transformational leadership empowers a founder-CEO to convey their vision effectively, motivating employees and enhancing their connection to the company's success. This leadership style fosters teamwork, optimism, and a sense of support. Additionally, a transformational leader instills the belief that the shared vision can be achieved through collective dedication and strong conviction. (Zaech & Baldegger, 2017).

Figure 7 – Preferred leadership qualities in Israel

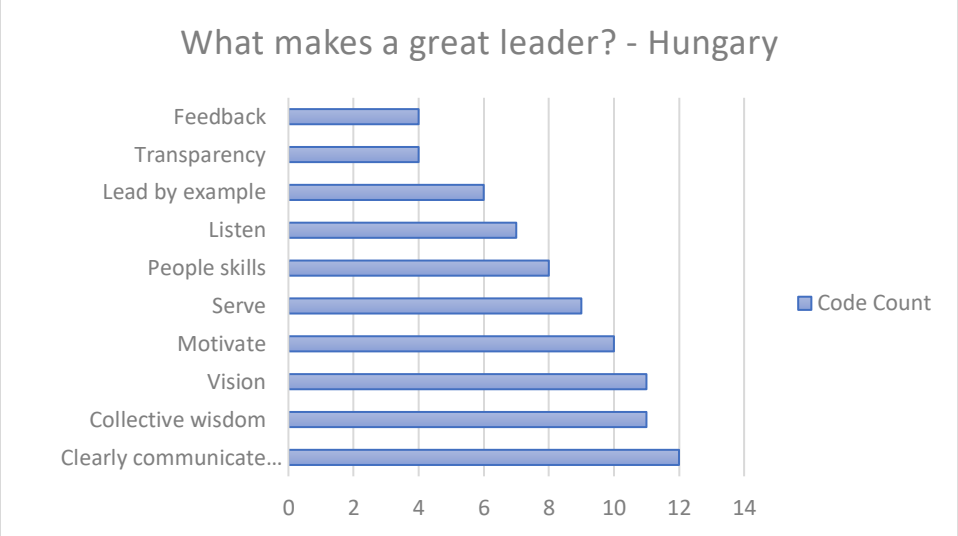


Figure 8 – Preferred leadership qualities in Hungary

4.1.2 Technology's effect on leadership

When asked if the use of technology has a significant impact on the way leadership is organized within companies in Israel, out of the total 60 coded responses, 53 (88%) described some effects of technology on leadership, while 7 (12%) reported no effect. The most commonly mentioned effects were efficient task management, with a code count of

9, followed by efficient communication (7) no effect (7), more efficient oversight (6), flexible work location (6), and increased productivity (6).

Similarly, in Hungary, out of the total 67 coded responses, 64 (96%) indicated some effects of technology on leadership, while only 3 (4%) reported no effect. The leading codes in Hungary closely mirrored those in Israel, with efficient task management being the most prevalent with a code count of 10 . More efficient oversight (7), efficient communication (7), flexible work location (7), conveys leadership (6) and increased productivity (6) were also mentioned. These findings suggest a consistent pattern in the perceived impact of technology on leadership practices across both countries. See detailed list in Table 1 and 2 below.

Table 3 – Impact of tech on leadership Israel

	Impact of technology on leadership - ISRAEL	Code Count	Percent
1	Efficient task management	9	15%
2	Efficient communication	7	12%
3	No effect	7	12%
4	More efficient oversight	6	10%
5	Flexible work locations	6	10%
6	Increased productivity	6	10%

Table 4– Impact of tech on leadership Hungary

	Impact of technology on leadership - HUNGARY	Code Count	Percent
1	Efficient task management	10	15%
2	More efficient oversight	7	10%
3	Efficient communication	7	10%
4	Flexible work locations	7	10%
5	Conveys leadership	6	9%
6	Increased productivity	6	9%

Furthermore, when negative responses were removed from the analysis, the top five codes in each country remained quite similar. In Hungary, the top codes remain the same. In Israel, the top codes were efficient task management (9), efficient communication (7), more efficient oversight (6), flexible work locations (6), increased productivity (6), and a lack of informal interactions (4). These results indicate a shared emphasis on efficient task management, communication, and increased productivity as the primary effects of technology on leadership practices in both countries. Efficiency emerges as a prominent recurring theme in both instances. On the other hand, this data also suggests a more

negative outlook on the effect of technology on leadership in Israel, since several of the interviewees emphasized the lack of informal interactions as a result of the use of management tools and software in the day-to-day operation of the company.

Upon analyzing the normalized responses based on descriptors, a distinct pattern emerged. Only male respondents indicated that technology has no impact on leadership. Negative responses were predominantly contributed by Baby Boomers (55.2%), followed by Generation Z respondents (20.7%). In terms of company size, larger startups with over 100 employees accounted for 38% of these negative responses. Intriguingly, 67.7% of normalized responses were from Israeli respondents, and 68.1% of the normalized responses asserting no effect came from companies that, during our follow up investigation, were found to be currently active and have received additional funding which can be interpreted as success. Subsequent investigations should explore the underlying causes of this phenomenon.

Overall, the data suggests that the use of technology indeed influences the way leadership is organized within companies, driven mostly by communication tools such as Slack, Whatsapp, and Zoom and project management tools such as Monday.com, Jira, and Clickup, the adoption and use of which we detail in Essay 3. The findings highlight the importance of efficient communication, task management, and oversight, along with the potential for increased productivity. Notably, the effect of the COVID pandemic does not demonstrate a significant influence in the results, in fact the most popular communication tools were already mentioned in pre-COVID interviews. One of the Hungarian CEOs P.D. who an interview was conducted with in early 2020 said "[…] and in the event that they work from home they they use all these online tools, we use the Google Hangouts, which is now called Google Meet. So this is and Zoom, the other one for conference calls. Also, like Slack". Other interviewees mentioned that a lot of the work was outsourced to different jurisdiction before the pandemic, therefore we can safely assume that these tools did not enter the start-up scene post-pandemic, but rather gained more universal popularity consequently. The results from Israel and Hungary demonstrate a general consensus

regarding the beneficial effects of technology on leadership practices, emphasizing its transformative role in shaping how leaders operate within their organizations.

4.1.3 Technology's effect on organizational culture

When examining the impact of technology on organizational culture, it's essential to dissect culture into its various components. Culture encompasses not only shared values and beliefs but also tangible artifacts and practices that reflect these underlying norms (Schein, 1984). While technology is categorized as an artifact, its impact on culture can extend across all levels, shaping not only observable manifestations but also underlying values and assumptions. The question concerning leadership was broad in scope, whereas the question regarding technology's influence on organizational culture was framed within the context of a particular technology acquired by the startup: "What would you say was the single most important technology acquisition that the company has made? Did it have an impact on your organization's culture?" This elicited responses that shed light on both the intangible aspects of culture, such as shared values and communication norms, as well as tangible manifestations like task management systems and communication tools.

Table 5 – Tech's impact on OC Israel

	Impact of technology on organizational culture - ISRAEL	Code Count	Percent
1	No impact	7	16%
2	Ease of communication	4	9%
3	Impact on workforce (HR)	4	9%
4	Transparency	4	9%
5	Better task management	3	7%
6	More organized	3	7%
7	Full alignment	3	7%
8	Maturity of organization	2	4%
9	More collaborative	2	4%
10	More organized communication	2	4%

Table 6 - Tech's impact on OC Hungary

	Impact of technology on organizational culture - HUNGARY	Code Count	Percent
1	Better task management	12	20%
2	More organized	7	12%
3	No impact	7	12%
4	Transparency	7	12%
5	Ease of communication	5	8%
6	Relieves frustration	3	5%
7	More time for informal interaction	3	5%
8	More organized communication	2	3%
9	Reliability	2	3%
10	Simplified processes	2	3%

In Hungary, a total of 26 interviews were conducted, resulting in 60 codes related to the impact of technology on organizational culture. The majority of respondents, accounting for 88% of the codes, indicated that the technology acquisition had indeed influenced the organization's culture. The most frequently mentioned effects included better task management, a more organized culture, increased transparency, and ease of communication. These findings suggest that the adoption of technology in Hungarian startups has positively influenced their organizational culture by enhancing task management, streamlining communication, and promoting transparency within the organization. Knowing that the majority of interviewees in Hungary considered clear communication of expectations a very important attribute of a leader, it is no surprise that they emphasized the importance of technology's effect on communication within organizational culture.

Conversely, in Israel, 29 interviews were conducted, generating a total of 45 codes related to the impact of technology on organizational culture. It must be noted that some of the Israeli respondents went as far to say that not only did their most useful technological tool not influence their organization's culture, but that in fact do not have a culture. One of the early-stage startup CEOs M.K. said "So [we] don't have actually culture. We just do this from remote. So, it doesn't matter". The findings revealed that 84% of the codes implied that the technology acquisition had an effect on organizational culture. The most prevalent response was "no effect" accounting for 16% of responses. Predominant effects mentioned were the ease of communication, impact on workforce (HR), and transparency. This suggests that technology has played a significant role in facilitating communication within Israeli startups, potentially leading to improved collaboration and efficiency. And also points to the fact that the ability to hire remote workforce is important to Israeli startups.

When examining the results by excluding completely negative responses in Israel, the most notable impacts also included better task management, a more organized culture, full alignment, maturity of organization, more collaborations, and more organized communication. As before, the Israeli responses displayed a wide range of perspectives..

These findings indicate a sort of ambivalence regarding technologies influence on organizational culture, it seems that although the majority of interviewees noted such effect, they were not entirely convinced that it is beneficial. Considering the fact that Israeli respondents valued leading by example the most in a leader, it is possible that the hesitation or ambivalence towards the beneficial impact of technology on organizational culture stems from the overarching cultural values of valuing hands-on leadership and maintaining a lower Power Distance Index (PDI) in Israel's societal context (see Essay 1:7.1). This cultural inclination towards leader exemplification and reduced hierarchical distance might lead Israeli respondents to approach technological changes with caution, preferring human-centric leadership models that align with their cultural norms. It is also plausible that the physical distance brought on by changes in technology can negatively affect organizational culture in Israel.

Once again, exclusively male respondents indicated in normalized responses that technology had no effect. This time, the distribution of negative responses regarding technology's impact on organizational culture was more balanced across nationalities, with 52.7% being Hungarian. Among the responses asserting that technology had no influence on organizational culture, 41.4% were from Generation X, 31% from Generation Z, and 27.6% from Millennials, notably absent from Baby Boomers. As before, a majority of the negative responses were from currently active companies that had received additional funding since the interview, though to a lesser extent, accounting for 49.9% of the normalized responses. Notably, a slight COVID-19 effect can be observed, as 69.2% of the negative responses originated from interviews conducted before the pandemic.

The findings unequivocally demonstrate that technology significantly influences leadership and organizational cultural practices across startups, as the vast majority of coded responses support this notion. However, a deeper analysis of the data unveils distinct variations that can be attributed to national cultural disparities.

The results could be attributed to certain cultural characteristics ingrained in Israeli society. The Israeli Defense Forces (IDF) experience, as highlighted earlier, instills a sense of

structure, discipline, and coordination in individuals. This military background likely influences the preference for organized and aligned processes, as well as the emphasis on effective communication and collaboration. The entrepreneurial spirit, nurtured by the challenges posed by a turbulent geopolitical environment, could drive the pursuit of efficient task management and mature organizational practices. Moreover, Israel's bold and innovative approach might encourage embracing technology for enhancing these aspects. However, the ambivalence noted in the results could be explained by the traditional value placed on face-to-face interactions in Israeli culture, which might be disrupted by technology-driven changes. This cultural context suggests that while technology offers efficiency gains, some hesitation remains due to concerns about potential adverse impacts on the close-knit and collaborative nature of Israeli organizations.

Hungary's historical context of transitioning from a socialist regime to a market-driven economy has likely fostered a pragmatic and adaptable approach among its people. This adaptability might translate into a willingness to embrace technological advancements to improve organizational efficiency and transparency.

Overall, the findings highlight the fact that the acquisition and integration of technology can have a profound impact on various aspects of organizational culture, including task management, communication, transparency, and social interactions. Further research on the concrete effects of technology adoption on social interactions within the organization is recommended. We suggest that leaders to recognize and leverage the potential of technology in shaping a positive and adaptive organizational culture. By understanding these findings, leaders can make informed decisions and implement strategies that align technology initiatives with the desired cultural transformation goals within their organizations.

4.1.4 Discussions

Our research adds to the relatively unexplored field of cultural implications of information technology, particularly within the startup context. Our findings align with the conclusions

of Doherty and Perry (2001) and Doherty and Doig (2003), highlighting technology's potential to significantly reshape organizational culture. They observed that, no instances of user resistance or rejection of systems resulting from technology-driven cultural changes have been observed. Instead, in the majority of cases, these systems have proven to yield tangible organizational benefits and have been enthusiastically adopted by users. Our data also indicates a favorable reception of technology driven organizational change; however, we recommend additional research that specifically delves into this aspect within the context of national culture. Our findings did not support the notion that the realization of benefits and the management of cultural change must always be a long-term and potentially challenging process, respondents conveyed significantly positive sentiments, describing an almost immediate impact on organizational culture. These variations might be attributed to the distinct context; startup companies are known for their fast-paced and agile nature (Silva et al., 2021).

Figure 9 – Conceptual model of technology's effect on organizational culture

Schein (2004) underscores the interplay between organizational culture and leadership, highlighting that initial-stage companies often mirror the values of their founders or leaders, a relationship that transforms as firms cultivate distinct corporate cultures. In the context of our study, larger companies appear less influenced by technology in their leadership dynamics, a phenomenon possibly linked to this evolutionary process. Nevertheless, technology's impact can prove pivotal in shaping leadership within early-

stage startups, influencing their organizational culture and laying the groundwork for future accomplishments. To delve deeper, further investigations into how technology interacts with culture across various startup life cycles are warranted. In this vein, Ensley et al. (2006) accentuate the significance of vertical leadership, which is focused on the CEO or other appointed or formal leader of a team, possibly proving important in a venture's early days, however shared leadership, which stems from within a team and represents a manifestation of distributed leadership, yields favorable outcomes during organizational growth. This interplay between vertical and shared leadership underscores the need for a synchronized leadership strategy aligned with organizational life cycle phases. The engagement of followers in leadership endeavors is pivotal for effective advancement (Ensley et al., 2006). Our findings propose that technology can serve as a valuable tool to facilitate this developmental process.

5. Limitations and Future Research

5.1 Methodological Limitations and Constraints

The aim of this chapter is to address the methodological limitations and constraints encountered during the present study. The data for this qualitative study was collected through semi-structured interviews and focused on the technology imperative in the organizational culture and macro environment of startups, comparing Israel and Hungary. In this chapter we discuss the challenges that may have influenced the research process and findings, due to the general weaknesses of qualitative research, the presence of only one expert coder, and specific limitations of the conducted interviews (Campbell et al., 2013).

5.1.1. Single Expert Coder

One notable limitation of this study was the presence of only one expert coder. Intercoder reliability, which is a crucial aspect for the integrity of qualitative research, was compromised due to the absence of multiple coders independently analyzing the data. However, steps were taken to mitigate this limitation, including rigorous training and calibration of the coder to ensure consistency and minimize subjective bias. The coder

adhered to established coding guidelines and refined the coding process several times. (Nowell et al., 2017)

5.1.2. Limitations of Conducted Interviews

The conducted interviews presented several challenges and limitations. One such limitation was construct bias the lack of clear and consistent definitions of key concepts such as leadership and organizational culture (Karahanna et al., 2002). This led to variations in interviewees' understanding and interpretation of these concepts, which influenced their responses. Some interviewees expressed contradictory responses, stating “no” to a question but providing reasons that implied “yes” without realizing the inconsistency. The expert coder coded both answers to respect the intended response, resulting in potential coding complexities. For example, Zs.R., one of the Hungarian startup CEOs interviewed claimed that technology has no bearing on leadership “[…] that's not really something that has an effect on the leadership.” However later in the interview he details how thanks to technology his communication with his team is more effective and that there is more transparency and clarity in task management, which is in clear contradiction with his initial statement. Another example was Y.G. the CEO of an Israeli startup specializing in robotics who described his experience at a previous startup where he was CEO “We didn't have a Monday[.com]. So, each week we have weekly, and every two weeks we have startups meeting, […] And in Monday [.com] I don’t need it, because I can see it in real time. And we still have weekly, but in the weekly, it’s more social, not about work.” yet when asked whether Monday.com had affected the organizations culture, he replied that it had not.

It is also important to note here that due to the stage and size of most startups, 45% of the interviewed startups had 2-10 employees including the founders, during this study only Founders and CEOs were interviewed. Hence the perspective on leadership is one sided, and we must also account for the self-serving bias, the tendency of individuals to attribute positive outcomes to themselves, in this case we must consider that they are the leaders who are supposedly being transformed by technology. (Shepperd et al.,2008)

Furthermore, different levels of fluency and understanding of the English language among interviewees introduced additional complexity. Although all interviewees had proficiency in English language, some interviewees may have had a limited command of the language, leading to potential misinterpretations or difficulties in expressing their perspectives. The usage of otter ai eliminated several issues on the interpretation end as the software was able to pick up on soft-spoken language which the interviewer may not have otherwise understood. Additionally, variations in interviewees' talkativeness, or time constraints may have affected the depth and richness of the data obtained.

5.1.3. Sample Size and Country Distribution

In qualitative research using semi-structured interviews there is an emphasis on the sample size to achieve reliability of the data and to properly represent the unique perspective of those interviewed. The sample size for this study consisted of 55 interviews, with 29 conducted in Israel and 26 in Hungary. While this sample was ample enough to provide valuable insights (Glaser and Strauss, 1967), it is important to acknowledge the potential impact of the uneven distribution of interviews across the two countries. A slightly more balanced distribution would have strengthened the study's ability to draw comprehensive conclusions.

5.1.4. Inherent Nature of Qualitative Research

Qualitative research, by its nature, involves an emergent and inductive approach. This characteristic introduces some limitations, such as the possible small sample sizes, potential bias in participant responses, as well as self-selection bias. Due to the specific timeframe during which the research was conducted, new challenges appeared such as the COVID pandemic. The pandemic and the sudden emphasis on social distancing as well as travel restrictions created several shifts in qualitative research (Roberts et al., 2021) among them a serious emphasis on virtual interviews using tools such as Zoom (Oliffe et al. 2021). Additionally, the labor-intensive nature of qualitative research, including data collection, transcription, and coding, requires significant time and resources.

5.2 Suggestions for Future Research Directions

This paper set forth to identify the potential effects technology may have on leadership methods and organizational culture, based on the findings and analysis, we suggest several new areas and directions for research:

5.2.1. Longitudinal Studies:

Conduct longitudinal studies to track the long-term impact of technology adoption on leadership and organizational culture. This would help identify any evolving patterns, challenges, or unforeseen consequences that may arise over time. Comparing data from different time points could provide a comprehensive understanding of the dynamic relationship between technology, leadership, and organizational culture.

5.2.2. Further Explore Cross-Cultural Differences:

Conduct more research to delve deeper into the cultural and institutional differences that may influence the transformative effect of technology on leadership and organizational culture. Investigate whether the interplay between leadership practices and the adoption of technology vary across different cultures.

5.2.3. Investigate Negative Impacts:

Given the ambivalence observed in the Israeli data regarding the impact of technology on organizational culture, it would be valuable to explore the potential negative consequences of technology adoption. Specifically, examine how decreased social interactions and the physical distance brought on by technological changes can impact organizational culture and employee well-being.

5.2.4. Study Social Interactions:

Conduct research specifically focused on the effects of technology adoption on social interactions within organizations. Explore how virtual communication tools may influence informal interactions, collaboration, and relationship-building among team members. This research can provide insights into maintaining a positive organizational culture while leveraging technology.

5.2.5. Technology and Remote Work:

With the COVID-19 pandemic accelerating already prevalent remote work practices in startups, it would be valuable to explore how technology impacts leadership and organizational culture in remote work settings. Investigate the unique challenges and opportunities presented by remote work and develop strategies to foster a positive culture in distributed teams.

5.2.6. Explore Leadership Development:

Investigate how technology can be leveraged to enhance leadership development and training programs. Identify ways in which technology tools and platforms can support leadership skill-building, mentorship, and knowledge sharing, ultimately contributing to the development of effective leaders in technology-driven organizations while maintaining the human connection.

5.2.7. Contextualize Findings in Other Industries:

While this study focused on startups, it would be insightful to replicate the research in other industries to understand how technology-driven cultural transformation and leadership practices differ across sectors. By examining various organizational contexts, researchers can provide a more comprehensive understanding of the role of technology in shaping leadership and culture.

6. Conclusions

Our research aimed to clarify whether technology can transcend national cultural and institutional contexts and influence leadership and organizational culture. We have found that there are significant similarities in how technology is interpreted and applied across cultures, influencing the leadership and organizational culture of startups. However, it's important to note that cultural factors still clearly play a role in how technology is used, adopted, and integrated within organizations. The leaders and members may interpret and adapt technology in ways that align with their cultural values and practices. The interplay between technology and culture is dynamic, and organizations, startups which are by definition dynamic and innovative need to navigate this relationship effectively to leverage the potential benefits of technology while also honoring their cultural context.

ESSAY 3 – Technology Acquisition and Management Tools in Startups: Exploring Decision-Making and Efficiency Mechanisms

1. Introduction

1.1 Background and Context

The acquisition and management of technology play a crucial role in the success and survival of startup companies. To achieve successful technology assimilation, there are two potential approaches: aligning the technology with the existing organizational culture or adapting the culture to align with the behavioral demands of the technology (Cabrera et al., 2001). In this study, we aim to see how startups navigate the complexities associated with technology decisions and improve operational efficiency.

The existing literature lacks a comprehensive understanding of the interplay between decision-making processes, knowledge management practices, and the use of management tools in the context of startups. This gap in the literature presents an opportunity to contribute to the field by exploring these areas and additionally offering concrete managerial implications. This study focuses on examining the existing literature, with the goal of contributing to the growing body of research on management tools. Understanding the factors that influence decision-making and the effective management of knowledge can inform strategic planning, resource allocation, and operational efficiency.

Moreover, this research intends to open avenues for further exploration, including quantitative research, to evaluate the use of management tools by startups. Startups require tools and strategies that can be rapidly deployed and adapted to their ever-changing needs. Therefore, it is essential to understand how startups are selecting management tools, and the internal mechanisms that ensure their efficient use.

