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Cansen Başaran-Symes
President, TÜSİAD

Digitalization changes almost everything regarding a corporation's business processes, from production methods to customer expectations, and distribution channels. Thanks to digitalization, corporations achieve substantial gains in many fields, from the production and processing of information to decision-making processes and access to new markets. Such advantages play a crucial part in improving the corporation's performance, achievement of corporation objectives, and least but certainly not least, increasing its competitive power. All these developments lead industry to a new stage as well.

That is why digital economy is one of the major issues on the work agenda of TÜSİAD. The activities under the umbrella of TÜSİAD cover industry 4.0 which is directly or indirectly associated with digital economy, transition into an information society, and STEM (Science, Technology, Engineering, Mathematics) education.

Through studies on developments in digital economy, which have a significant impact on the business world, we intend to support the use of new technologies and competitive power of corporations, as well as increase our competencies regarding technology and innovation.

This study carried out through a partnership of TÜSİAD, Samsung Electronics, Deloitte, and GfK reviews the digital transformation process through the eyes of CEOs of the leading corporations of Turkey. We attach major importance to the perspectives of executives, as we believe that the issue should always be on the agenda of the senior management of the corporations, if sustainable implementation of digital strategies at a corporate scale is to be achieved. Today, the executives' ability to manage change and transform their corporations at a pace faster than the change in customer expectations is more important than ever.

I hope that the findings presented in this study will contribute to the process of digital transformation of organizations.

Yours sincerely,

Cansen Başaran-Symes
President, TÜSİAD

SAMSUNG

Tansu Yeğen Vice President, Samsung Electronics Turkey

As one of the pioneering companies which lead digital transformation worldwide, we change how organizations do business, and we increase their efficiency levels through our products and solutions. We continue to make most substantial contributions to digital transformation through our investments and efforts on mobile technologies, internet of things, virtual reality, and artificial intelligence technologies.

Through our global program, we support new initiatives which are key drivers behind digital transformation in Turkey, and we help disseminate the added value generated to the wider world. Our studies and reports help us understand global and local dynamics, as well as share our accumulated knowledge to shed light on the market.

With the first **"CEO Perspective on Digital Transformation in Turkey"** study carried out this year in collaboration with TÜSİAD, Samsung Electronics, Deloitte, and GfK, we had face-to-face interviews with senior executives of 58 leading corporations operating in Turkey in various sectors.

With this study, we aimed to understand digital transformation from the perspectives of CEOs, and to share the findings with you. When we took on this quest, we intended to understand;

- What digital transformation means for CEOs,
- In which fields digital investments are made,
- Who takes part in the digital transformation of organizations, and which profiles are bound to take the center stage,
- How the process of change is managed; the stage it is in and the obstacles identified towards the path to change,
- Which opportunities are associated with digital transformation.

The conclusions of the study reveal the areas where CEOs in Turkey agree and differ in terms of digital transformation.

We are excited and exhilarated to be with the corporations and their senior executives which believe in digital transformation during this journey. We would like to take this opportunity to thank all senior executives which took part in our study, for sharing their views, as