The creation and effective utilization of knowledge within startups have been identified as key factors for fostering innovation and achieving competitive advantage. Knowledge

creation occurs through socialization, externalization, combination, and internalization processes (Nonaka & Takeuchi, 1995). Understanding these processes and their implications is essential for startups seeking to leverage their intellectual capital (Clemente et al., 2023).

Project management tools have emerged as valuable assets for startups in planning, organizing, and managing diverse resources. Such tools enable startups to evaluate team members' workload, determine project schedules, and generate progress reports. Moreover, when used collaboratively by all team members, these tools serve as repositories for capturing, storing, sharing, and applying the knowledge generated during projects (Clemente et al., 2023). This integrated approach to knowledge management can greatly assist startups, who do not have the time or resources to put formal and sophisticated knowledge management processes in place, in effectively managing their intellectual assets.

Furthermore, previous research has highlighted the influence of cultural values on knowledge management success (Baltahazard and Cooke 2003). Understanding the interplay between cultural values, knowledge management, and technology becomes crucial in the context of startups, where establishing an efficient and supportive information technology (IT) culture is vital. Existing literature has recognized that IT is not values neutral; instead, it carries symbolic and values-laden attributes. However, the notion of an IT culture and its impact on startups have received limited attention (Leidner & Kayworih, 2006).

1.2 Research Objectives

To provide an answer to the areas requiring further research stated above, we propose the following two research questions:

RQ1 – How are decisions around technology acquisition made in startups? What type of management tools are preferred?

RQ2 – What internal mechanisms are in place to ensure efficient use of management tools?

1.3 Significance of the Study

By investigating decision-making processes, knowledge management practices, and efficiency mechanisms, within the context of IT culture in startups, we seek to provide insights into how startups can effectively leverage technology acquisition and management tools to enhance their operational capacities. In the present study, the term "IT culture" refers to the values ascribed to IT by a specific group (Leidner & Kayworth, 2006). Kaarst Brown (1995) identified five distinct IT cultural patterns: the fearful IT culture, the controlled IT culture, the revered IT culture, the demystified IT culture, and the integrated IT culture. These patterns are discernible across a range of assumptions, including those related to IT control, the strategic importance of IT, and the justification of IT expenditures. Some of which we delve into in the present research. A study investigating IT culture within a firm at any given level, should not solely examine organizational culture but also explore its potential intersections with national or organizational subculture values and how these intersections might shape behaviors (Pettigrew, 1979). To contextualize our study, it is important to recognize the unique nature of startups. Startups embody entrepreneurial activity and often face the paradox of maintaining their innovative and out-of-the-box thinking while undergoing the process of becoming a corporation through entrepreneurial growth (Egan-Wyer et al. 2018). Our study aims to demonstrate how the strategic use of technology can help reconcile this contradiction.

1.4 Scope and Challenges

The empirical phenomenon of startups is difficult to precisely define, even in academic literature, there is a lack of clear technical definitions of the term (Cockayne, 2019). Throughout this study, we adopted an inclusive approach by granting the interviewees the autonomy to determine whether their respective endeavors met the criteria of a startup. For the purpose of our research, we broadly define a startup as a business or venture that

demonstrates innovative ideas, exhibits potential for rapid growth, and strives to establish a scalable business model, all within an environment characterized by uncertainty and risk.

The scope of this research is defined by several factors. Firstly, the analysis focuses on explicit interview questions that were utilized during the data collection process. Implicit interview questions are not included in the analysis, potentially limiting the insights captured from the participants. Additionally, a large amount of data was collected, but for the purpose of this study, only a portion of the data is utilized, providing a narrower scope of analysis.

Furthermore, the interviews were conducted in two different countries. However, for the purposes of this particular essay, the data from both countries is treated as one dataset. While this approach allows for a broader perspective, it may overlook country-specific nuances and cultural differences that could have influenced the research findings.

It is important to note that all interviews were conducted in English, despite the interviewer's ability to speak Hungarian. This decision was made to avoid potential data skew resulting from language differences and to minimize the challenges of translation. However, this language constraint may introduce biases and affect the authenticity of participants' responses, potentially limiting the overall validity of the findings.

During the transcription process, certain challenges were encountered. Transcribing interviews with foreign speakers and dealing with software glitches presented difficulties in accurately deciphering the interview data. These transcription issues may have introduced errors or inconsistencies in the data analysis.

Moreover, though a qualitative approach can better capture the subjective aspects of individuals' experiences, quantitative methods may offer additional benefits by providing a more comprehensive and generalizable understanding of these phenomena. Consequently, further research employing quantitative methods could be conducted to complement and validate the findings.

It is important to acknowledge that the sample size utilized in this study is relatively small, which may restrict the generalizability of the conclusions, particularly concerning the performance evaluation of specific software tools. Nonetheless, the findings provide valuable insights and offer a good understanding of the topic within the context of the study.

While the research examined various decision-making and communication practices within startups, it did not directly compare them to more established organizations. A comparative analysis could provide valuable insights into the distinctiveness of startup mechanisms.

The research explored the metrics used for technology-related decisions but did not delve into the specific outcomes or economic benefits of adopting various management tools. Future studies should investigate the economic impact and success factors related to the use of these knowledge management tools.

The study focused on a specific point in time and did not investigate changes in decision-making and communication practices over an extended period. A longitudinal approach would offer deeper insights into the evolution of these mechanisms as startups grow and adapt.

Since the data collected relied on self-reporting from participants, there is a possibility of response bias, where participants may provide socially desirable answers or over/understate certain aspects of their decision-making and communication practices.

Overall, while the research study provides key revelations into technology acquisition and management tools in startups, it is essential to consider these identified scope and limitations to ensure a balanced interpretation of the findings and to guide future research in this area.

2. Literature Review

2.1 Decision-Making in Organizations

Effective decision-making plays a crucial role in the success of organizations, particularly in navigating dynamic and uncertain environments. March and Simon (1958) introduced the concept of "bounded rationality", highlighting the cognitive limitations faced by decision-makers, which recognizes that decision-makers must operate within constraints, such as time limitations, limited cognitive abilities, and imperfect information. Startups, operating with limited resources and in uncertain conditions, are particularly prone to bounded rationality. Decision-making processes in startups often involve satisficing, selecting satisfactory alternatives that meet certain thresholds rather than pursuing exhaustive analysis of all options.

Managers face the challenge of identifying, developing, protecting, and deploying resources and capabilities to gain a competitive advantage and achieve superior returns on capital. This statement by Amit and Shoemaker (1993) emphasizes the significance of decision-making in strategic resource allocation. Westley and Mintzberg (1989) argue that visionary leadership goes beyond the mere formulation of ideas; it involves effectively communicating the vision to inspire followers. The leader's ability to foster mutual understanding, value diverse perspectives, and harness the power of the group is essential for successful decision-making. The symbolic nature of visionary leadership emphasizes the importance of how the vision is communicated, as it influences followers' ability to understand and act on the vision; "How the vision is communicated thus becomes as important as what is communicated." (Westley & Mintzberg, 1989, p. 19).

Intuition, drawing on individuals' innate ability to synthesize information, can facilitate rapid and effective decision-making in organizations, particularly in turbulent environments (Dane & Pratt, 2007). Dane and Pratt (2007) also highlight the role of learning structures: "Kind learning structures are those where feedback is both relevant and exacting. Relevant feedback is conceptualized as speedy and accurate feedback that

enables the individual to learn to assign proper causal relationships among decisions, actions, and outcomes." (Dane & Pratt, 2007, p.44)

Effectual decision-making logic, as opposed to causal logic, allows entrepreneurs to actively engage with uncertainty, leveraging existing means and stakeholder contacts (Reymen et al., 2015). This approach emphasizes the importance of adaptability and responsiveness in decision-making.

Alvarez and Barney (2005) distinguish between effectuation and causation as decision-making logics and propose that a combination of both is prevalent in entrepreneurial decision-making. Decision-making processes in startups are dynamic and influenced by contextual factors. The context-dependent nature of decision-making logics implies that decision-making approaches evolve over time (Alvarez & Barney, 2005). Flexible decision-making is prominent in the early stages of venture creation, transitioning to more planning-based decision-making as the venture and market mature. (Alvarez and Barney, 2005; Alvarez and Barney, 2007).

Effective communication and knowledge distribution within an organization play a vital role in decision-making. The structure and flow of information impact decision-making processes. Organizational structures and communication patterns influence how decision-making occurs, and centralized or decentralized decision-making affects the organization's ability to make informed decisions (Hultberg, 2021).

2.1.1. Decision-Making in Startup Contexts:

In the realm of startup culture, there is a prevailing perception that innovation, agility, and growth are the venture's driving forces. However, startups are also characterized by operating under conditions of limited resources and in environments, where the likelihood of failure surpasses that of success. It is widely acknowledged that the early stages of any startup venture are predominantly characterized by persistent and ever-present uncertainty (Unterkalmsteiner, 2016). The accumulation of educational attainments, work experience, and specialized human capital as highlighted by Colombo and Grilli (2010) can empower

entrepreneurs to navigate uncertainty more adeptly, seize untapped opportunities, and make well-informed strategic choices.

Silva et al. (2021) observed that startups frequently undergo pivots during their existence. These pivots, though often executed intuitively without explicit metrics, reflect the flexibility and adaptability of startups in response to market conditions and changing circumstances.

Startups often face challenges in decision-making due to the limited availability of data, time constraints, and reliance on intuition (York & Danes, 2014). Intuition, although valuable in decision-making, can also have limitations, particularly in unpredictable startup environments (York & Danes, 2014).

Startups commonly adopt a flat hierarchy, empowering employees to take responsibility for decision-making within their areas of expertise. This participatory approach, combined with transparent communication, fosters a democratic process, and reduces the concentration of power (Khangembam, 2022). It also creates an environment that encourages the free exchange of ideas, feedback, and employee participation in decision-making, contributing to better understanding, cohesion, and goal achievement (Khangembam, 2022). Furthermore, the lack of human resources in startups often results in employees overseeing multiple tasks beyond their expertise. This additional responsibility empowers employees to provide valuable insights and inputs into decision-making processes, contributing to a sense of ownership and engagement (Khangembam, 2022).

Overall, decision-making in startups is a highly specific complex process influenced by several factors. Understanding and navigating these factors effectively is crucial for the success and survival of startups. The impact of startups' strategic and organizational choices on their survival and success remains an under-investigated issue (Spender et al., 2017). Specifically, in the context of software startups, there is a lack of studies focusing on decision-making (Unterkalmsteiner, 2016).

Knowledge management is identified as a valuable organizational tool in startups to support change processes and improve decision-making. Startups play a crucial role in disrupting established market patterns and generating innovations that create value for society while challenging existing market players (Oliva & Kotabe, 2019).

2.1.2. IT Governance Decisions

Weill (2004) defines IT governance as the framework delineating decision rights and accountabilities to promote desirable behavior in IT usage. He further distinguishes IT governance from IT management, stating that while management concerns itself with the specific decisions made, governance is concerned with systematically assigning decision-making roles (decision rights), determining who has input into decisions (input rights), and establishing mechanisms for holding individuals or groups accountable for their roles. Effective IT governance leverages principles of corporate governance to oversee and utilize IT resources in alignment with corporate performance objectives.

The behavioral facet of IT governance involves delineating both formal and informal relationships within the organization and assigning decision rights to individuals or groups. Conversely, the normative aspect entails establishing mechanisms that formalize these relationships and institute rules and procedures to ensure the attainment of objectives. Research findings indicate that enterprises commonly deploy numerous mechanisms, sometimes exceeding a dozen, to facilitate IT decision-making processes (Weill & Ross, 2004). It is apparent that organizational culture significantly influences these relationships and decisions.

Brown and Grant's (2005) comprehensive literature review highlights that research on IT governance structures has predominantly focused on the organizational distribution of decision-making authority and the arrangement of IT activities. Early studies examined the involvement of various stakeholders in IT decision-making and the optimal organizational setup to enhance return on investment (Garrity, 1963). Within this context, scholars have

discussed two fundamental governance designs: centralized IT governance and decentralized IT governance (Brown & Magill, 1994; Schwarz and Hirschheim, 2003).

To address the oversimplified bipolar categorization of centralized and decentralized governance designs, scholars treated the rigid dichotomy as a spectrum, enabling the consideration of multiple degrees of centralization and decentralization. Adopting this continuous classification approach, some researchers proposed the concept of soft midrange points situated between the extremes of centralization and decentralization (Ein-Dor & Segev, 1978)

Weill and Woodham (2002) propose that effective IT governance involves analyzing decision-making in four key IT domains: principles, infrastructure, architecture, and investment/prioritization. Different governance models are often used for each domain. In feudal governance, business unit leaders have decision rights, mainly focusing on local needs. Federal governance involves shared rights among executives, business leaders, and IT personnel, often leading to challenges in implementation. In anarchy governance, individual users make decisions without formal mechanisms. Top-performing firms use anarchy for IT principles, prioritizing local optimization over standardization.

2.2 Knowledge Management

Knowledge management (KM) is a critical aspect of modern organizations, as it focuses on capturing, creating, organizing, and disseminating knowledge to enhance performance, innovation, and competitiveness. The works of various scholars have contributed to our understanding of KM, highlighting the importance of tacit and explicit knowledge, knowledge creation processes, the role of technology, and the impact on organizational performance.

In 1966, Michael Polanyi introduced the distinction between tacit and explicit knowledge. Tacit knowledge is difficult to transfer and resides in individuals' minds, while explicit knowledge can be codified and easily transmitted. Polanyi emphasized that formalization

of tacit knowledge enhances the mind's powers, but explicit rules alone cannot fully control thought processes (Polanyi, 1966).

Nonaka and Takeuchi proposed the SECI model in 1995, which outlines four basic patterns for creating knowledge within organizations. These patterns include socialization (tacit to tacit), externalization (tacit to explicit), combination (explicit to explicit), and internalization (explicit to tacit). The SECI model highlights the dynamic flow of knowledge within organizations, facilitating knowledge creation and transfer (Nonaka & Takeuchi, 2007).

Knowledge management tools are instrumental in supporting knowledge generation, codification, and transfer. These tools facilitate processes like knowledge sharing, communication, and collaboration within organizations. Technology acts as a powerful enabler of knowledge management objectives, and the integration of various tools under the umbrella of knowledge management enhances their potential (Tyndale, 2002).

The link between knowledge management and project success is particularly relevant to IT projects, which are knowledge-intensive activities. Studies demonstrate a strong correlation between effective knowledge management practices and project performance, emphasizing the importance of knowledge sharing and collaboration (Reich et al., 2012).

Organizational culture plays a crucial role in knowledge management success. A knowledge-friendly culture values learning, encourages knowledge sharing, and fosters collaboration among employees. Aligning the nature of knowledge with the knowledge management systems used is vital for efficiency and efficacy (Park & Ribière, 2004; Barker & Camarata, 1998).

O'Reilly et al. (1991) developed the "organizational culture profile" (OCP) survey tool to assess alignment between individuals and organizational culture. The OCP, comprising 54 attribute statements, shows reliability and validity in capturing individual and organizational characteristics. Results suggest that person-organization fit, assessed using

the OCP, predicts individual commitment, satisfaction, and turnover, highlighting the importance of value congruency. The study demonstrates the OCP's utility in understanding organizational culture's impact on individuals.

Park & Ribière (2004) demonstrated a significant link between cultural attributes and successful Knowledge Management (KM) technology implementation. Organizations should assess both their Organizational Culture Profile (OCP) and Knowledge Management Technology Profile (KMTP) before initiating KM projects. Positive cultural traits like information sharing, teamwork, and trust correlate with effective KM technology use, while attributes like attention to detail and compliance show negative correlations. They identified key cultural traits such as openness to change, willingness to share knowledge, and support for collaboration that enhance KM technology adoption. Aligning organizational culture with KM strategies is crucial, as supportive cultures facilitate the integration of technology tools for knowledge creation and sharing.

Startups heavily rely on knowledge management strategies due to their limited resources and need for scalability. They often focus on managing tacit knowledge through community-based discussions and collaborative work. Successful startups embrace a knowledge-friendly culture, value learning and experience sharing, and align their knowledge management strategies with their organizational goals (Bandera et al., 2017; Centobelli et al., 2017).

Knowledge management is a multifaceted discipline that encompasses the effective management of tacit and explicit knowledge, integration of technology and tools, alignment with organizational culture, and the facilitation of knowledge creation, sharing, and application. Successful knowledge management contributes to organizational growth, innovation, and overall performance, making it a vital aspect of modern business strategies. However, further research is needed to explore critical success factors, barriers, and the impact of knowledge management on various aspects of organizational performance, particularly in the context of startups and SMEs.

2.3 Project Management Software

Project management software plays a crucial role in enhancing the efficiency and effectiveness of project management practices. This literature review examines the historical development of project management software, its evolution in terms of features and capabilities, and its impact on project managers' performance and project success. The review also investigates factors influencing the adoption and utilization of project management software.

Project management software emerged in the 1960s and 1970s, primarily running on large computers. In the 1990s, the number of project management software packages increased significantly, offering a wide range of functionalities and prices (Meredith & Mantel, 2006). Over time, project management software evolved from simple personal computer-based tools, supporting limited features, to advanced client-server and Web-enabled systems with collaboration and communication capabilities (Lawton, 2000). This shift allowed organizations to manage concurrent projects across different locations, with high resource control and coordination.

Research hypotheses have been formulated to identify factors influencing the adoption and utilization of project management software. The findings of Bani Ali et al. (2008) revealed several significant relationships, some of them being:

- The ease of use of project management software positively affects its usage.
- The functionality of the software has a strong and direct relationship with its usage
- Larger organizations tend to use project management software more than smaller ones.
- User training level was not a significant predictor of software usage.

Using project management software was found to have a strong, positive, and direct relationship with users' perceived performance (Bani Ali et al., 2008). This result confirmed that project management software enhances project professionals' efficiency and effectiveness, providing better control, easier implementation, and faster completion

of projects. Additionally, it was observed that larger and more complex projects are more likely to employ project management software, further highlighting its relevance in complex project environments (Bani Ali et al., 2008; Liberatore et al., 2001).

The literature predicts that the next significant change in project management will be the adoption of more collaborative project management tools (Romano et al., 2002). With business globalization and the rise of virtual project teams, the need for strong collaboration among project members becomes essential. Traditional project management software focused on single-project perspectives, but the move towards collaboration can drive further improvements in project performance (Romano et al., 2002).

The adoption of project management tools, including project management software, has a direct link to organizational performance (Lux, 2013). These tools enable better planning, implementation, and management of activities, leading to improved performance and increased productivity (Abbasi and Al-Mharmah, 2000). Organizations embracing project management software tend to achieve planned objectives within specific time and cost limits through optimal resource utilization (Abbasi and Al-Mharmah, 2000).

Project management software has come a long way since its inception. Its evolution from basic personal computer tools to advanced client-server and Web-enabled systems has revolutionized project management practices. The adoption and utilization of project management software have been influenced by factors like ease of use, functionality, information quality, organization size, and project complexity. The software's impact on project managers' performance and project success has been significant, enhancing efficiency, control, and overall project outcomes. As organizations increasingly recognize the importance of collaboration, the next frontier in project management has already involved the adoption of more collaborative project management tools. The continual exploration of project management software's potential and its relationship with project success provides opportunities for further research and advancements in the field. Moreover, the growing adoption of collaborative project management tools by startups challenges the notion that organization size is the primary determinant of software

utilization, making startups an intriguing context for reevaluating the significance of organizational size in leveraging these tools effectively.

3. Research Methodology

3.1 Research Design

After selecting the area of research, a qualitative research approach was determined to be the most appropriate methodology. Qualitative research methods are highly suitable for robust theory development as they enable researchers to situate their study within existing scholarly discussions, explicitly articulate the theories they draw upon, and provide a clear rationale for their chosen theoretical framework (Birkinshaw, J. et al., 2011).

Interview Questions

- ◊ What type of technologies does your company use (not create)?
- ◊ What are the main considerations when adopting new technologies?
- ◊ What would you say was the single most important technology acquisition that the company has made? Who were the main decision makers?
- ◊ As a leader how is the communication of decisions conveyed to employees?
- ◊ Is there a forum for giving feedback about these decisions within the company?
- ◊ Are they followed up with an action plan?
- ◊ What size of an investment can an individual department make in technologies without authorization?

While the overall scope of the interviews was broader, specific interview questions relevant to this chapter were selected for analysis. To ensure rigorous analysis, a comprehensive coding frame was developed. The coding frame aimed to capture the pertinent aspects of the data and facilitate a meaningful analysis and interpretation of the findings.

By employing a qualitative approach, conducting interviews via Zoom, and implementing a rigorous coding frame, the study sought to uncover valuable insights into the chosen research area and contribute to the existing knowledge base.

3.2 Data Collection

In this study, a total of 55 semi-structured interviews were conducted over a period of two years, involving participants from two different countries. However, for the purpose of this specific chapter, the data from both countries was treated as one dataset to facilitate analysis and interpretation. The majority of the interviews were conducted via Zoom, with only 10 of them taking place in person prior to the COVID-19 lockdown in 2020.

The choice of conducting interviews via Zoom, predominantly in a home environment, played a significant role in shaping the dynamics of the discussions. The setting provided a conducive atmosphere that promoted smoothness, openness, and depth of participant contributions, ultimately fostering a sense of safety and control (Oliffe, J. L. et al., 2021).

3.3 Sample Selection

The sample for the interviews were selected by randomly contacting startups via email, using a comprehensive database available on https://finder.startupnationcentral.org/, as well as through access to ecosystem chat groups. In addition, startups were found via renowned incubators like CEU iLab, MKB Fintechlab, and OTP Lab. These incubators offered access to a wide range of startups, ensuring a representative sample for the study.

See Essay 1/3.3 for further information.

3.4 Data Analysis

The interviews were transcribed and coded using the software tool Dedoose. To ensure accuracy, the texts were coded twice due to a lack of inter-coder reliability. The coding

process aligned with the interview questions and aimed to address specific research inquiries. After completing the coding framework and applying it to the text, the data was exported from the software using the chart selector and further analyzed in Excel files. The descriptors utilized in this chapter played a crucial role in the data analysis. The descriptors that held the highest significance were in the set titled Startup which included the following fields: Size of startup, Rounds of funding, Year founded. The normalization tool within Dedoose was used to account for the differences in number of respondents belonging to descriptor sets. To ensure the credibility of the discussion, it is important for the researcher to cover all pertinent findings, even those that were unforeseen or didn't align with the primary explanations of the studied phenomenon (Côté & Turgeon, 2005). Finally, the primary themes and outcomes were summarized and compared to existing research.

4. Primary Empirical Conclusions

This empirical chapter presents the findings from our qualitative data analysis conducted with Dedoose, focusing on the motivations for and barriers to technology adoption in startups. The study aimed to answer two research questions: (1) How are decisions around technology acquisition made in startups, and what type of management tools are preferred? (2) What internal mechanisms are in place to ensure efficient use of management tools?

4.1 Decision-Making Processes for Technology Acquisition in Startups

4.1.1 Metrics for decision making in technology adoption

Table 7 Metrics for technology adoption

	Code	Code Count	Percent
1	Ease of use	27	23%
2	Price	21	18%
3	Added value	13	11%
4	Versatility of product	13	11%
5	Meets specific need	10	8%
6	Price-value ratio	10	8%
7	Scalability of product	6	5%
8	Trending	6	5%
9	Low Latency	5	4%
10	Accessibility	3	3%
11	Security	3	3%
12	Relevance (timing)	1	1%

To better understand how different technologies and management tools are selected in startups interviewees were asked "What are the main considerations when adopting new technologies?", their responses were then coded within the coding frame and analyzed.

The study revealed that the main metrics for decision-making when it came to adopting new technologies was ease of use and price. 118 codes were recorded on the topic, 27 amounting to 23% for "ease of use", followed by 18% for "price", then "versatility of product" and "added value" with 11% respectively. Detailed results can be viewed in Table 5.

We observed whether the round of funding the given startup has received would influence the emphasis they put on pricing in order to see whether startups that are bootstrapped or pre-seed are likelier to choose technology based on price than those who have received A, B, or C round funding. A significant amount of codes were recorded with startups that were Bootstrapped (29), Pre-seed (14), Seed (8), A (24), and C (17) round funded. Hence, we compared startups with these levels of funding. We found that there is no significant correlation between price as main consideration for technology adoption and funding. 21% of bootstrapped startups considered ease of use as the main decision factor, followed by price at 17%. On the other hand, 24% of startups with C round funding said price was an important decision factor, followed by ease of use and added value at 18% respectively.

When asked what essential factors guide their decisions when acquiring new technologies. One CEO of an A round funded startup emphasized the importance of selecting software that has mass-market appeal, as it ensures faster onboarding and increased productivity for new team members who are already familiar with it. Additionally, familiarity with the software among the team enhances overall efficiency. Lastly, the CEO emphasized the need for a strong value-for-money proposition to optimize resources effectively.

"One is if they're mass market enough that any new team member will be able to either heard of them or use them easily. So, the learning curve is pretty fast as they already know it. Does that increase his productivity? And third, I guess value for money." (L.Y., 39, interviewed on 07/08/2021)

The leader of a pre-seed funded company said that they prefer the process of assessing individual areas, identifying their needs, and finding suitable solutions to address those needs, "So basically, each individual areas are assessed asserting what they require and find solutions for that." (E.Sz., 25, interviewed on 11/21/2022)

This suggests that startups, regardless of their funding stage, prioritize ease of use and price when making technology adoption decisions. In fact, startups with pre-seed funding placed versatility of product above other metrics, while ones with C round funding valued price above all. Detailed results can be found in Figures 5-8 below.

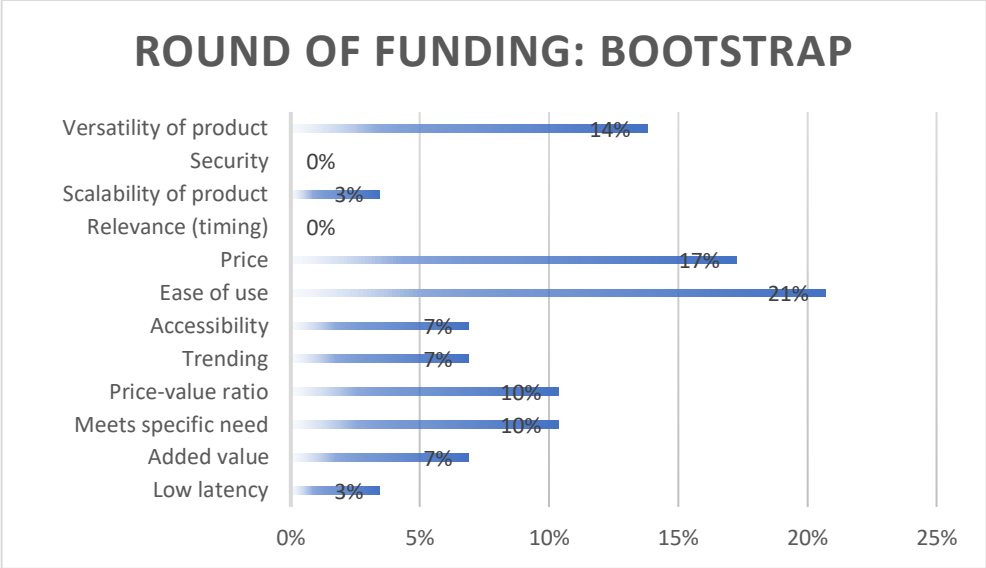


Figure 10 – Metrics for technological decision making (Bootstrap)

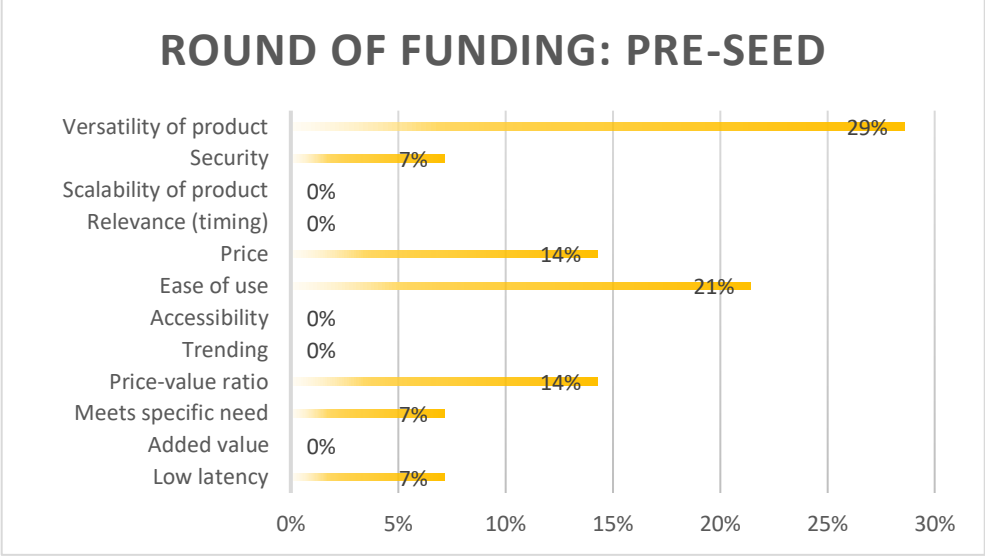


Figure 11– Metrics for technological decision making (Pre-seed)

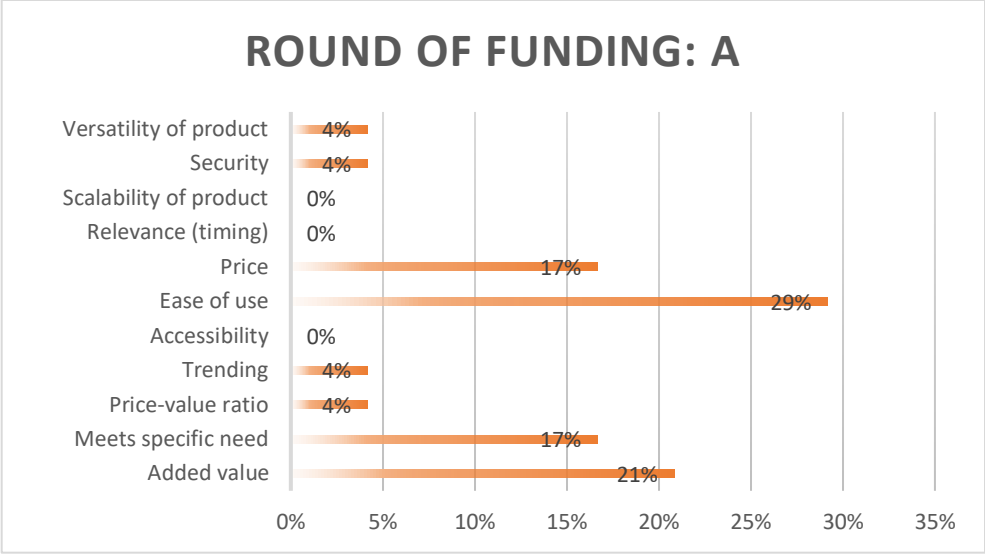


Figure 12– Metrics for technological decision making (A)

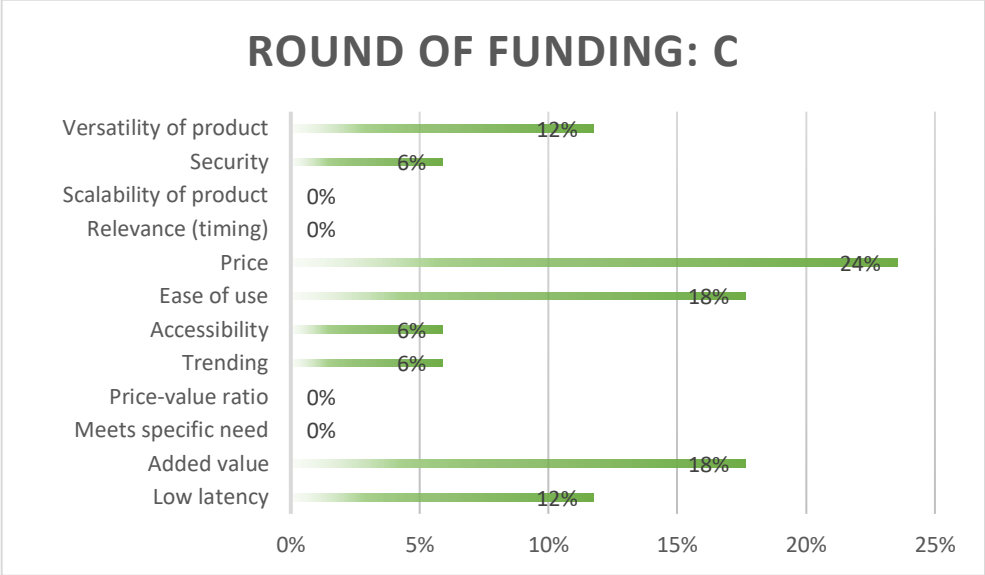


Figure 13– Metrics for technological decision making (C)

4.1.2 Main decision makers for technology acquisition

In a later section of the conducted interviews startup CEOs and Founders were asked "What would you say was the single most important technology acquisition that the company has made? **Who were the main decision makers?**". The answer to the second half of the question was coded within our coding frame and is analyzed in this section.

The study revealed that startup CEOs and/or Founders played a crucial role in making final decisions on technology adoption. Additionally, the users of the specific tool also had a significant influence on selecting technologies. In total, we identified 67 instances of code occurrences related to the question of decision-makers for technology-related matters, 25% were coded “CEO”, followed by “Founder” and “Users (employees)” with 19% respectively, “CTO” and “Individual Departments” accounted for 13% and 12% of the codes.

The study observed the differences in decision-making processes based on the size of startups with the aim of finding out whether the decision maker changes as the company grows in size. The data suggests that in startups where 2-10 employees work the Founders were making the majority of the decisions with a code count of 9 accounting for 33%, followed by 26% for CEO, and 22% for Users (employees). In startups with 20-100 employees, Users (employees) was the number one response with 26% followed by Individual departments at 21% and CTO at 16%.

The CEO of a startup with over 100 employees said “Other people. Wasn't me. I didn't know that this software exists before. It was the VP of operations. So, she's taking care of these kind of things.” (S.K., 55, interviewed on 03/24/2022) highlighting the fact that a startup with a substantial workforce clarifies their lack of involvement in the discovery and awareness of certain software. The CEO’s statement sheds light on the division of responsibilities and decision-making within the organization.

One CEO of a bootstrapping startup with just founders, candidly discussed the introduction of a project management tool. They admitted to taking the lead in persuading their partners to adopt the tool “Ah, yeah, I was forcing my partners actually.” (Y.B., 35, interviewed on 03/22/2022). This insight offers a glimpse into the CEO’s proactive approach to enhance project organization and efficiency within the startup.

These findings suggest a shift in decision-making responsibility as the organization grows. Founders tend to increasingly delegate tasks, and organizational processes are put in place

to facilitate decision making. This shift indicates the development of more structured and specialized decision-making processes within the organization. We further observed this phenomenon in section 4.3 of the present chapter.

4.1.3 Technology budget of individual departments

Our research also aimed to investigate the financial constraints associated with technology acquisition within organizations. We hypothesized that this information would shed light on the formal procedures implemented by each organization and provide insights into their decision-making processes. Consequently, we posed the following question: "What size of an investment can an individual department make in technologies without authorization?" Due to the diverse range of currencies used among different startups, sub-coding the responses based on specific monetary amounts or answers would have been a complex task, yielding potentially unclear results. Therefore, all responses were coded as "Size of investment/department in tech," and weights ranging from 0 to 3 were assigned to the coded responses. The explanation of these weights can be found in Table 2.

Using the aforementioned weighted method, we coded a total of 52 responses. Our findings indicated a potential correlation between the size of a startup and the permissible investments in technology for each department. Specifically, 63% of startups with 2-10 employees reported that no investments could be made in technologies without explicit authorization. Among startups with over 100 employees, the responses were evenly divided between amounts in the range of a couple of thousand dollars and a few thousand dollars (code weights 2 and 3). The results for mid-sized startups were less conclusive. Startups with 10-20 employees exhibited an even distribution of 33% between code weights 2 and 3, respectively, while 22% responded with code weight 0 and 11% with code weight 1. Surprisingly, 33% of startups with 20-100 employees responded with code weight 0, while the remaining responses were evenly distributed.

The CEO of a startup that recently applied for IPO, with over 100 employees explained that each department has a set budget "It depends if it's R&D, HR CTO, where each of

them is different. So, they each have a cap. It's irrelevant. There is no free lunch, like there is no someone says you have a quarter million dollar do whatever you want […] every single thing has to be operated. But people have budgets" (G.B.Z, age 61, interviewed on 07/21/2021).

In terms of funding rounds, all startups that were either in the process of going public or had recently done so reported having formal procedures in place. Conversely, 100% of startups funded by friends and family stated that no expenditures could be made without prior approval. These findings further suggest that more mature startups tend to have clearer guidelines for technology acquisition. For startups with pre-seed funding, the responses were as follows: 63% with code weight 0, 25% with code weight 1, 12% with code weight 2, and 0% with code weight 3. The remaining results were also in line with our expectations, without any unexpected outcomes.

A CEO overseeing a team of 2-10 members noted that expenses couldn't be incurred without proper authorization, explaining, "[...] to be completely frank, we're short on funding we're short" (P.P., age 37, interviewed on 01/28/2020).

Table 8 – Code weight descriptions

0	Nothing can be purchased without explicit authorization.
1	An insignificant sum can be spent, an amount equal to a maximum a couple of hundred dollars.
2	No clear budgets, but an amount equal to maximum a couple of thousand dollars can be spent.
3	There are formal processes and/or departmental budgets in place, an amount equal to a few thousands of dollars can be spent.

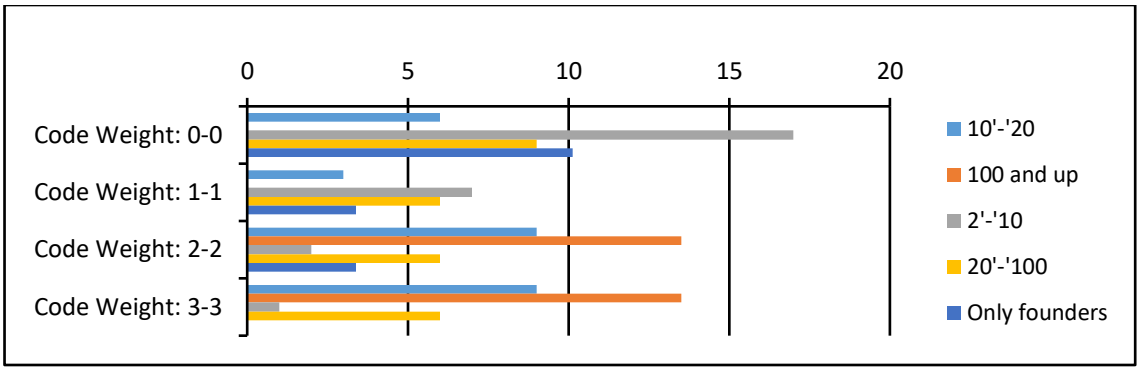


Figure 14 – Code weight distribution by startup size

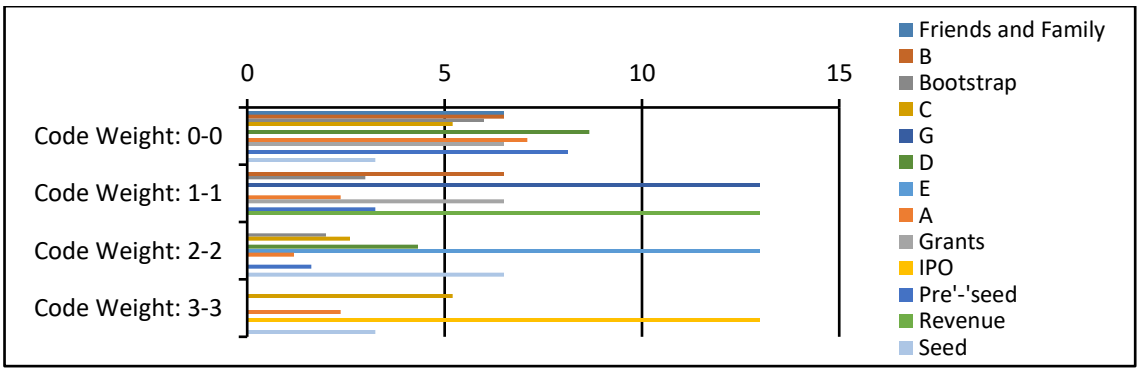


Figure 15 – Code weight distribution by round of funding

4.2 Preferred Management Tools in Startups

This section aims to present the preferred management tools utilized by startups, offering practical insights into their technology usage and management practices. To derive managerial implications interviewees were asked to identify the technologies they employ for their companies, excluding those they develop internally: "What type of technologies does your company use (not create)?". Given the innovative nature of startups, many of the interviewed companies were engaged in creating their own technologies. Hence, it was essential to emphasize that the question focused on technologies used for startup management rather than those produced. Technologies of input not output. The interviewees often required redirection despite this clarification.

During the coding process, a total of 252 instances of codes related to the topic were identified, encompassing various categories of technologies. Each technology was coded

by name, and subsequently, the most prevalent types were grouped into categories based on their respective functions. These categories included Video conference tools, Collection of productivity tools, Messaging apps, File storage and synchronization services, Project management tools, and CRM. Initially, the results were ranked collectively, disregarding the categorization. Notably, Zoom was the most frequently mentioned technology, accounting for 11% of the codes, followed by Google Suite at 10% and Google Slack at 9%. Table 7 below presents the top ten management tools identified.

Table 9 – Commonly used technologies in startups

	Management Tool	Code Count	Percent	Category
1	Zoom	27	11%	Video conference tools
2	Google Suite	25	10%	Collection of productivity tools
3	Google Slack	23	9%	Messaging apps
4	Microsoft Office	18	7%	Collection of productivity tools
5	Google Meet	17	7%	Video conference tools
6	Google Drive	13	5%	File storage and synchronization service
7	Jira	12	5%	Project management tools
8	WhatsApp	10	4%	Messaging apps
9	Hubspot	9	4%	CRM
10	Monday.com	8	3%	Project management tools

Given the significant variations in functionality among the mentioned technologies, a separate analysis was later conducted based on their respective categories.

To determine the most significant category of management tools for startups, the mentioned tools were systematically categorized based on their respective functions and subsequently ranked. Notably, a 25% of the responses identified project management tools, followed by 20% attributing importance to video conference tools. The interviews conducted shed light on the crucial role played by video conference tools, especially in the context of the prevalent remote working arrangements adopted by numerous startups. Our

study findings indicate that even prior to the pandemic, these tools held value for startups, as numerous companies outsourced work globally and operated from multiple locations. Table 8 displays the eight identified categories of management tools, along with their corresponding code count and percentage distribution.

One of the founders provided a comprehensive account of the factors that contribute to the significance of video conference tools. “I believe that communication technology is the most important one because we can’t build anything without a Zoom meeting or over Team[s] meeting […]. I don't care about the product, but without speaking, we can’t do nothing and […] now we underst[and] that we don't need to sit next to each other. And also, this is now not the default, […] the default is having Zoom discussion. For example. I have a meeting tomorrow. Someone wanted to have a meeting […] I don’t even ask you if it’s going to be physical or virtual because I guess that 90% she meant virtual. And if I don't have the platform and technology to do it, how, how can I communicate? This is I think the most important” (O., 35, interviewed on 02/09/2022)

Table 10 – Categories of management tools

	Category of Management Tool	Code Count	Percent
1	Project management tools	64	25%
2	Video conference tools	51	20%
3	Collection of productivity tools	43	17%
4	Messaging apps	36	14%
5	Other productivity tools	18	7%
6	File storage and synchronization service	17	7%
7	Cloud based services	13	5%
8	CRM	7	3%

Another CEO emphasized the fact that their company operates entirely in a remote work setting. “Yeah, it’s Zoom, because [A] is a remote first company. So, we have 10 employees from seven different nationalities. So, we have employees from Australia, to Singapore, to India, to Hungary, to Ukraine, and Norway, Amsterdam, and we are going to hire our first employees in the US as well. So these are all Zoom. And we have annual in person meetings as well, where all the people are meeting in person. And that's a two-

day company retreat, where […] we are discussing […] updates on the company sharing goals and also having fun with each other." (A.N., 39, interviewed on 11/03/2022)

The interview with D.P., aged 33, took place on 02/05/2020, before the onset of the pandemic. Nevertheless, D.P. also expressed a preference for a hybrid work approach: "Of course, the way we communicate, for example, someone wants to work from home today, because of whatever reason they can do that […] you can work from home two days a week. [And] in the event that they work from home they use all these online tools, we use the Google Hangouts, which is now called Google Meet. So, this is and Zoom, the other one for conference calls. Also, like Slack… So, we use these tools to communicate, if we are working […] remotely and I, many of our clients, most of our clients are […] located abroad. All our meetings, or most of our meetings are online."

In a more specific interview question, participants were asked, "What would you say was the single most important technology acquisition that the company has made?" When they were requested to specify only one crucial tool, the ranking of technology categories differed slightly. Notably, product management tools remained the most prevalent answer, and were mentioned even more frequently, accounting for 33% of the responses, while messaging apps held greater significance. Video conference tools, on the other hand, dropped to third place in the ranking, having previously held the second position. Overall, the revised ranking did not yield any particularly surprising findings, as the top management tools remained largely unchanged. Among the 55 coded responses, there were four instances where "hardware" was mentioned, and four instances where respondents stated "none." This was due to the fact that the framing of the question allowed for more variation in the responses obtained.

Table 11 – Modified categories of management tools

	Category of Management Tool	Code Count	Percent
1	Project management tools	18	33%
2	Messaging apps	9	16%
3	Video conference tools	8	15%
4	Collection of productivity yools	5	9%
5	Hardware	4	7%
6	None	4	7%
7	Cloud based services	3	5%
8	CRM	2	4%
9	Other	2	4%

4.2.1 Project Management Tools

The ten different project management tools that were mentioned during the interviews were analyzed. The most popular tools overall were Jira and Monday. Three out of the top five management tools were created by Atlassian and offer integration capabilities.

Table 12 – Preferred project management tools

	Project Management Tool	Code Count	Percent
1	Jira	12	27%
2	Monday.com	8	18%
3	Trello	7	16%
4	Asana	5	11%
5	Confluence	4	9%
6	Airtable	2	4%
7	Clickup	2	4%
8	Redmine	2	4%
9	Notion	2	4%
10	Redbooth	1	2%

Further analysis was conducted on these top management tools within various descriptor sets and fields. The software employs a normalization procedure wherein the data results are adjusted to render them comparable to one another. There are various methods to achieve this, but Dedoose applies a multiple to each group by a coefficient derived from the largest group in the set. As a result, the visualization presented below accounts for the variations in the quantity of descriptor sets.

Considering that one of the project management software tools was developed in Israel, we opted to explore potential national preferences for specific management software tools. This analysis was conducted using the provided descriptor set.

Jira, a project management and issue tracking software developed by Atlassian, was found to be more popular among Hungarian respondents and was mentioned more frequently in interviews conducted prior to the COVID-19 pandemic, particularly those conducted in 2020.

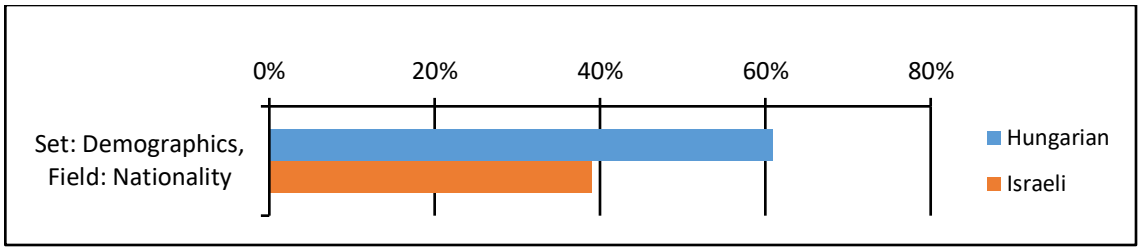


Figure 16 – JIRA Nationality

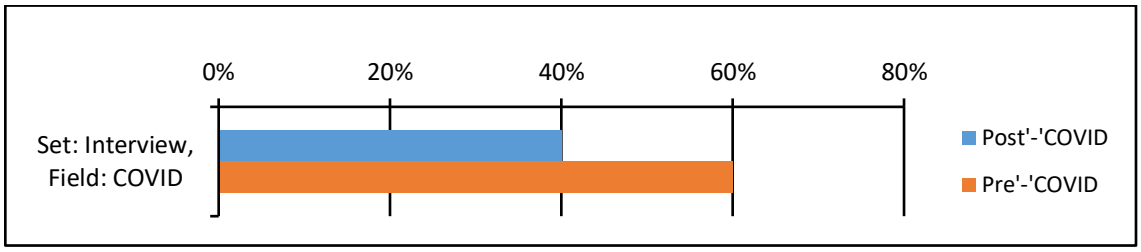


Figure 17 – JIRA COVID

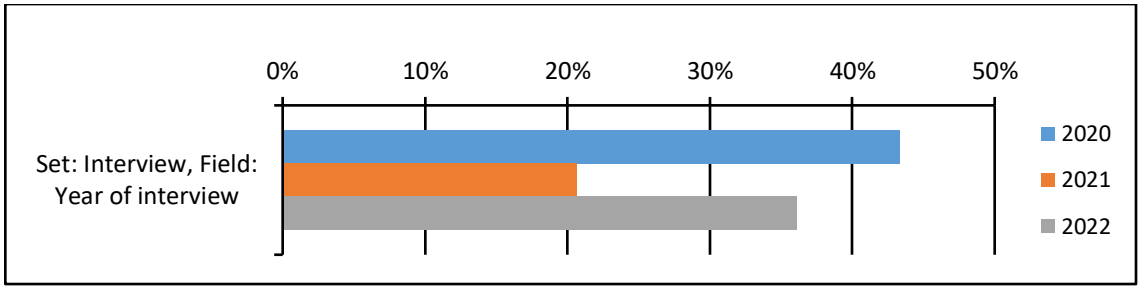


Figure 18 – JIRA Year of interview

Monday.com, a customizable web and mobile project management platform founded in 2012 in Tel Aviv, unsurprisingly gained popularity among Israeli interviewees. Additionally, the study revealed a higher prevalence of female users for this specific project management tool. Appendix A provides a breakdown of the interviewees' demographics, highlighting a majority of male participants. Therefore, a reasonable correlation between gender and the utilization of Monday.com can be inferred, although further quantitative studies are required to explore this relationship in depth.

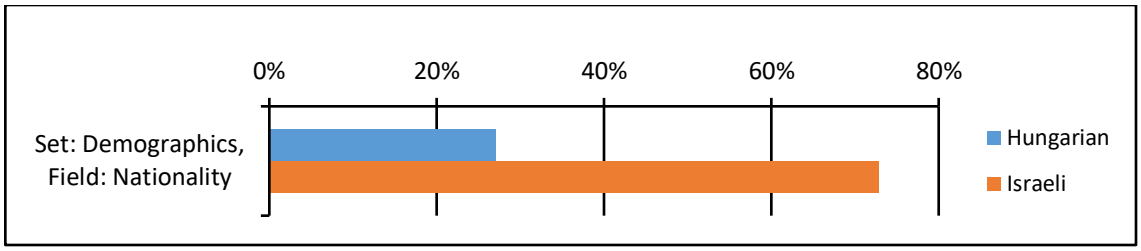


Figure 19 – Monday.com Nationality

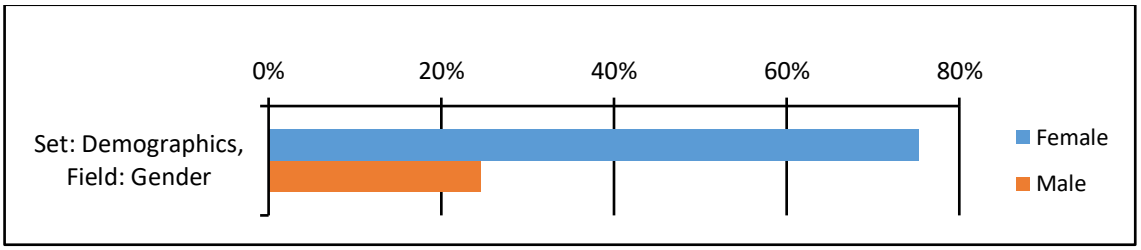


Figure 20 – Monday.com Gender

4.2.2 Video Conferencing Tools

There were five video conferencing tools identified during the study: Zoom, Google Meet, Microsoft Teams, Skype and Jitsi. Zoom was by far the most popular video conferencing tool among participants with 54% of the code occurrences. Therefore, we limited our further analysis to this specific tool. The study found that women were using it most and that despite having been mentioned in interviews prior to the pandemic, it was mentioned more in the aftermath of the COVID-19 pandemic.

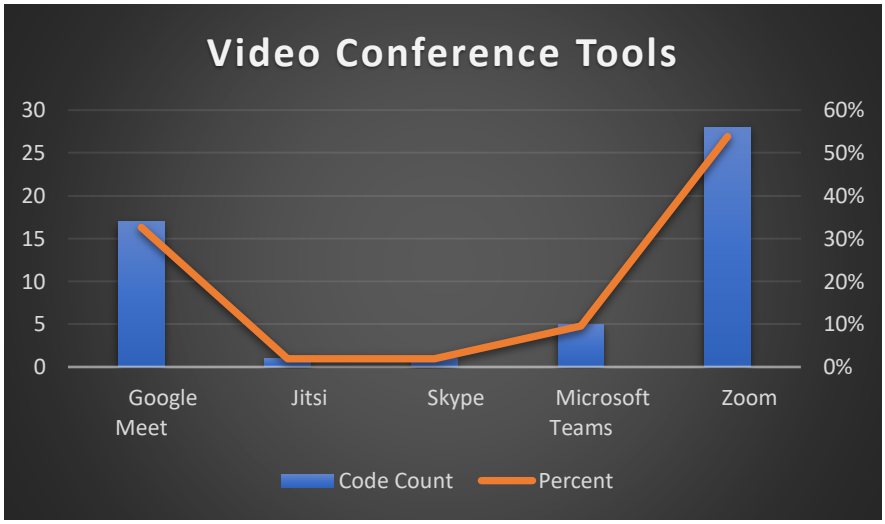


Figure 21 – Preferred video conference tools

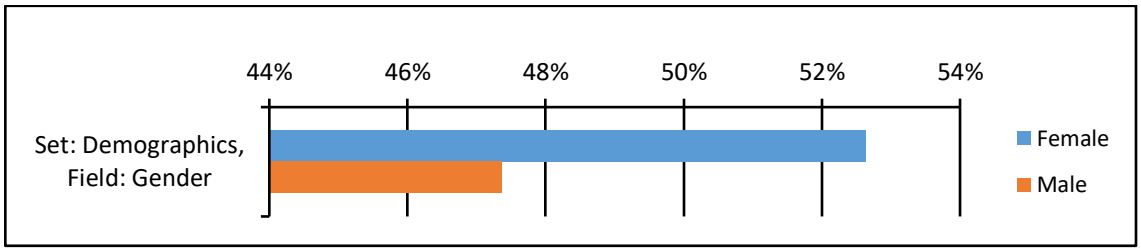


Figure 22 – Zoom Gender

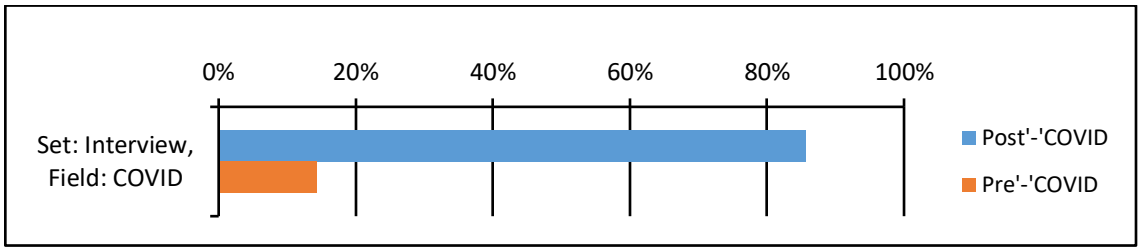


Figure 23 – Zoom COVID

4.2.3 Collection of productivity tools

The "collection of productivity tools" category constituted 17% of the codes, even though it consisted of only two management tools. Specifically, Google Suite was coded 25 times, while Microsoft Office (now known as Microsoft 365) was coded 18 times. Unlike video conference tools, both productivity tools were predominantly used prior to the pandemic. Google Suite had a slight preference among female respondents (56.1%), while the Microsoft solution was greatly preferred by male respondents (76.9%).

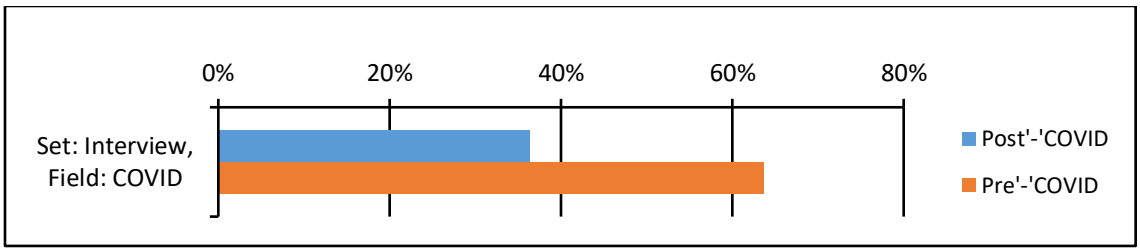


Figure 24 – Collection of productivity tools COVID

4.3 Internal Mechanisms for Efficient Use of Management Tools

In this section, our objective was to examine the data and uncover the internal mechanisms within startups that facilitate the effective utilization of the chosen management tools. To accomplish this, we posed questions to the respondents regarding the method used for communicating decisions to employees, presence of any feedback loops for technology adoption in their organization, and whether such feedback is subsequently followed up with an action plan.

The question regarding the dissemination of decision-related information to employees was approached in a broader context, rather than focusing solely on technology adoption. Respondents provided multiple answers, all of which were coded, hence there was significant code co-occurrence which must be accounted for in the results. The most often coded responses were weekly meeting (24%), email (14%), video conferencing platform (11%), message (9%), informal (8%), direct reports (7%).

In terms of demographics, Gen Z respondents showed a preference for weekly meetings, accounting for 45.8% of the responses, followed closely by Millennials at 33.9%, and Gen X at 20.3%. Female leaders commonly used this mode of communication, representing 61.7% of the normalized results. Surprisingly, Baby Boomers accounted for 63.3% of the normalized results for video conferencing platforms. Overall, women made up 74.5% of the responses. On the other hand, male respondents preferred messaging (61%), with Baby Boomers also favoring this method at 69.6%. Informal communication of decisions was most preferred by Gen X (56.3%) and Millennials (43.8%), and this was more prevalent among men (57.8%). Similarly, the use of direct reports was most common among Gen X (49.1%) and Millennials (50.9%), and it was exclusively found among men.

When examining the startup size descriptor, we discovered that weekly meetings were most common in startups with 10-20 employees (36.5%), followed by 20-100 (30.4%) and 2-10 (26.3%). Email was primarily used in larger startups, with 38.7% of the recorded results in companies with 100 employees or more, followed by 2-10 employee startups with 25.8%. Video conferencing was predominantly preferred in larger companies, with 63.7% of the normalized responses coming from companies with 100 employees or more. Informal

communication was prevalent in startups with only founders, accounting for 57.4%. Direct reports were utilized in companies with 20-100 (52.9%) and 10-20 (35.3%) employees.

Based on the data, it appears that as startups grow in size, the communication of decisions becomes more formalized, and electronic and automated means of communication become more common beyond a certain size threshold. The Millennial CEO of a company with 20-100 employees described the trickling of information as a rather sophisticated process: "So we have a quick half an hour sync Monday, then we have a two-hour long meeting on Tuesday. And then on Thursdays, we speak again for a shorter time. And then when we sync the management team, […] the information gets dispersed to the other colleagues." (A.D., interviewed on 11/18/2022)

Our findings indicate that video conferencing calls as a mode of communicating decisions became significantly more popular in interviews conducted after the onset of COVID, with 69% of the coded answers coming from such interviews. Direct reports also showed an increase in usage (57.1%). In contrast, weekly meetings, emails, informal discussions, and messaging were more prevalent prior to COVID, accounting for 58.7%, 64.3%, 60%, and 56.3% respectively.

During a pre-COVID interview one female CEO mentioned weekly meetings along with email and video conference tools as their method for communicating decisions within the company: "In person, in person by email, because [the] app developer is in Kecskemet, […] Skype meetings, M and V [my cofounders], they come to this office once a week." (A.M., Gen X, interviewed on 02/27/2020)

Out of the respondents, 10.34% stated that there was no dedicated feedback forum for employees to express their technology-related concerns. However, an overwhelming 85% of the coded responses indicated that any concerns raised by employees were followed up with an action plan.

Y.S. age 30, the CEO of a startup with 20-100 employees and A round founding explained, "People have complaints so they complain about something not working or could be a provider or could be a tool and then I'll usually get more involved myself to help fix the problem and understand why it's not being used properly and to try to set it up. You know, for good or for bad at the end. Companies like our side our stage, you end up having to do a lot of things yourself or get involved in a lot of things yourself because […] you're more qualified than other people to really just get things done. But […] we do try to better utilize some tools sometimes I you know, cut my losses and kind of understand that […] it is what it is. And […] we're gonna make […] 60-70% usage of the tool instead of 100%. And it's just the cost of doing business sometimes, and you have to […] make mistakes. And in the startup […] it's not about not making mistakes, it's about identifying that you've made a mistake as fast as possible, trying to correct what you can and never repeating the mistake is the most important thing. That's got to tell people internally also, in general, that […] if you get something wrong once it's not a mistake, it's just like a part of the learning process. If you get sent twice, then it's a big mistake. […]" (interviewed on 08/03/2021)

Among those who mentioned a feedback forum, 42.28% described it as informal. Several respondents who characterized the forum as informal provided additional details, such as communication via email, internal testing, or weekly meetings, resulting in code co-occurrences. Weekly meetings emerged as the most commonly mentioned mode for the feedback forum, followed by internal testing and in-person interactions.

U.B., age 62, a CEO with significant prior experience in a large organization, discussed the feedback culture in their startup, noting the absence of a formal feedback forum due to its size. However, he did emphasize that despite the informality, team members actively express their concerns and ideas, fostering an open environment. When asked about their action plan, he emphasized the significance of running weekly meetings and implementing action items to address comments and issues effectively.

"Well, I think we don't in this particular, because we're still a small company, there is no official forum, or format, but people find their way and they are not shy in this country.

And they express their concerns or different ideas if they have so it's a bit less formal than in you know, I worked in very large corporation, C, or N.S. and others, […] there it was very formalized because large corporation with 60-70-80,000 employees, F acquired a company, like Silicon Valley, so I became a GM at F […] we're 100,000 employees at the time. So […] you have to be very, very, very, very structured, so but when you're working with people […], a company less than 10 people, it's less structure. But so it's less formal." On the other hand, when asked about an action plan he replied, "Well, I tried to run a weekly meeting and take action items. And so although I'm the CEO, if somebody has […] a comment that makes sense, I take on action items to myself or […] delegate to other people, […]. Definitely. This by the way, one of the most simplest, most efficient tools that I find over the last 20 years, used to run […]meetings and staff meetings, to discuss the issues, the topics, and then take action items following the next week. Again, and again, and again, that's the only way to handle things. And of course, set priorities. That's the most important, […] because if you don't set priorities, everything is important, or everything is not important. So that sets us back." (Interviewed on 06/13/2021)

Setting priorities is highlighted as a crucial aspect of their management approach to ensure efficient handling of tasks and projects within the startup.

Upon closer examination of the data, it was observed that the majority of respondents who reported not having a feedback forum were startups with either only founders or 2-10 employees, accounting for 32.5% and 38.6% respectively. Additionally, a significant 51% of these respondents were bootstrapped in terms of funding, indicating that early-stage startups are less likely to have established feedback mechanisms in place.

Furthermore, 74.3% of the responses favoring an informal feedback forum were received after the COVID-19 pandemic, suggesting that the increased usage of communication technologies during this period may have influenced the adoption of informal feedback channels.

When considering the preference for weekly meetings as feedback forum, it was found that startups with a size of 10-20 employees accounted for 52.9% of the normalized codes. In terms of generational differences, 43.2% of responses favoring weekly meetings were provided by Gen Z leaders, followed by Millennials at 32%. Conversely, Boomers showed a higher preference for in-person feedback, with 84.6% of them favoring this approach. Larger startups with over 100 employees also leaned towards in-person feedback, comprising 67.9% of the responses.

E.Sz., a 25-year-old heading a startup with 10-20 employees and pre-seed funding, explained their feedback forum approach to us. They described it as a combination of weekly meetings and dedicated chats on Discord, where team members can freely discuss issues and ongoing matters, "Yeah, the tribe meetings are like that. It's a forum but it's also an ongoing, we have a discord with issues we like you can write whenever you want. You can usually message me whenever […] something is broken or […] also on ongoing stuff. We have the dedicated communication channels for it and also dedicated meetings that you can bring it up." (Interviewed on 11/21/2022) This dynamic communication strategy allows for both real-time interactions and structured meetings, fostering an open and collaborative environment within the startup.

5. Discussions

5.1 Decision-Making and Preferred Management Tools in Startups: A Knowledge Management Perspective

In this section we aim to discuss the primary empirical conclusions of our study to answer our research question "How are decisions around technology acquisition made in startups, and what type of management tools are preferred?" and provide useful insights as well as a new framework for understanding the knowledge management practices of startups. Technology imperative is undeniable, especially for the purpose of driving innovation. Currently, the average firm's investment in IT surpasses 4.2% of their annual revenues and continues to rise. This investment translates into IT comprising more than 50% of the

average firm's total capital investment each year. With the growing significance and ubiquity of IT, organizations are facing mounting difficulties in effectively managing and controlling IT to ensure the creation of value (Weill & Woodham, 2002). Having both tacit and explicit knowledge is a necessary and complete requirement for IT competence. By possessing the appropriate knowledge and demonstrating the corresponding behaviors in the IT field, an understanding of IT within the organizational context can be achieved. This understanding may result in the formation of an IT utilization vision, or the establishment of a novel organizational structure empowered by IT (Bassellier et al., 2001).

Weill & Woodham (2002) propose that in order to achieve effective IT governance, a thorough evaluation is necessary regarding decision-making authorities and processes within four vital IT domains: principles, infrastructure, architecture, and investment and prioritization. These domains are closely interconnected, yet organizations often adopt distinct governance archetypes for each one. Careful analysis of decision-making responsibilities and approaches in these domains is essential for establishing successful IT governance practices. In the present study we focused on the fourth domain of investment and prioritization.

Weill & Woodham (2002) also identified five IT governance archetypes: business monarchy, IT monarchy, feudal, federal, and anarchy. Our findings show that startups often follow a business monarchy model where the founders and CEOs make decisions about technology or an anarchy model where the end users do. IT monarchy, and feudal structure were also observed in the context of a startup. A more difficult and thereby less preferred federal structure, where the distribution of governance rights involves a combination of senior executives, business unit leaders, business process owners, IT executives, and end users (Weill & Woodham, 2002) was not observed, likely due to the size of startups. This finding can be a basis for future research on the effectiveness of decisions made around IT in startups. Our findings indicate a transition in decision-making authority as the organization expands. Founders delegate tasks and implement organizational processes to streamline decision-making. This shift signifies the evolution of structured and specialized decision-making processes within the organization. Our findings on the investment cap of

individual departments in IT also indicate that mature startups often have well-defined guidelines for technology acquisition.

Our study found that irrespective of the funding of the startup, ease of use, price, added value and the versatility of the product were the main metrics for making technology related decisions. Previous have studies have linked ease of use and functionality having a positive relationship with the use of IT management tools. (Bani Ali et al., 2008). The results of our study challenges the notion that organizational size is the primary determinant of software utilization in general, and in the selection of technology stacks based on pricing (Liberatore et al., 2001).

Our findings in Essay's 1 and 2 of the present study introduced the most valued leadership qualities in startups, several of these qualities correspond with organizational culture profile (OCP) attributes with a positive correlation to knowledge management technology profile (KMTP) introduced by Park & Ribière (2004), highlighting the potential advantage startup companies founded on the basis of innovation and technology may have in knowledge management.

We know that knowledge, innovation, and success are closely intwined as aptly described by the creator of the widely cited SECI model Nonaka & Takeuchi "successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products. These activities define the "knowledge-creating" company, whose sole business is continuous innovation." (Nonaka & Takeuchi, 2007, p. 162). Presently, companies are actively seeking solutions within the collaborative and disruptive startup ecosystem as a response to the elevated costs of innovation, extended solution development timelines, and the pursuit of diverse approaches to meet emerging market demands (Oliva & Kotabe, 2019). The necessity for speed to achieve successful innovation will not subside (York & Danes, 2014) hence startups will have to maintain this speed in unpredictable and volatile environments (Unterkalmsteiner, 2016).

In the present study, our objective was to explore the practical factors and decision-making processes that startups consider when selecting technology tools, as well as the specific collaborative management tools that have proved important to these unique organization. Romano et al., 2002 foretold the usage of more collaborative IT based project management tools and their significance. We also aimed to develop created a simple categorization construct and ranking for the most preferred tools, without intending to quantify their economic or other benefits. We build upon Jackson's (1999) five categories of knowledge management tools: 1. Document Management Systems, 2. Information Management Systems, 3. Searching and Indexing Systems, 4. Expert Systems, 5. Communications and Collaboration Systems and Tyndale's (2002) exhaustive list of Classification of knowledge management tools to ascertain that the management tools collected and categorized in our findings are in fact knowledge management tools, as each of them correspond with the to the categorization in Tyndale's (2002) list.

Based on our detailed findings on the preferred management tools by startups we created the following categorization construct.

1) Project management tools: Collaborative tools assisting an organization in the planning, organization, and tracking of tasks and resources associated with projects.
2) Video conference tools: Tools for real-time audio and video meetings, allowing remote collaborations.
3) Collection of productivity tools: Comprehensive sets of collaboration tools including email, file sharing, word processing software, spreadsheet software, etc..
4) Messaging apps: Communication tools that allow for real time collaboration and file sharing.
5) Other productivity tools: Collaborative tools such as note-taking apps, time tracking tools, and other applications.
6) File storage and synchronization service: Online storage space for files that allow users to access and synchronize their files across multiple devices.
7) Cloud-based services: Cloud computing platforms, including storage, databases, networking, machine learning, analytics, computing power and more.

8) CRM (Customer Relationship Management): Tools for managing relationships with customers to improve customer services and sales.

Building upon existing literature, we propose that these tools serve as knowledge management tools for startups, emphasizing the significance of knowledge management in the context of startups (Clemente et al, 2023, Tyndale P., 2002, Jackson, 1999). Fundamentally, knowledge management tools cannot be evaluated in isolation. The understanding of knowledge management tools is contingent upon the specific context in which they are employed and the methodologies that underpin their utilization. (Tyndale, P., 2002) Reich et al. (2012), emphasizes that the Enabling Environment in an IT-enabled business project encompasses both technological and social elements that facilitate Knowledge Practices.

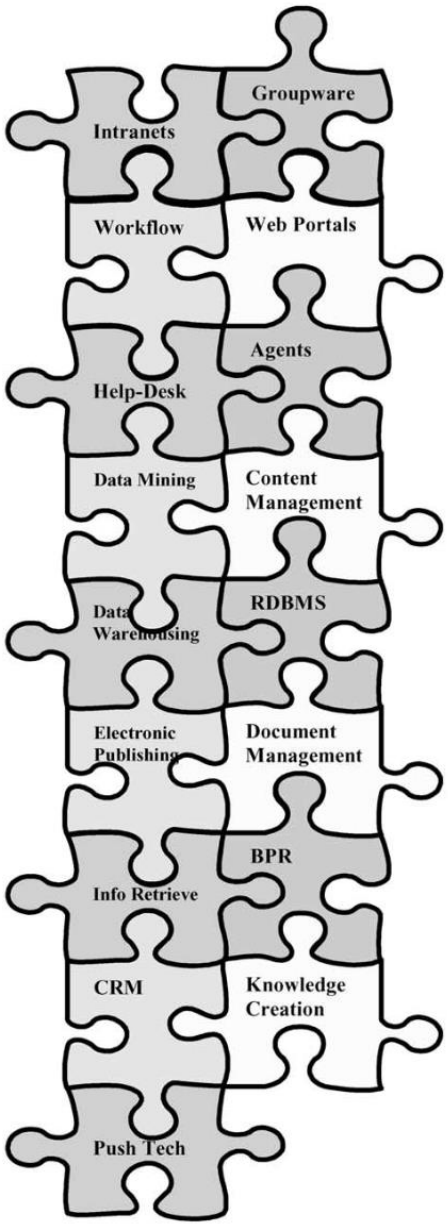


Figure 25 - Tyndale P, 2002, p.190 KM Jigsaw.

The concept of "the whole is greater than the sum of the parts" applies to knowledge management, which serves as the overarching framework that integrates and connects these closely related tools (Tyndale, P., 2002). We aim to contribute to the field of knowledge management tools by rethinking Tyndale's (2002) KM jigsaw in the context of startups with the creation of our own construct.

Table 13 – Categorization construct: Knowledge management tools in startups

KNOWLEDGE MANAGEMENT TOOLS IN STARTUPS	
Project management tools	Video conference tools
Collection of productivity tools	Messaging apps
File storage and synchronization services	Cloud based services
CRM	Other productivity tools

5.2 Internal Mechanisms for Effective Communication and Feedback

The findings from our qualitative research provide valuable insights on the internal mechanisms in place to ensure the efficient use of management tools within start-ups, specifically the presence and nature of feedback forums, and how they evolve as startups grow in size. Through in depth interviews we were able to shed light on the factors that influence the adoption of different communication methods for decision-making, feedback, as well as the deployment of action plans. We aimed to answer the research question "What internal mechanisms are in place to ensure efficient use of management tools?"

Our analysis revealed several interesting patterns and trends within the data. We observed a clear trend that as startups increase in size, decision-making and the related communication becomes more formalized. This shift towards formalization may be driven by the need for more structured communication channels to manage increased complexity and larger teams effectively. The utilization of electronic and automated communication

methods also becomes more prevalent as startups surpass a specific size threshold. This change is likely a response to the scalability requirements of larger organizations, where manual communication becomes less efficient.

Academic research has identified internal communication as one of the eight main challenges for start-ups (Wiesenberg et al., 2020). Indeed, within start-ups, the essential processes and functions of strategic internal communication often appear to be executed by the founder, management, or a select group of employees. Therefore, a broader examination of strategic internal communication, surpassing the confines of formalized communication structures like communication departments or communication specialists is warranted. This approach prioritizes a deeper understanding of the real-life processes and practices involved in strategic communication within the context of start-ups. (Heide et al., 2018, Wolf et al., 2022).

The literature has a notable gap in academic research regarding various types of internal communication flows. While there has been extensive exploration of strategic internal communication's impact on membership negotiation and reflexive self-structuring, activity coordination has not received much attention (Wolf et al., 2022) The present study aims to address some of these research gaps through the qualitative interviews, providing valuable insights into the actual practices of communication of decisions (activity coordination) and feedback loops within start-ups.

Our research explored the existence of feedback forums in startups, which provide employees with an avenue to express technology-related concerns. While a small percentage (10.34%) of respondents reported no dedicated feedback forum, an overwhelming majority (85%) indicated that any concerns raised by employees were followed up with an action plan. This finding suggests that startups are proactive in addressing employee concerns and prioritizing feedback, even if they do not have a formal feedback forum in place. This is in line with prior research on the topic, which has shown that most start-ups are proactive in seeking feedback from their team members, the majority of them have not yet integrated systematic evaluation tools for their internal communication processes (Wolf et al., 2022).

Among those startups that had a feedback forum, 42.28% described it as informal. Weekly meetings emerged as the most commonly mentioned mode for the feedback forum, followed by internal testing and in-person interactions. This informal nature of the feedback forum indicates that startups value open and direct communication channels, allowing employees to express their concerns and suggestions openly.

The majority (74.3%) of respondents favoring an informal feedback forum provided their responses after the onset of the pandemic. This suggests that the increased usage of communication technologies during the pandemic may have influenced startups to adopt informal feedback channels. The shift to remote work and virtual collaboration likely prompted startups to explore more flexible and accessible ways for employees to provide feedback.

We observed that the absence of a feedback forum was more common among early-stage startups with a limited number of employees. Specifically, startups with only founders or 2-10 employees were the majority of respondents reporting no dedicated feedback forum. This finding suggests that smaller startups may face challenges in establishing formal feedback mechanisms due to resource constraints or a focus on other priorities during the early stages of their development. Additionally, the majority of these respondents were bootstrapped in terms of funding, which further supports the notion that financial limitations may hinder the implementation of formal feedback channels in early-stage startups.

According to the data, it seems that as startups' increase in size, decision-making communication becomes increasingly formalized, and the utilization of electronic and automated communication methods becomes more prevalent once they surpass a specific size threshold. In the context of business growth, the significance of effective decision processes and streamlined operational and management infrastructures cannot be overstated. These elements are vital in supporting the expansion and success of a firm. As a company gains momentum in the market, the need for new and improved systems and

infrastructures becomes apparent. These upgrades are necessary to deliver enhanced value to customers, stay adaptable to a dynamic environment, and accommodate the demands of a burgeoning business. (Picken, J. C., 2017) We found that Startup CEOs who had prior experience leading successful startups or had worked in larger organizations, had the requisite understanding of these phenomenon, they understood that not only do their products need to be scalable, but so do their internal communication and feedback processes.

In conclusion, our qualitative research provides valuable insights into decision-making communication methods and feedback forums in startups. The study highlights the challenges faced by early-stage startups in establishing formal feedback mechanisms and the influence of the COVID-19 pandemic on communication practices. Additionally, it underscores the significance of tailoring feedback channels to accommodate generational differences and organizational size.. Overall, this research contributes to a deeper understanding of decision-making communication in startups and offers practical implications for enhancing communication processes in these dynamic organizations.

6. Conclusion and Implications

6.1 Summary of Findings

In the present chapter titled "Technology Acquisition and Management Tools in Startups: Exploring Decision-Making and Efficiency Mechanisms" we aimed to investigate how decisions around technology acquisition are made in startups and what type of management tools are preferred. Through empirical analysis and a knowledge management perspective, we gained valuable insights into the practices and challenges of startups in this context. Additionally, we sought to explore the internal mechanisms for effective communication and feedback in startups. Valuable insights were gained on the presence and nature of feedback forums within start-ups and how they evolve as the organizations grow. The research aimed to answer the question of what internal mechanisms are in place to ensure the efficient use of management tools in start-ups.

6.1.1 Key Findings

Decision-Making in Startups: Our research findings indicate that startups commonly follow either a business monarchy model or an anarchy model for decision-making regarding technology acquisition. In the business monarchy model, founders and CEOs play a dominant role in technology-related decisions, while in the anarchy model, end users are actively involved in the decision-making process. As startups progress and expand, there is a noticeable shift towards more structured and specialized decision-making processes, with founders delegating tasks and implementing streamlined procedures. Moreover, our study revealed that mature startups tend to have clear and well-defined guidelines for technology acquisition, regardless of their funding status. This suggests that as startups evolve, they develop a more organized approach to technology-related decision-making, which is essential for their growth and success in the competitive market.

Factors Influencing Technology Decisions: Regardless of the funding status, startups primarily consider ease of use, price, added value, and product versatility as the main metrics for making technology-related decisions. This finding challenges the notion that organizational size is the primary determinant of software utilization.

Knowledge Management and Leadership in Startups: Our study revealed that leadership qualities valued in startups align with attributes of organizational culture profile (OCP) and knowledge management technology profile (KMTP). This suggests that startups founded on innovation and technology may have an advantage in knowledge management practices.

Preferred Management Tools: Building upon existing literature, we proposed a categorization construct for the preferred management tools in startups. These categories include project management tools, video conference tools, a collection of productivity tools, messaging apps, other productivity tools, file storage and synchronization services, cloud-based services, and CRM tools. These tools serve as knowledge management tools for startups, emphasizing the significance of knowledge management in their context.

Internal Mechanisms for Effective Communication and Feedback:

- Research shed light on internal mechanisms for communication and feedback in startups.
- Decision-making and communication become more formalized as startups grow.
- Utilization of electronic and automated communication methods increases with size.
- Importance of exploring real-life processes in strategic internal communication.
- Startups are proactive in addressing employee concerns and prioritizing feedback.
- Informal feedback forums preferred in startups; value open and direct communication.
- Impact of COVID-19: increased usage of communication technologies.
- Challenges for early-stage startups in establishing formal feedback mechanisms.

In conclusion, the research contributes valuable insights into decision-making communication methods and feedback forums in start-ups. It highlights the significance of effective decision processes and streamlined communication as organizations grow in size. The findings underscore the importance of strategic internal communication and the need for tailored feedback channels to accommodate generational differences and organizational size. The research provides practical implications for enhancing communication processes in dynamic start-up organizations and adds to the existing literature on decision-making, communication dynamics, and management tools in start-ups.

6.2 Contribution to Existing Literature

The present research makes valuable additions to the academic literature in the following areas:

Decision-Making in Startups: The research paper adds to the existing literature on decision-making in startups by exploring how technology acquisition decisions are made and what factors influence these decisions. It identifies the prevalent decision-making models, such as the business monarchy and anarchy models, and highlights the transition in decision-making authority as startups grow in size. Additionally, the paper contributes insights into

the factors that startups prioritize when making technology-related decisions, challenging previous notions about the primary determinants of software utilization and technology stack selection.

Knowledge Management and Leadership in Startups: The research paper provides new insights by linking the valued leadership qualities in startups to attributes of organizational culture profile (OCP) and knowledge management technology profile (KMTP). This connection suggests the potential advantage that startups founded on innovation and technology may have in knowledge management practices, further enriching the existing literature on leadership and knowledge management in startups.

In addition, the research paper contributes to the literature on management tools in startups by proposing a categorization construct for the most preferred tools. It identifies eight categories of knowledge management tools commonly used by startups, emphasizing the significance of knowledge management in their context. This addition expands the understanding of how startups leverage various management tools to enhance their operations and efficiency.

Internal Mechanisms for Effective Communication and Feedback: The research paper offers novel insights into the internal mechanisms for communication and feedback within startups. The paper showcases the challenges and practices of strategic internal communication within startups, contributing to the literature on communication dynamics in dynamic organizations.

6.3 Practical Implications

6.3.1 Communication Channels and Feedback Culture

Establish Formal Communication Channels: As startups grow, it is essential to establish formal communication channels to manage increased complexity and ensure effective

decision-making. This may involve implementing regular meetings, using collaboration tools, and adopting automated communication methods to streamline processes.

Foster Open and Direct Feedback: Startups should encourage an open and transparent feedback culture, allowing employees to express concerns and suggestions freely. Creating informal feedback forums, such as weekly meetings, can promote direct communication and enhance employee engagement.

Tailor Feedback Mechanisms: Startups should consider tailoring feedback mechanisms to accommodate generational differences and organizational size. Understanding the preferences and communication styles of employees can lead to more effective feedback processes.

Adapt to Remote Work: The COVID-19 pandemic highlighted the importance of adopting flexible communication methods, especially with remote work becoming more prevalent. Startups should continue leveraging communication technologies to facilitate virtual collaboration and feedback. This also allows for better HR options as location is not constraining hiring options.

6.3.2 Strategic Decision-Making and Adaptation

Prioritize IT Investment Guidelines: Startups, regardless of funding status, should develop well-defined guidelines for technology acquisition. Prioritizing factors like ease of use, price, added value, and versatility can aid in making technology-related decisions that align with the organization’s goals.

Proactive Employee Involvement: Startups should proactively involve employees in decision-making processes related to technology acquisition. Seeking and valuing employee feedback can lead to better technology choices and higher levels of employee satisfaction.

Focus on Strategic Internal Communication: Startups should pay attention to the strategic aspects of internal communication, going beyond formal structures. Understanding the real-life practices involved in communication can lead to more efficient decision-making and collaboration.

Address Resource Constraints: Early-stage startups facing resource constraints should prioritize establishing communication channels within their means. Simple and cost-effective communication tools can still facilitate effective feedback and decision-making.

Continuous Learning and Adaptation: Startups should continuously learn from their communication practices and adapt as they grow. Understanding how communication dynamics change with organizational size can help startups stay agile and effective.

Combine IT Governance with Knowledge Management: By integrating IT governance practices with knowledge management strategies, startups can ensure that their communication and feedback processes align with their broader organizational goals and facilitate innovation and growth.

6.3.3 Summarizing Typology

Category	Summary
Decision-Making Models	Startups commonly follow decision-making models such as the business monarchy, where founders and CEOs play a dominant role, or the anarchy model, where end users are actively involved. As startups grow, there is a shift towards more structured and specialized decision-making processes.
Factors Influencing Technology Decisions	Regardless of funding status, startups prioritize factors like ease of use, price, added value, and product versatility when making technology-related decisions. This challenges the notion that organizational size is the primary determinant of software utilization.
Knowledge Management and Leadership	Leadership qualities valued in startups align with attributes of organizational culture profile (OCP) and knowledge management technology profile (KMTP), suggesting an advantage for startups founded on innovation and technology in knowledge management practices.
Preferred Management Tools	Startups commonly utilize management tools such as project management tools, video conference tools, and productivity tools.

	These tools serve as knowledge management tools, emphasizing the significance of knowledge management in startups.
Internal Communication Mechanisms	As startups grow, decision-making and communication become more formalized, with increased utilization of electronic and automated communication methods. Establishing formal communication channels and fostering open feedback culture are essential.
Feedback Forums	Startups should establish feedback forums to address technology-related concerns, with an emphasis on open and direct communication. Tailoring feedback mechanisms to accommodate generational differences and organizational size is important.
Impact of COVID-19	The COVID-19 pandemic highlighted the importance of adapting to remote work and leveraging communication technologies for virtual collaboration and feedback. This allows for better HR options as location is not constraining hiring options.
Startup Characteristics and Practices	Startups face challenges in establishing formal feedback mechanisms due to resource constraints, especially in early stages. However, continuous learning and adaptation are crucial for startups to stay agile and effective as they grow.
Integration of IT Governance and Knowledge Management	By integrating IT governance practices with knowledge management strategies, startups can align communication and feedback processes with organizational goals and facilitate innovation and growth.

6.4 Suggestions for Future Research

Future research could explore decision-making communication in startups over an extended period to understand the long-term impacts of the COVID-19 pandemic and remote work on communication methods. Comparative studies across different regions and industries would provide a more comprehensive understanding of the factors influencing decision-making communication in startups. Furthermore, investigating the link between communication methods and decision-making outcomes, such as the quality and timeliness of decisions, could offer valuable insights for enhancing decision-making processes in startups.

To complement the qualitative insights gained from this study, future research could incorporate quantitative research methods. Conducting surveys or questionnaires among a larger sample of startups would allow for statistical analysis and a broader understanding

of the prevalence and impact of the identified internal mechanisms for effective communication and feedback.

Longitudinal research can provide valuable insights into the evolution of internal mechanisms in startups over time. By conducting multiple assessments at different stages of a startup's growth, researchers can observe how decision-making processes and communication dynamics change as organizations mature.

Exploring the relationships between specific internal mechanisms and startup performance or employee satisfaction can be achieved through correlational research. Understanding whether certain communication methods are associated with better organizational outcomes can guide startups in adopting more effective practices.

Conducting comparative research across different industries, sectors, or geographical regions can shed light on potential variations in communication practices and feedback mechanisms. Examining how startups from diverse backgrounds implement internal mechanisms can provide a broader perspective on best practices.

Future studies could delve into the economic and other benefits of the identified internal mechanisms and the use of the listed management tools. By analyzing how effective communication and feedback contribute to enhanced productivity, innovation, and overall success, startups can make informed decisions about resource allocation and investment in communication tools.

Investigating the impact of various communication technologies and management tools on decision-making efficiency and employee satisfaction is an avenue for further research. Understanding the role of technology in facilitating internal communication can lead to better tool adoption strategies.

Exploring the integration of knowledge management strategies with communication mechanisms in startups can enhance innovation and knowledge sharing. Research that

investigates how startups leverage internal mechanisms to foster a knowledge-sharing culture can lead to continuous improvement.

Additionally, using the categorization construct created in the present research, which identified key knowledge management tools used by startups, further studies can be conducted on the efficient use of these tools for startup success. By examining how startups leverage project management tools, video conference tools, productivity tools, messaging apps, file storage and synchronization services, cloud-based services, CRM (Customer Relationship Management) tools, and other identified tools, researchers can gain insights into the impact of these tools on decision-making, collaboration, and overall organizational performance.

Potential research avenues could include:

1. Tool Effectiveness and Impact: Investigating the effectiveness and impact of specific knowledge management tools within startups. Understanding which tools contribute most significantly to productivity, innovation, and operational efficiency can help startups optimize their tool adoption strategies.

2. Tool Adoption and Integration: Exploring the challenges and drivers of knowledge management tool adoption and integration in startups. Research could identify barriers to implementation and successful integration, providing startups with guidance on overcoming hurdles.

3. User Experience and Usability: Assessing the user experience and usability of knowledge management tools within startups. Understanding how user-friendly these tools are and whether they align with the preferences and needs of startup teams can enhance tool selection processes.

4. Knowledge Sharing and Collaboration: Examining how knowledge management tools facilitate knowledge sharing and collaboration within startups. Research in this area can highlight strategies for fostering a culture of knowledge exchange and teamwork.

5. Long-Term Benefits of Tool Use: Conducting longitudinal studies to assess the long-term benefits of knowledge management tool utilization in startups. Understanding the sustained impact of these tools over time can inform strategic decision-making.

6. Startups' Competitive Advantage: Exploring the role of knowledge management tools in creating a competitive advantage for startups. Research could identify how startups utilize these tools to differentiate themselves in the market.

7. Startups' Scalability and Flexibility: Investigating how the use of knowledge management tools contributes to startups' scalability and adaptability in rapidly changing environments. Understanding how these tools support growth and flexibility can guide startups in scaling their operations effectively.

By conducting further studies on the efficient use of knowledge management tools, researchers can contribute valuable insights to the field of startup management. These findings can guide startups in maximizing the potential of their knowledge resources, improving decision-making processes, and ultimately enhancing their chances of success in the dynamic and competitive business landscape.

In conclusion, the unique and multifaceted nature of startups, coupled with the lack of a clear definition in the literature, presents numerous avenues for further research. To gain a comprehensive understanding of various mechanisms in relation to startups and technology, future research endeavors should adopt a mixed-methods approach, combining both qualitative and quantitative methodologies. This integrated approach will enable researchers to delve deeper into the specific organizational features and intricacies of startups, leading to valuable insights that can inform and enhance the management practices of these dynamic and evolving businesses.

Conclusion

In conclusion, our exploration of startups within the intricate framework of national culture, organizational culture, and technology adoption reveals a multifaceted landscape shaped by dynamic interactions. Through three distinct essays, we have uncovered valuable insights into the potential drivers of startup success, the implications of technology adoption on organizational culture, and the decision-making processes underlying technology acquisition and management.

Our journey through these essays has been guided by a comprehensive review of relevant literature, where we identified crosspoints and intersections between theories and practical observations. By thoroughly investigating ecosystems and national and institutional contexts, we have gained a nuanced understanding of the dynamics at play within startup environments.

The culmination of our work, combining brand new qualitative data with extensive research, offers a fresh perspective on startups with significant practical implications. From establishing formal communication channels to prioritizing IT investment guidelines, our findings provide actionable insights for entrepreneurs, policymakers, and researchers alike.

Looking ahead, our research also identifies several future avenues worthy of exploration in this relatively new field. From longitudinal studies on decision-making communication to quantitative assessments of knowledge management tool effectiveness, there is ample opportunity for further inquiry. Comparative research across different industries and regions can also enrich our understanding of the diverse factors influencing startup success.

Through our research, we have provided insights into how technology adoption, management tools, and decision-making processes interact within the organizational culture within the unique macro environment of startups, contributing to our broader understanding of the challenges and opportunities startups face in navigating the complex interplay between technology and their external contexts. In essence, by embracing this complexity and leveraging our findings, we can foster vibrant and successful startup ecosystems that drive innovation and growth in an ever-evolving landscape.

References

1. Abbasi, G.Y. and Al-Mharmah, H. (2000), “Project management practice by the public sector in a developing country”, International Journal of Project Management, Vol. 18 No. 2, pp. 105-109.

2. Abubakre, M., Ravishankar, M.N. and Coombs, C. (2017), "Revisiting the trajectory of IT implementation in organisations: an IT culture perspective", Information Technology & People, Vol. 30 No. 3, pp. 562-579. https://doi.org/10.1108/ITP-09-2015-0217

3. Ackoff, R. L. (1967). Management misinformation systems. *Management science*, *14*(4), B-147.

4. Acs, Z. J., & Szerb, L. (2007). Entrepreneurship, economic growth and public policy. *Small business economics*, *28*, 109-122.

5. Alesina, A., & Giuliano, P. (2015). Culture and institutions. *Journal of economic literature*, *53*(4), 898-944.

6. Amzaleg, M., & Masry-Herzallah, A. (2022). Cultural dimensions and skills in the 21st century: The Israeli education system as a case study. *Pedagogy, Culture & Society*, *30*(5), 765-785.

7. Aubert-Marson, D. (2009). Sir Francis Galton: le fondateur de l’eugénisme. *médecine/sciences*, *25*(6-7), 641-645.

8. Avnimelech, G., & Teubal, M. (2006). Creating venture capital industries that co-evolve with high tech: Insights from an extended industry life cycle perspective of the Israeli experience. *Research Policy*, *35*(10), 1477-1498.

9. Bacsó, G., Havas, A., Jánoskuti, L., Matécsa, M., & Vecsernyés, T., Mazza, M. (2023). Fueling the Hungarian start-up ecosystem. McKinsey & Company, January 31, https://www.mckinsey.com/featured-insights/europe/fueling-the-hungarian-start-up-ecosystem#/ (accessed on 07/31/2023)

10. Bandera, C., Keshtkar, F., Bartolacci, M. R., Neerudu, S., & Passerini, K. (2017). Knowledge management and the entrepreneur: Insights from Ikujiro Nonaka's Dynamic Knowledge Creation model (SECI). *International Journal of Innovation Studies*, *1*(3), 163-174.

11. Barker, R. T., & Camarata, M. R. (1998). The role of communication in creating and maintaining a learning organization: Preconditions, indicators, and disciplines. *The Journal of Business Communication (1973)*, *35*(4), 443-467.

12. Barley, S. R. (1990). The alignment of technology and structure through roles and networks. *Administrative science quarterly*, 61-103.

13. Barley, S. R. (2015). Why the internet makes buying a car less loathsome: How technologies change role relations. *Academy of Management Discoveries*, *1*(1), 5-35

14. Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational dynamics*, *18*(3), 19-31.

15. Bass, B. M., & Avolio, B. J. (1990). Developing transformational leadership: 1992 and beyond. *Journal of European industrial training*, *14*(5).

16. Bassan-Nygate, L., & Weiss, C. M. (2022). Party competition and cooperation shape affective polarization: evidence from natural and survey experiments in Israel. *Comparative Political Studies*, *55*(2), 287-318.

17. Bassellier, G., Horner Reich, B., & Benbasat, I. (2001) Information Technology Competence of Business Managers: A Definition and Research Model, Journal of Management Information Systems, 17:4, 159-182, DOI: 10.1080/07421222.2001.11045660

18. Batory, A. (2021) A free lunch from the EU? Public perceptions of corruption in cohesion policy expenditure in post-communist EU member states, Journal of European Integration, 43:6, 651-666, DOI: 10.1080/07036337.2020.1800681

19. Batory, A. (2022). More power, less support: The Fidesz government and the coronavirus pandemic in Hungary. *Government and Opposition*, 1-17.

20. Baughn, C. C., & Neupert, K. E. (2003). Culture and national conditions facilitating entrepreneurial start-ups. *Journal of International Entrepreneurship*, *1*, 313-330.

21. Baygan, G. (2003). Venture capital policies in Israel.

22. Beeri, I. (2021) Lack of reform in Israeli local government and its impact on modern developments in public management, Public Management Review, 23:10, 1423-1435, DOI: 10.1080/14719037.2020.1823138

23. Ben-Gurion, D., Meyers, N., & Nystar, U. (1971). *Israel: A personal history*. American Israel Publishing Co. Ltd.

24. Berend, I. T. (1990). *The Hungarian economic reforms 1953-1988* (Vol. 70). CUP Archive.

25. Birkinshaw, J., Brannen, M. Y., & Tung, R. L. (2011). From a distance and generalizable to up close and grounded: Reclaiming a place for qualitative methods in international business research. *Journal of International Business Studies*, *42*, 573-581.

26. Bogaards Matthijs (2018) De-democratization in Hungary: diffusely defective democracy, Democratization, 25:8, 1481-1499, DOI: 10.1080/13510347.2018.1485015

27. Bojár G. (2023) *Minden gazdaságfejlesztésre szánt pénzt az oktatásra kellene költeni*, interviewed by Uj P., 444, 07/10/2023 https://444.hu/2023/07/10/bojar-gabor-minden-gazdasagfejlesztesre-szant-penzt-az-oktatasra-kellene-kolteni (accessed on 07/25/2023)

28. Brown, A. E., & Grant, G. G. (2005). Framing the frameworks: A review of IT governance research. *Communications of the Association for Information Systems*, *15*(1), 38.

29. Cabrera, Á., Cabrera, E. F., & Barajas, S. (2001). The key role of organizational culture in a multi-system view of technology-driven change. *International Journal of Information Management* 21 (2001) 245–261.

30. Campbell, J. L., Quincy, C., Osserman, J., & Pedersen, O. K. (2013). Coding in-depth semistructured interviews: Problems of unitization and intercoder reliability and agreement. *Sociological methods & research*, *42*(3), 294-320.

31. Cascio, W. F., & Montealegre, R. (2016). How technology is changing work and organizations. *Annual review of organizational psychology and organizational behavior*, *3*, 349-375.

32. Centobelli, P., Cerchione, R., & Esposito, E. (2017). Knowledge management in startups: Systematic literature review and future research agenda. *Sustainability*, *9*(3), 361.

33. Central Intelligence Agency. (2023). The World Factbook. Retrieved from https://www.cia.gov/the-world-factbook/countries/ (accessed on January 24, 2024)

34. Clemente, M., & Domingues, L. (2023). Analysis of Project Management Tools to support Knowledge Management. Procedia Computer Science, 219, 1769-1776.

35. Colombo, M. G., & Grilli, L. (2010). On growth drivers of high-tech start-ups: Exploring the role of founders' human capital and venture capital. *Journal of business venturing*, *25*(6), 610-626.

36. Connelly, J. (2010). *A tradition of excellence transitions to the 21 st century: Hungarian mathematics education, 1988-2008*. Columbia University.

37. Corso, M., Martini, A., Pellegrini, L., & Paolucci, E. (2003). Technological and organizational tools for knowledge management: in search of configurations. *Small business economics*, *21*, 397-408.

38. Csepeli, G. (2018) Hungarian Negativity Some Remarks about the Hungarian's Political Culture. *CENTRAL EUROPEAN POLITICAL SCIENCE*, 131.

39. Dane, E., & Pratt, M. G. (2007). Exploring intuition and its role in managerial decision making. *Academy of management review*, *32*(1), 33-54.

40. Dashboard and Maps: SDSN SDGs Today. World Happiness Report. Data sourced from SDSN. UN Sustainable Development Solutions Network. (Accessed on July 30, 2023)

41. Davenport, T. H. (1998). Putting the enterprise into the enterprise system. *Harvard business review*, *76*(4).

42. Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Harvard Business Press.

43. Davenport, T. H., De Long, D. W., & Beers, M. C. (1998). Successful knowledge management projects. *MIT Sloan management review*, *39*(2), 43.

44. DeLone, W. H. (1988). Determinants of success for computer usage in small business. *MIS quarterly*, 51-61.

45. DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information systems research*, *3*(1), 60-95.

46. Dempsey, J., Moore, E., & Phillips, D. J. (2019). Veteran Tech Entrepreneurial Ecosystems.

47. Dheer, R. J. (2017). Cross-national differences in entrepreneurial activity: role of culture and institutional factors. *Small Business Economics*, *48*, 813-842.

48. Diaconu, M. (2017). Private equity market developments in central and Eastern Europe. *Theoretical & Applied Economics*, *24*(2).

49. Doherty. (2001). The cultural impact of workflow management systems in the financial services sector. *Service Industries Journal*, *21*(4), 147-166.

50. Doherty, N. F., & Doig, G. (2003). An analysis of the anticipated cultural impacts of the implementation of data warehouses. *IEEE transactions on engineering management*, *50*(1), 78-88.

51. Dvir, D. & Tishler, A. (2000) The Changing Role of the Defense Industry in Israel's Industrial and Technological Development, Defense Analysis, 16:1, 33-51, DOI: 10.1080/713604690

52. Elfring, T., & Hulsink, W. (2003). Networks in entrepreneurship: The case of high-technology firms. *Small business economics*, *21*, 409-422.

53. Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing*, *62*(1), 107-115.

54. Ensley, M. D., Hmieleski, K. M., & Pearce, C. L. (2006). The importance of vertical and shared leadership within new venture top management teams: Implications for the performance of startups. *The leadership quarterly*, *17*(3), 217-231.

55. EVS/WVS (2022). European Values Study and World Values Survey: Joint EVS/WVS 2017-2022 Dataset (Joint EVS/WVS). JD Systems Institute & WVSA. Dataset Version 4.0.0, doi:10.14281/18241.21

56. Falkné Bánó, K. (2014). Identifying Hungarian cultural characteristics in Europe's cultural diversity in the 21st century: a controversial issue

57. Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. International Journal of Qualitative Methods, 5(1), 80–92. https://doi.org/10.1177/160940690600500107

58. Forgas, Joseph P., and Dorottya Lantos. "Understanding populism: Collective narcissism and the collapse of democracy in Hungary." *Applications of social psychology*. Routledge, 2020. 267-291.

59. Fukuyama, F. (1995). Trust: the social virtues and the creation of prosperity. Hamish Hamilton, London.

60. Gibbs, C. (2012). Corporate citizenship and corporate environmental performance. *Crime, law and social change*, *57*, 345-372.

61. Glaser, B. G., & Strauss, A. L. (2017). *Discovery of grounded theory: Strategies for qualitative research*. Routledge.

62. Graen, G. B., & Uhl-Bien, M. (1991). The transformation of professionals into self-managing and partially self-designing contributors: Toward a theory of leadership-making.

63. Grover, V., Teng, J. T., & Fiedler, K. D. (1998). IS investment priorities in contemporary organizations. *Communications of the ACM*, *41*(2), 40-48.

64. Halmosi, P. (2019). THE INTERPRETATION OF INDUSTRY 4.0 BY HUNGARIAN TECHNOLOGY-ORIENTED STARTUPS. *Timisoara Journal of Economics & Business*, *12*(2).

65. Havas, A. (2002). Does innovation policy matter in a transition country? The case of Hungary. *Journal of International Relations and Development*, *5*(4), 380-402.

66. Haynie, J. M., Shepherd, D., Mosakowski, E., & Earley, P. C. (2010). A situated metacognitive model of the entrepreneurial mindset. *Journal of business venturing*, *25*(2), 217-229

67. Hayton, J. C., & Cacciotti, G. (2013). Is there an entrepreneurial culture? A review of empirical research. *Entrepreneurship & Regional Development*, *25*(9-10), 708-731.

68. Heide, M., von Platen, S., Simonsson, C., & Falkheimer, J. (2018). Expanding the scope of strategic communication: Towards a holistic understanding of organizational complexity. *International Journal of Strategic Communication*, *12*(4), 452-468.

69. Hofstede Insights. (2001, 2010). Cultural Dimensions. Retrieved from https://www.hofstede-insights.com/country-comparison-tool?countries=hungary*%2Cisrael (accessed on 07/21/2023)

70. Hofstede, G. (1991). Cultures and Organizations Software of the Mind. London McGraw-Hill.

71. Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Intuitions, and Organizations Across Nations. Thousand Oaks CA: Sage Publications.

72. Hong, J. F. L., & Vai, S. (2008). Knowledge-sharing in cross-functional virtual teams. *Journal of general management*, *34*(2), 21-37.

73. Hopp, C., & Stephan, U. (2012). The influence of socio-cultural environments on the performance of nascent entrepreneurs: Community culture, motivation, self-efficacy and start-up success. *Entrepreneurship & Regional Development*, *24*(9-10), 917-945.

74. Horovitz, D. (2023) *Netanyahu's judicial overhaul victory spells a tragic, disastrous defeat for Israel* https://www.timesofisrael.com/netanyahus-judicial-overhaul-victory-spells-a-disastrous-defeat-for-israel/ (accessed on July 28, 2023)

75. House, R. J. (1971). A path goal theory of leader effectiveness. *Administrative science quarterly*, 321-339.

76. Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, *15*(9), 1277-1288.

77. Hyrsky, K., & Tuunanen, M. (1999). Innovativeness and risk-taking prospensity: A cross-cultural study of Finnish and US entrepreneurs and small business owners. *Liiketaloudellinen aikakauskirja*, 238-256.

78. Isaacs, E. A., & Tang, J. C. (1997). Studying video-based collaboration in context: From small workgroups to large organizations. *Video-mediated communication*, 173-197.

79. IVC Research Center. (July 1, 2023). Funding of high-tech companies in Israel from 2010 to 2022 (in billion U.S. dollars) [Graph]. In *Statista*. Retrieved February 01, 2024, from https://www.statista.com/statistics/1067052/funding-of-high-tech-companies-in-israel/

80. Kaarst-Brown, M. L. (2000). *A theory of information technology cultures: magic dragons, wizards and archetypal patterns*. York University.

81. Kaarst-Brown, M.L., & Robey, D. (1999). More on myth, magic and metaphor: Cultural insights into the management of information technology in organizations. *Information Technology & People*, *12*(2), 192-218.

82. Karahanna, E., Ahuja, M., Srite, M., & Galvin, J. (2002). Individual differences and relative advantage: the case of GSS. *Decision Support Systems*, *32*(4), 327-341.

83. Kállay, L. & Jáki, E. (2019): The impact of state intervention on the Hungarian venture capital market, Economic Research-Ekonomska Istraživanja, DOI: 10.1080/1331677X.2019.1629979

84. Karsai J. (2022). *Kétségbeesetten igyekeznek a kelet-közép európai államok pótolni a startupokat finanszírozó kockázati tőkét*. KRTK Blog, Portfolió, március 11. https://www.portfolio.hu/krtk/20220311/ketsegbeesetten-igyekeznek-a-kelet-kozep-europai-allamok-potolni-a-startupokat-finanszirozo-kockazati-toket-531943. (accessed on 07/24/2023).

85. Kemell KK., Ventilä E., Kettunen P., Mikkonen T. (2019) Amidst Uncertainty – or Not? Decision-Making in Early-Stage Software Startups. In: Hyrynsalmi S., Suoranta M., Nguyen-Duc A., Tyrväinen P., Abrahamsson P. (eds) Software Business. ICSOB 2019. Lecture Notes in Business Information Processing, vol 370. Springer, Cham. https://doi.org/10.1007/978-3-030-33742- 1_29

86. Kézai, P. K. (2022). The current situation of Hungarian startup companies in the comparison of the Visegrad countries.

87. Khangembam, V. (2022). Organizational Culture: Reasons for Young Employees to work at Start-Ups.

88. King, S. (2022). CEE startups – efficient, resilient and growing fast. Dealroom. November 3, https://dealroom.co/blog/central-and-eastern-european-an-efficient-and-resilient-startup-region (accessed on 01/29/2024)

89. Klein Halevi, Y. (2023) *The wounded Jewish psyche and the divided Israeli soul,* July 28, https://www.timesofisrael.com/the-wounded-jewish-psyche-and-the-divided-israeli-soul/. (accessed on 07/28/2023)

90. Kohn, M. L. (1987). Cross-national research as an analytic strategy: American Sociological Association, 1987 presidential address. *American sociological review*, *52*(6), 713-731.

91. Kolman, L., Noorderhaven, N. G., Hofstede, G., & Dienes, E. (2003). Cross-cultural differences in Central Europe. *Journal of Managerial Psychology*, *18*(1), 76-88.

92. Kon, F., Hazzan, O., Yuklea, H., Cukier, D., & Melo, C. D. O. (2015). A conceptual framework for software startup ecosystems: the case of Israel.

93. Laki, M. & Szalai, J.(2006) The puzzle of success: Hungarian entrepreneurs at the turn of the millennium, Europe-Asia Studies, 58:3, 317-345, DOI: 10.1080/09668130600601701

94. Langley, A., Mintzberg, H., Pitcher, P., Posada, E., & Saint-Macary, J. (1995). Opening up decision making: The view from the black stool. *organization Science*, *6*(3), 260-279.

95. Lee, K., Yan, A., & Joshi, K. (2011). Understanding the dynamics of users' belief in software application adoption. *International Journal of Information Management*, *31*(2), 160-170.

96. Leidner, D. E., & Kayworth, T. (2006). A review of culture in information systems research: Toward a theory of information technology culture conflict. *MIS quarterly*, 357-399.

97. Leitch, C. M., & Volery, T. (2017). Entrepreneurial leadership: Insights and directions. *International Small Business Journal*, *35*(2), 147-156.

98. Lijphart, A. The Comparable-Cases Strategy in Com¬ parative Research. *Comparative Political Studies, 8_ (July, 1975)*, 158-177.

99. Lounsbury, M., & Glynn, M. A. (2001). Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources. *Strategic management journal*, *22*(6-7), 545-564.

100. Malach-Pines, A., Dvir, D., & Sadeh, A. (2004). The making of Israeli high-technology entrepreneurs: an exploratory study. *The Journal of Entrepreneurship*, *13*(1), 29-52.

101. Maman, D., & Rosenhek, Z. (2012). The institutional dynamics of a developmental state: Change and continuity in state–economy relations in Israel. *Studies in Comparative International Development*, *47*, 342-363.

102. March, J.G., Simon, H.A., 1958. Organizations. Wiley, New York.

103. Markus, M. L. (1983). Power, politics, and MIS implementation. *Communications of the ACM*, *26*(6), 430-444.

104. Mayseless, O., & Russo-Netzer, P. (Eds.). (2021). *Finding Meaning: An Existential Quest in Post-modern Israel*. Oxford University Press.

105. McLarney, C., & Rhyno, S. (1999). Mary Parker Follett: visionary leadership and strategic management. *Women in management review*, *14*(7), 292-304

106. Mendoza, C., & OP, E. S. (2017). Culture at the bottom of startups: Reflections on social expectations. *Studies in Media and Communication*, *5*(1), 12-22.

107. Minkov, M., & Hofstede, G. (2012). Is National Culture a Meaningful Concept?: Cultural Values Delineate Homogeneous National Clusters of In-Country Regions. Cross-Cultural Research, 46(2), 133–159. https://doi.org/10.1177/1069397111427262

108. Minkov, M., & Hofstede, G. (2012). Is national culture a meaningful concept? Cultural values delineate homogeneous national clusters of in-country regions. *Cross-Cultural Research*, *46*(2), 133-159.

109. Mintzberg, H. (1973). The nature of managerial work.

110. Mintzberg, H., Raisinghani, D., & Theoret, A. (1976). The structure of "unstructured" decision processes. *Administrative science quarterly*, 246-275.

111. Mintzberg, H. (1979). *The structuring of organizations* (pp. 322-352). Macmillan Education UK.

112. Modrea, A. (2012). Approaching communication from an entrepreneurial perspective. *Procedia Economics and Finance*, *3*, 1088-1092.

113. Molnár, M. (2001). *A concise history of Hungary*. Cambridge University Press.

114. Müller, S. (2022). Hungary for growth – an under-explored emerging startup hub. Dealroom. , May 24. https://dealroom.co/blog/hungary-startup-ecosystem (accesed on 01/29/2024)

115. Nonaka, I., & Takeuchi, H. (2007). The knowledge-creating company. *Harvard business review*, *85*(7/8), 162.

116. Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. International Journal of Qualitative Methods, 16(1). https://doi.org/10.1177/1609406917733847

117. Nguyen, N. T. D., & Aoyama, A. (2014). Achieving efficient technology transfer through a specific corporate culture facilitated by management practices. *The Journal of High Technology Management Research*, *25*(2), 108-122.

118. Nguyen, T. H., Le, X. C., & Vu, T. H. L. (2022). An extended technology-organization-environment (TOE) framework for online retailing utilization in digital

transformation: empirical evidence from vietnam. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(4), 200.

119. OECD (2023), *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/53f23881-en.

120. Oliffe, J. L., Kelly, M. T., Gonzalez Montaner, G., & Yu Ko, W. F. (2021). Zoom Interviews: Benefits and Concessions. International Journal of Qualitative Methods, 20. https://doi.org/10.1177/16094069211053522

121. Oliva, F. L., & Kotabe, M. (2019). Barriers, practices, methods and knowledge management tools in startups. *Journal of knowledge management*, *23*(9), 1838-1856.

122. O'Reilly III, C. A., Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. Academy of management journal, 34(3), 487-516.

123. Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. *Organization science*, *3*(3), 398-427.

124. Orlikowski, W. J., & Robey, D. (1991). Information technology and the structuring of organizations. *Information systems research*, *2*(2), 143-169.

125. Pacheco, D. F., York, J. G., Dean, T. J., & Sarasvathy, S. D. (2010). The coevolution of institutional entrepreneurship: A tale of two theories. *Journal of management*, *36*(4), 974-1010.

126. Park, H., Ribière, V., & Schulte, W. D. (2004). Critical attributes of organizational culture that promote knowledge management technology implementation success. *Journal of Knowledge management*, *8*(3), 106-117.

127. Peffers, K., Tuunanen T., Rothenberger, M. A., S. Chatterjee, S. "A design science research methodology for information systems research," Journal of Management Information Systems, vol. 24, no. 3, pp. 45–77, 2007, doi: 10.2753/MIS0742-1222240302.

128. Pénzes, J. (2020). The impact of the Trianon Peace Treaty on the border zones–an attempt to analyse the historic territorial development pattern and its changes in Hungary. *Regional Statistics*, *10*(01), 60-81.

129. Pettigrew, A. M. (1979). On studying organizational cultures. *Administrative science quarterly*, *24*(4), 570-581.

130. Pham, H. (2016). Finnish high-tech startups: How do national cultures and the global mindset play a role in their choices of international entry modes?.

131. Picken, J. C. (2017). From startup to scalable enterprise: Laying the foundation. *Business Horizons*, *60*(5), 587-595.

132. Polanyi, M. (1966). The Logic of Tacit Inference. *Philosophy*, *41*(155), 1–18. http://www.jstor.org/stable/3749034

133. Pressman, J. (2003). The second intifada: Background and causes of the Israeli-Palestinian conflict. *Journal of Conflict Studies*, *23*(2), 114-141.

134. Rabionet, S. E. (2011). How I learned to design and conduct semi-structured interviews: an ongoing and continuous journey. *Qualitative Report*, *16*(2), 563-566.

135. Rajh, E., Budak, J., & Anić, I. D. (2016). Hofstede's Culture Value Survey in Croatia: Examining Regional Differences. *Društvena istraživanja*, *25*(3), 309-327.

136. Reich, B. H., Gemino, A., & Sauer, C. (2012). Knowledge management and project-based knowledge in it projects: A model and preliminary empirical results. *International Journal of Project Management*, *30*(6), 663-674.

137. Reichers, A. E., Wanous, J. P., & Austin, J. T. (1997). Understanding and managing cynicism about organizational change. *Academy of management perspectives*, *11*(1), 48-59.

138. Reymen, I. M., Andries, P., Berends, H., Mauer, R., Stephan, U., & Van Burg, E. (2015). Understanding dynamics of strategic decision making in venture creation: a process study of effectuation and causation. *Strategic entrepreneurship journal*, *9*(4), 351-379.

139. Roberts, J. K., Pavlakis, A. E., & Richards, M. P. (2021). It's More Complicated Than It Seems: Virtual Qualitative Research in the COVID-19 Era. International Journal of Qualitative Methods, 20. https://doi.org/10.1177/16094069211002959

140. Robey, D., & Boudreau, M. C. (1999). Accounting for the contradictory organizational consequences of information technology: Theoretical directions and methodological implications. *Information systems research*, *10*(2), 167-185.

141. Röhl, K. H. (2016). Entrepreneurial culture and start-ups: Could a cultural shift in favour of entrepreneurship lead to more innovative start-ups?.

142. Romano, N. C., Chen, F., & Nunamaker, J. F. (2002). Collaborative project management software. In *Proceedings of the 35th Annual Hawaii International Conference on System Sciences* (pp. 233-242). IEEE.

143. Rosenberg, D. (2010). THE ISRAELI ECONOMY: AFTER THE FINANCIAL CRISIS, NEW CHALLENGES. *MERIA Journal*, *14*(1).

144. Rosenberg, D. (2018). *Israel's Technology Economy: Origins and Impact*. Springer.

145. Rynhold, J., & Waxman, D. (2008). Ideological change and Israel's disengagement from Gaza. *Political science quarterly*, *123*(1), 11-37.

146. Sachar, H.M. (1987), *A history of Israel Volume II – from the aftermath of the Yom Kippur War*. Oxford University Press

147. Sagy, S., Orr, E., & Bar-On, D. (1999). Individualism and collectivism in Israeli society: Comparing religious and secular high-school students. Human Relations, 52(3), 327-348.

148. Sanger, D. E. (1984), THE GREAT WARS OVER SUPERCHIPS. *New York Times*, p. 1. Section 3, National edition, September 9, https://www.nytimes.com/1984/09/09/business/the-great-wars-over-superchips.html, (Accessed on 06/12/2023)

149. Schein, E. H. (1984). Coming to a new awareness of organizational culture. *Sloan management review*, *25*(2), 3-16.

150. Schein, E. H. (1991). What is culture. *Newbury Park, CA: Sage*, 243-253.

151. Schein, E. H. (1996). Culture: The missing concept in organization studies. *Administrative science quarterly*, 229-240.

152. Schein, E. H. (2010). *Organizational culture and leadership* (Vol. 2). John Wiley & Sons.

153. Schumpeter, J., & Backhaus, U. (1934). The theory of economic development. In *Joseph Alois Schumpeter: Entrepreneurship, Style and Vision* (pp. 61-116). Boston, MA: Springer US.

154. Schwartz, S. H. (1994). Beyond individualism/collectivism: New cultural dimensions of values. In U. Kim, H. C. Triandis, Ç. Kâğitçibaşi, S.-C. Choi, & G. Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications* (pp. 85–119). Sage Publications, Inc.

155. Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of management review*, *25*(1), 217-226.

156. Shapira, A. (2012). *Israel: A history*. UPNE.

157. Shepperd, J., Malone, W., & Sweeny, K. (2008). Exploring causes of the self-serving bias. *Social and Personality Psychology Compass*, *2*(2), 895-908.

158. Shulman, S. (2023) *Check Point founder says would not base company in Israel today*, Ynet News, July 26, https://www.ynetnews.com/business/article/syk3tarqh. (Accessed on 07/28/2023)

159. Silva, D. S., Ghezzi, A., Aguiar, R. B. D., Cortimiglia, M. N., & ten Caten, C. S. (2021). Lean startup for opportunity exploitation: adoption constraints and strategies in technology new ventures. *International Journal of Entrepreneurial Behavior & Research*, *27*(4), 944-969.

160. Simon, H. A. (1979). Rational decision making in business organizations. *The American economic review*, *69*(4), 493-513.

161. Smith, P. B., Dugan, S., & Trompenaars, F. (1996). National culture and the values of organizational employees: A dimensional analysis across 43 nations. *Journal of cross-cultural psychology*, *27*(2), 231-264.

162. Smooha, S. (2008) The mass immigrations to Israel: A comparison of the failure of the Mizrahi immigrants of the 1950s with the success of the Russian immigrants of the 1990s, Journal of Israeli History, 27:1, 1-27, DOI: 10.1080/13531040801902708

163. Spender, J. C. (2014). Knowledge management: Origins, history, and development. In *Advances in knowledge management: Celebrating twenty years of research and practice* (pp. 3-23). Cham: Springer International Publishing.

164. Spender, J.C., Corvello, V., Grimaldi, M., Rippa, P., (2017) "Startups and open innovation: a review of the literature", European Journal of Innovation Management, Vol. 20 Issue: 1, pp.4-30, https://doi.org/10.1108/EJIM-12-2015-0131

165. StartupBlink. (June 9, 2023). Startup funding value in Hungary from 2020 to 2022 (in 1,000 U.S. dollars) [Graph]. In *Statista*. Retrieved February 01, 2024, from https://www.statista.com/statistics/1391140/hungary-startup-funding-value/

166. Suddaby, R., Viale, T., & Gendron, Y. (2016). Reflexivity: The role of embedded social position and entrepreneurial social skill in processes of field level change. *Research in Organizational Behavior*, *36*, 225-245

167. Sugar, P. F., Hanák, P., & Frank, T. (1990). *A history of Hungary*. Indiana University Press.

168. Talaulicar, T., Grundei, J., & Werder, A. V. (2005). Strategic decision making in start-ups: The effect of top management team organization and processes on speed and comprehensiveness. *Journal of Business Venturing*, *20*(4), 519-541.

169. Teruel, M., & De Wit, G. (2017). Determinants of high-growth firms: why do some countries have more high-growth firms than others. *Exploring the Entrepreneurial Society: Institutions, Behaviors and Outcomes*, 46-58.

170. The Times Higher Education. (2022). *World University Rankings 2022*. Retrieved from https://www.timeshighereducation.com/world-university-rankings/2022 (accessed on 02/01/2024)

171. Tominc, P., & Rebernik, M. (2007). Growth aspirations and cultural support for entrepreneurship: A comparison of post-socialist countries. *Small business economics*, *28*, 239-255.

172. Tyndale, P. (2002). A taxonomy of knowledge management software tools: origins and applications. *Evaluation and program planning*, *25*(2), 183-190.

173. Uddin, M. J., Luva, R. H., & Hossian, S. M. M. (2013). Impact of organizational culture on employee performance and productivity: A case study of telecommunication sector in Bangladesh. *International Journal of Business and Management*, *8*(2), 63.

174. Unterkalmsteiner, M. at al.: Software Startups – A Research Agenda. e-Informatica Software Engineering Journal, 10(1), pp. 89-123 (2016).

175. Vásáry, I. (2005). *Cumans and Tatars: Oriental Military in the Pre-Ottoman Balkans, 1185–1365*. Cambridge University Press.

176. Veiszer A. (2013). *Bridge generáció*. Kossuth Kiadó, Budapest.

177. Weber, Y., & Tarba, S. Y. (2012). Mergers and acquisitions process: The use of corporate culture analysis. *Cross Cultural Management: An International Journal*, *19*(3), 288-303.

178. Weill, P., & Ross, J. W. (2004). *IT governance: How top performers manage IT decision rights for superior results*. Harvard Business Press.

179. Weill, P., & Woodham, R. (2002). Don't just lead, govern: Implementing effective IT governance. *Available at SSRN 317319*.

180. Westley, F. and Mintzberg, H. (1989), ``Visionary leader- ship and strategic management", Strategic Management Journal, Vol. 10, pp. 17-32.

181. Wiesenberg, M., Godulla, A., Tengler, K., Noelle, I. M., Kloss, J., Klein, N., & Eeckhout, D. (2020). Key challenges in strategic start-up communication: A systematic literature review and an explorative study. *Journal of Communication Management*, *24*(1), 49-64.

182. Wilf, E., & Mor, S. (2018). Democracy against all odds. *Horizons: Journal of International Relations and Sustainable Development*, (11), 44-53.

183. Wolf, C., Godulla, A., Beck, L., & Neubert, L. S. (2022). The role of internal communication in start-ups: state of research and practical approaches. *International Journal of Strategic Communication*, *16*(2), 255-272.

184. World Bank. (2022). International Comparison Program, World Development Indicators database. Retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD?most_recent_value_desc=true (accessed on 02/05/2024)

185. Wrobel, Sh. (2023) *Investment in Israeli tech startups plunged by almost half in 2022, data shows,* The Times of Israel, January 10, https://www.timesofisrael.com/investment-in-israeli-tech-startups-plunged-by-almost-half-in-2022-data-shows/. (accessed on 07/28/2023)

186. Wry, T., Lounsbury, M., & Glynn, M. A. (2011). Legitimating nascent collective identities: Coordinating cultural entrepreneurship. *Organization science*, *22*(2), 449-463.

187. Guzansky, Y. & Marshall, Z.A., (2020) The Abraham Accords: Immediate Significance and Long-Term Implications, Israel Journal of Foreign Affairs, 14:3, 379-389, DOI: 10.1080/23739770.2020.1831861

188. Yehezkel, O. & Lerner, M. (2009) Born to Be Wild?, International Studies of Management & Organization, 39:3, 6-31, DOI: 10.2753/IMO0020-8825390301

189. York, J. L., & Danes, J. E. (2014). Customer development, innovation, and decision-making biases int he lean startup. *Journal of Small Business Strategy (archive only)*, *24*(2), 21-40.

190. Zaech, S., & Baldegger, U. (2017). Leadership in start-ups. *International Small Business Journal*, *35*(2), 157-177.

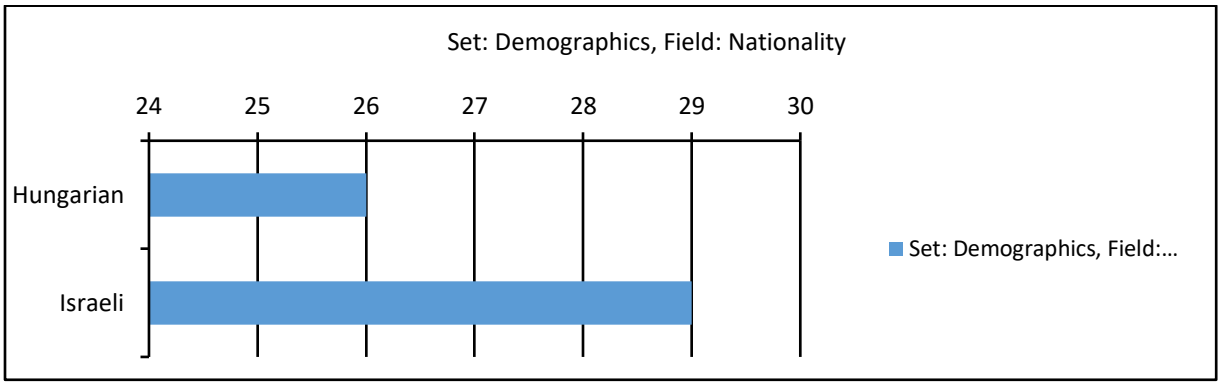
191. Zaman, K. (2019). Does higher military spending affect business regulatory and growth specific measures? Evidence from the group of seven (G-7) countries. *Economia Politica*, *36*(1), 323-348.

192. Zeira, Y., Newburry, W., & Yeheskel, O. (1997). Factors affecting the effectiveness of equity international joint ventures (EIJVs) in Hungary. *MIR: Management International Review*, 259-279.

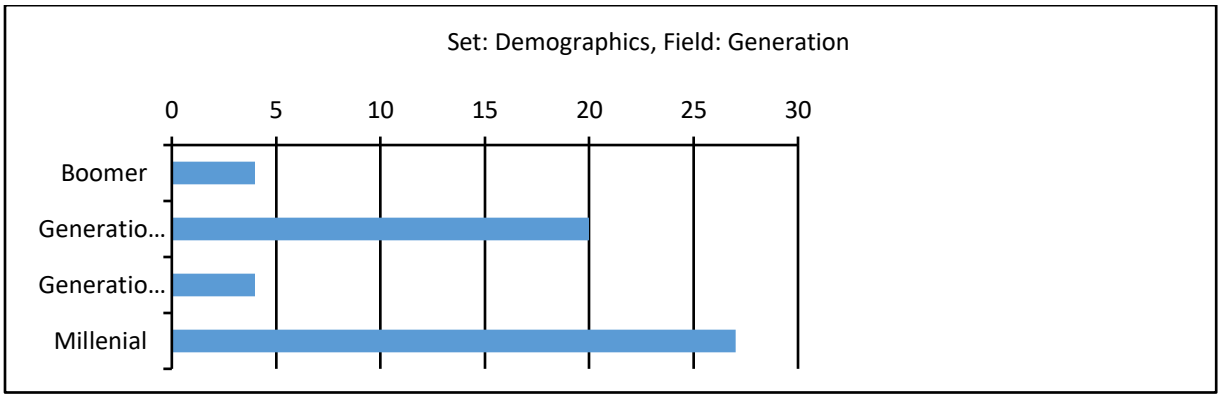
Appendix A – Descriptor Ratio Charts

Set: Demographics

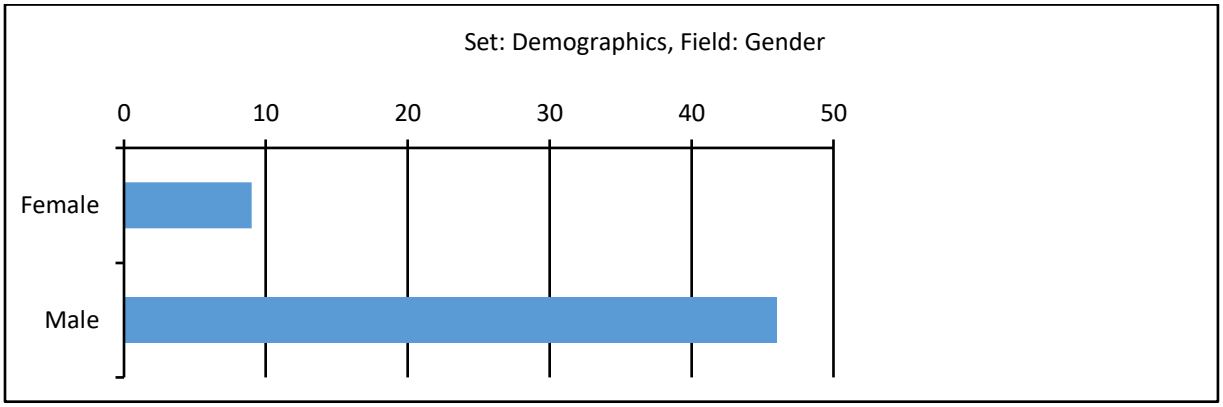
Field: Nationality



Field: Generation



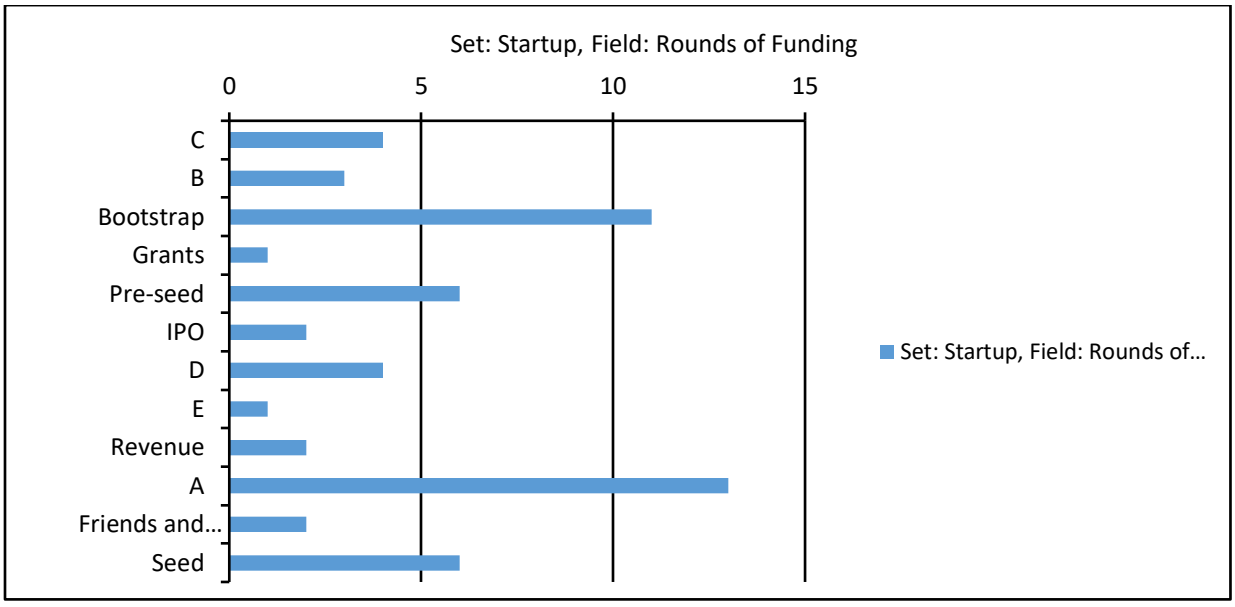
Field: Gender



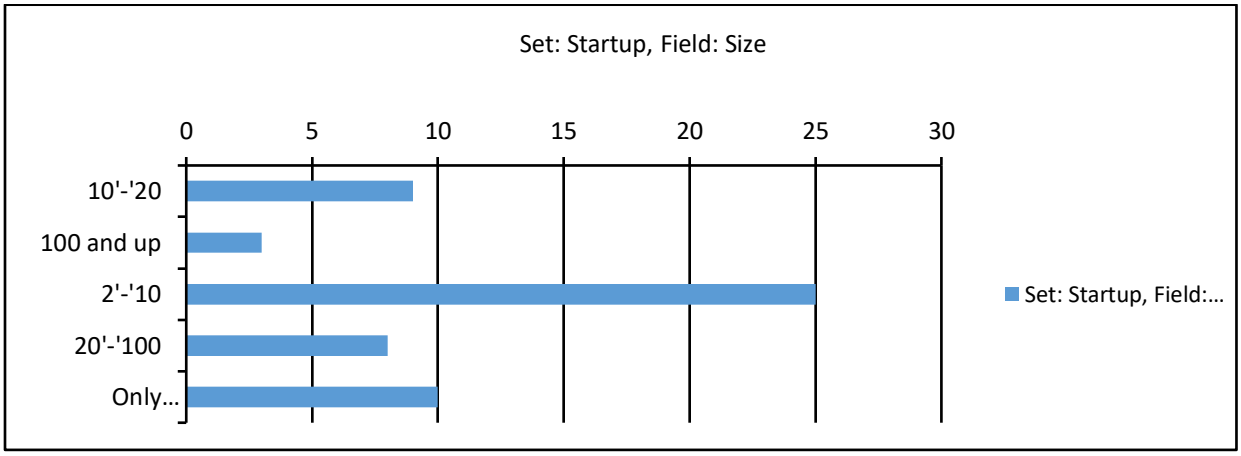
Appendix A Descriptor Ratio Charts

Set: Start-ups

Field: Rounds of Funding



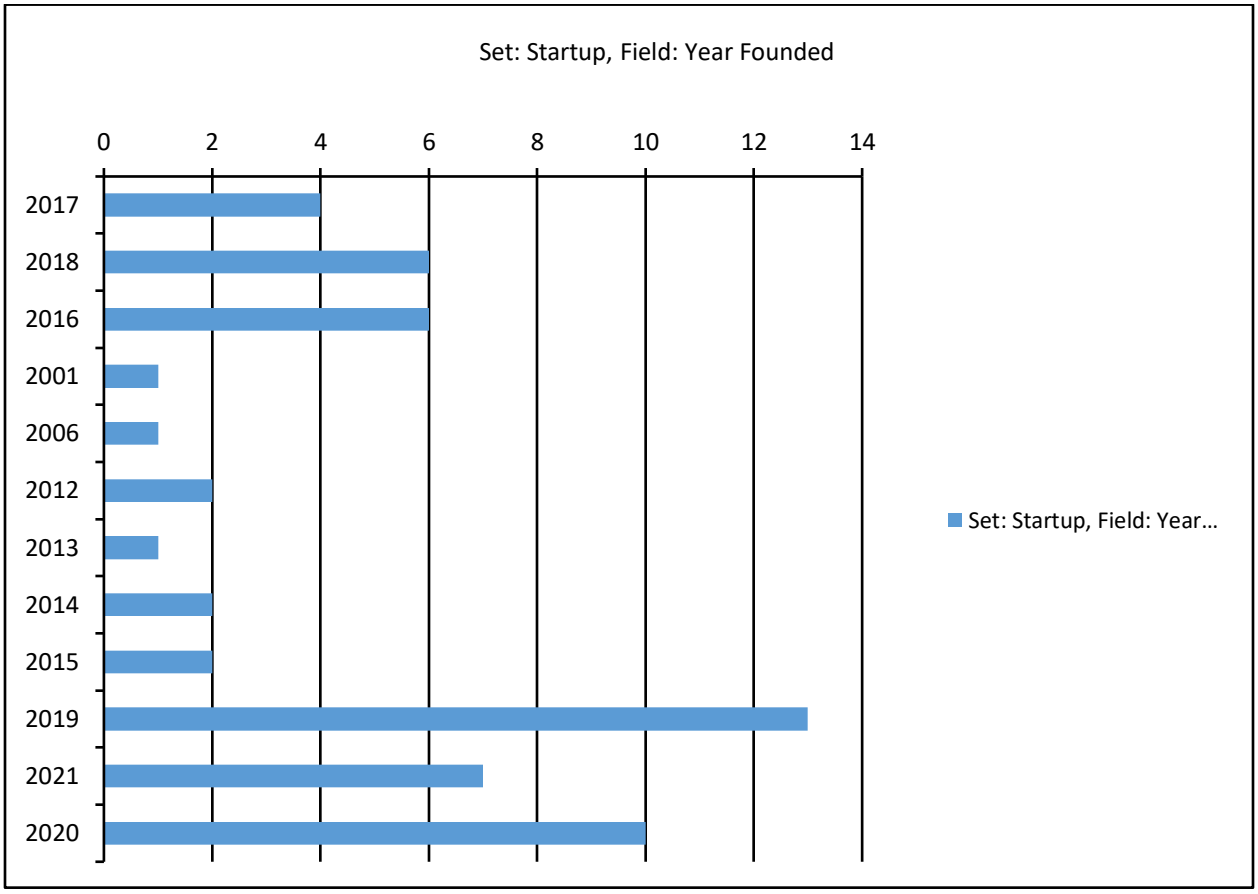
Field: Size



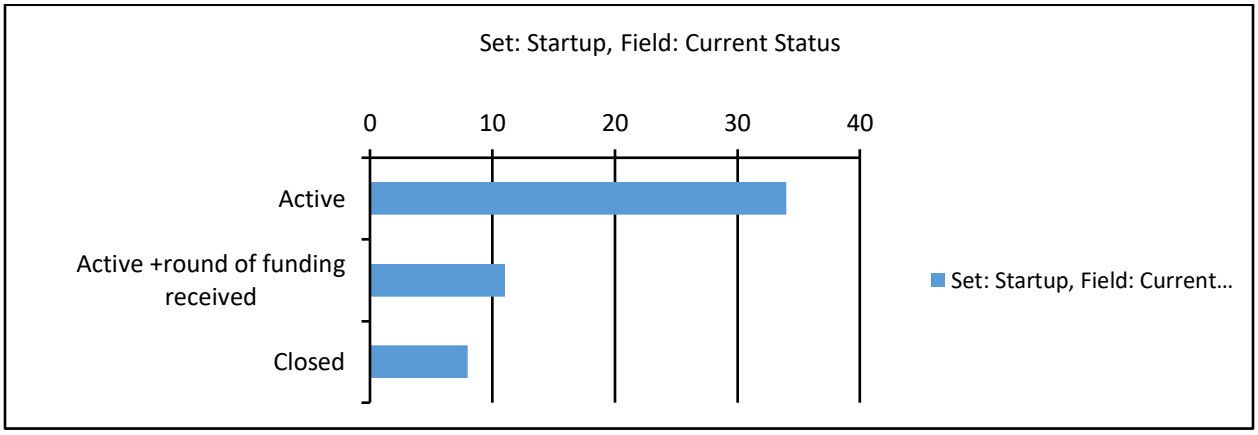
Appendix A Descriptor Ratio Charts

Set: Start-ups

Field: Year Founded



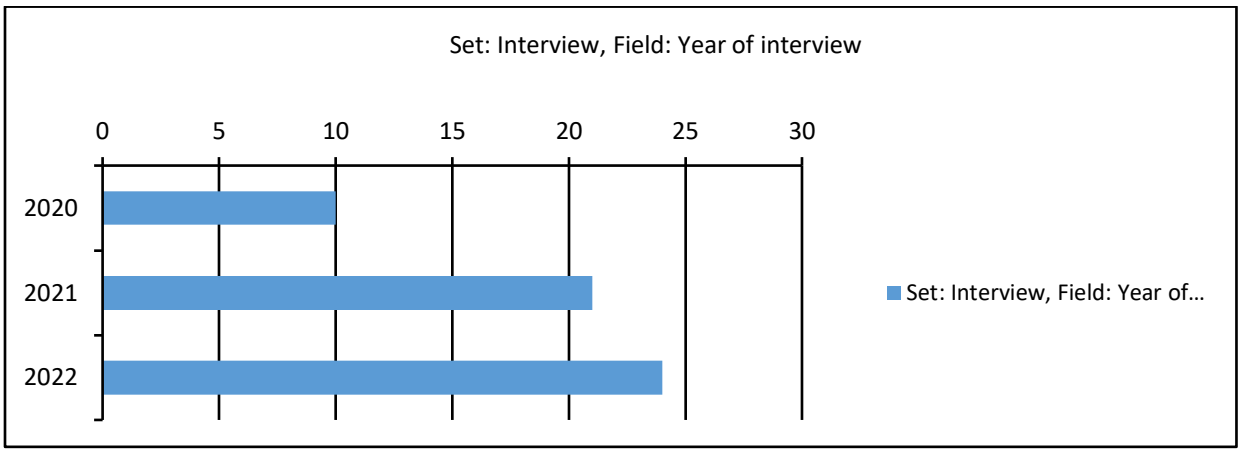
Field: Current Status



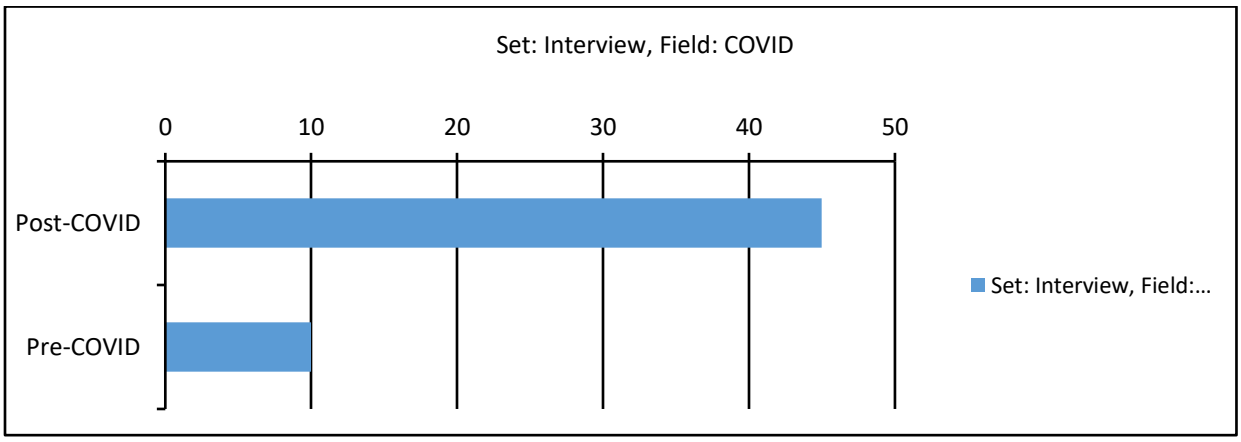
Appendix A Descriptor Ratio Charts

Set: Interviews

Field: Year of Interview



Field: COVID



Appendix B – List of Interviews

Name of Interview	Gender	Generation	Nationaliy	Year Founded	Rounds of Funding	Size of Startup	Year of Interview	COVID	Current Status
A.S.	Male	Gen X	Israeli	2019	Seed	Only Founders	2021	Post-COVID	Active
A.A.	Male	Millenial	Israeli	2016	E	20-100	2021	Post-COVID	Active
D.B-N.	Male	Gen X	Israeli	2018	IPO	10-20	2021	Post-COVID	Active
D.B	Male	Boomer	Israeli	2020	Bootstrap	2-10	2021	Post-COVID	Closed
E.R.	Male	Gen X	Israeli	2018	Seed	10-20	2021	Post-COVID	Active
I.H.	Male	Gen X	Israeli	2018	Revenue	2-10	2021	Post-COVID	Active
L.O.	Female	Gen X	Israeli	2019	Bootstrap	Only Founders	2021	Post-COVID	Active
M.P.	Male	Millenial	Israeli	2019	Bootstrap	Only Founders	2022	Post-COVID	Active
O.	Male	Millenial	Israeli	2018	Bootstrap	2-10	2022	Post-COVID	Active
Y.G.	Male	Gen X	Israeli	2019	C	2-10	2021	Post-COVID	Active
Y.S.	Male	Millenial	Israeli	2016	A	20-100	2021	Post-COVID	Active
Z.H	Male	Boomer	Israeli	2015	B	2-10	2021	Post-COVID	Active
A.D.	Male	Millenial	Hungarian	2016	C	20-100	2022	Post-COVID	Active
A.N	Male	Millenial	Hungarian	2012	C	20-100	2022	Post-COVID	Active
A.V.	Male	Millenial	Hungarian	2020	A	2-10	2022	Post-COVID	Active
A.M.	Female	Gen X	Hungarian	2017	A	2-10	2020	Pre-COVID	Closed
A.B.	Female	Gen Z	Hungarian	2020	Preseed	2-10	2022	Post-COVID	Active
A.O.	Female	Millenial	Hungarian	2021	Bootstrap	2-10	2022	Post-COVID	Active
B.F.	Male	Gen X	Hungarian	2019	A	2-10	2020	Pre-COVID	Active
B.B.	Male	Millenial	Hungarian	2019	D	10-20	2022	Post-COVID	Active
C.F.	Male	Gen X	Hungarian	2015	G	10-20	2022	Post-COVID	Active
CS.H.	Male	Gen X	Hungarian	2019	D	2-10	2022	Post-COVID	Active
E.D.	Female	Millenial	Hungarian	2018	Bootstrap	2-10	2020	Pre-COVID	Closed
E.P.	Female	Millenial	Hungarian	2020	Preseed	2-10	2022	Post-COVID	Active
E.O.	Male	Gen X	Hungarian	2014	A	20-100	2020	Pre-COVID	Active
E.SZ.	Male	Gen Z	Hungarian	2019	Preseed	10-20	2022	Post-COVID	Active
G.SZ.	Male	Millenial	Hungarian	2019	C	10-20	2022	Post-COVID	Active
G.B.	Male	Millenial	Hungarian	2019	A	10-20	2022	Post-COVID	Active
K.K.	Male	Gen X	Hungarian	2021	A	2-10	2022	Post-COVID	Active
L.A.	Male	Gen Z	Hungarian	2021	Grants	2-10	2022	Post-COVID	Active
L.L.	Female	Millenial	Hungarian	2018	Bootstrap	20-100	2022	Post-COVID	Active
M.K-K.	Male	Gen Z	Hungarian	2021	Preseed	Founders	2022	Post-COVID	Closed
P.P.	Male	Millenial	Hungarian	2019	Seed	2-10	2020	Pre-COVID	Active
P.D.	Male	Millenial	Hungarian	2013	Bootstrap	20-100	2020	Pre-COVID	Active
SZ.B.	Male	Millenial	Hungarian	2020	Friends and Family	Founders	2020	Pre-COVID	Closed
T.C.	Male	Gen X	Hungarian	2017	Bootstrap	Founders	2020	Pre-COVID	Active

ZS.B.	Male	Millenial	Hungarian	2016	Seed	2-10	2020	Pre-COVID	Active
ZS.R.	Male	Millenial	Hungarian	2016	B	20-100	2020	Pre-COVID	Active
A.H-Y.	Male	Millenial	Israeli	2016	Grants	2-10	2021	Post-COVID	Active
D.I	Male	Gen X	Israeli	2014	Bootstrap	10-20	2021	Post-COVID	Active
E.A.	Male	Millenial	Israeli	2019	Bootstrap	2-10	2021	Post-COVID	Active
E.M.	Male	Gen X	Israeli	2017	Preseed	2-10	2021	Post-COVID	Active
G.D.	Male	Millenial	Israeli	2019	Friends&F	Founders	2021	Post-COVID	Closed
G.B-Z.	Male	Boomer	Israeli	2006	IPO	100-and up	2021	Post-COVID	Active
G.SH.	Male	Gen X	Israeli	2012	C	20-100	2021	Post-COVID	Active
L.Y.	Male	Millenial	Israeli	2020	A	2-10	2021	Post-COVID	Active
M.K	Male	Millenial	Israeli	2021	Preseed	2-10	2021	Post-COVID	Closed
M.L.	Male	Millenial	Israeli	2020	Seed	2-10	2021	Post-COVID	Active
O.SH.	Male	Gen X	Israeli	2017	A	10-20	2021	Post-COVID	Active
R.C.	Male	Gen X	Israeli	2021	A	2-10	2022	Post-COVID	Active
S.K.	Male	Gen X	Israeli	2001	D	100-and up	2022	Post-COVID	Active
S.N.	Female	Millenial	Israeli	2020	Bootstrap	2-10	2021	Post-COVID	Closed
T.H.B.	Female	Gen X	Israeli	2020	Preseed	2-10	2022	Post-COVID	Active
TZ.K.	Male	Gen X	Israeli	2020	A	2-10	2021	Post-COVID	Active
Y.B.	Male	Millenial	Israeli	2021	Bootstrap	Founders	2022	Post-COVID	Active

Appendix C – Interview Questions

Questions

Company Overview

- ◊ What is the company's main activity?
- ◊ When was the company founded? How many rounds of funding has it received?
- ◊ How many employees currently work at your company?

Personal Background of Interviewee

- ◊ Could you say a few words about your job, your role, and how many people report to you?
- ◊ As a leader how is the communication of decisions conveyed to employees?
- ◊ What makes a good leader in your opinion?

Technology

- ◊ What type of technologies does your company use (not create)?
- ◊ What are the main considerations when adopting new technologies?
- ◊ Do you think the use of technology changes the way leadership is organized in the
- ◊ company?
- ◊ What would you say was the single most important technology acquisition that the
- ◊ company has made? Did it have an impact on your organization's culture? Who were the main decision makers?

Organizational Culture

- ◊ Who have been your main investors in recent years?
- ◊ How much influence do your investors have over decisions about technology acquisition?
- ◊ Is there a forum for giving feedback about these decisions within the company?
- ◊ Are they followed up with an action plan?
- ◊ Do you believe that a startup requires a higher level of autonomy for its employees? Could you give me an example of this in your own organization?
- ◊ What size of an investment can an individual department make in technologies without authorization?

National cultural environment

- ◊ What aspects of your country's culture may support or hamper the successful development of startups?
- ◊ Are there government grants or other support available to startups such as your company?
- ◊ How is having/working for a startup perceived in your country?

Miscellaneous

- ◊ Are there any other relevant points you would like to mention that haven't been covered?

Appendix D – Coding Frame

Organizational Culture

Leadership
Balance between individual and organization
Believe
Charismatic
Clearly communicate expectations
Collective wisdom
Compromise
Confident
Creates consensus
Creative
Desire to lead
Experienced
Expert
Feedback
Flexible
Focus
Freedom
Friendly
Hardworking
Inspire
Integrity
Lead by example
Listen
Motivate
Never give up
People skills
Serve
Strategy
Thoughtful
Transparency
Trust
Values
Vision

Decision makers (technology acquisition)
Board
CEO
CFO
Chief Partnership Officer
COO
CTO
Founders
Individual Departments
Management Team
Users (employees)
VP of Operations

Communication of decisions
Bi-weekly meeting
Cloud-sharing
Daily
Direct reports
Email
Informal
Leadership meetings

Feedback forum
At bi-weekly meeting
At monthly meeting
At weekly meeting
Email
Group chat
WhatsApp group
In person
Informal
Internal testing
Management tool

Technology

Metrics for technology adoption
Accessibility
Added value
Ease of use
Low latency
Meets specific need
Price
Price-value ratio
Relevance (timing)

Impact of technology on leadership
Accessibility
Better collaborations
Changes communication
Clear roles
Clear vision
Conveys leadership
Depends on techology acceptance of employees
Efficient communication
Efficient task management
Flexible work locations
Increased productivity
It can but shouldn't
It's the foundation
Lack of informal interactions
More difficult to motivate
More efficient oversight
More relaxed & friendly
More structure
No effect
Only above a certain size
Tool for successful decision making
Transparency

Impact of techn on organizational culture
Better task management
Clear reporting
Connection
Decreased social interactions
Ease of communication
Full alignment
Impact on workforce (HR)
Improved agility
Increased trust
Less administration
Maturity of organization
More autonomy for employees
More collaborative
More organized
More organized communication
More time for informal interaction
No impact
Prioritization
Reliability
Relieves frustration
Separates work-life and personal-life
Simplified processes
Stronger organizational relationships
Transparency

Management tools
Airtable
Amazon Web Services
Asana
Bob

National cultural environment

Cultural aspect supporting startups
Ability to criticize management
Accountability
Agile
Boldness
Competitive
Creativity
Fast thinking
Flexible
Freedom
Hard-working
Humility
Improvisation
Independence
Informal
Israeli Defense Forces
Lack of natural resources
Less hierarchy
Loyalty
Open to learn
Open-minded
Perfectionism
Questioning
Reliable
Speaking openly
Strong Network
Talent allocation
Tenacious
Tikkun Olam
Trust

Cultural aspect hampering startups
Bad communication
Bureaucracy
Closed mindedness
Comfortable
Fear of failure
Lack of discipline
Lack of entrepreneurial education/mindset
Lack of focus
Lack of trust
Language barrier
Modesty
No accountability
No attention to detail
No long term planning
Not competitive
Not innovative
Over-confidence
Overly reassured
Pessimistic
Pressure to have family
Risk averseness
Speed
Turbulant environment
Unable to change direction

Society's view of startups
Positive
Cool
Impressed
Risky

No forum

Action plan

Yes
No

Autonomy of employees

Depends on employee/seniority
Depends on stage of startup
Equally important as in large organization
Important
More important than in large organization
Yes, if there's good leadership
Depends on employee/seniority
Depends on stage of startup
Equally important as in large organization
Important
More important than in large organization
Yes, if there's good leadership

Calendly
Clickup
Confluence
Discord
Dropbox
Evernote
Firebase Cloud
GitHub
Google Calendar
Google Cloud
Google Drive
Google Forms
Google Meet
Google Slack
Google Suite
Hubspot
Jira
Jitsi
Lucidchart
Marketo
Microsoft Azure
Microsoft Office
Microsoft Teams
Miro
Monday
Notion
Pipedrive
Priority
Redbooth
Redmine
Salesforce
SharePoint
Skype
Snagit
Toggle
Trello
WhatsApp
Zoom

Most important technology

Airtable
Amazon Web Services
API Integration
Assana
Confluence
CRM
Discord
Email
ERP
Firebase Cloud
Google Meet
Google Slack
Google Suite
Hardware
HubSpot
Jira
Jitsi
LinkedIn
Microsoft Azure
Monday.com
None
Notion
Order manager
Priority
Redbooth
Redmine
Salesforce
Sketch
SolidWorks
Technology that connects people
Trello

Unphased
Varies

Government support

No
Yes

Grants
Chief Scientist's Organization
Horizon
Israeli American Bilateral Fund
Israeli Innovation Authority
Lots of options

Very specific tool
Video conference tools
Microsoft Teams
Zoom

Size of investment/department in tech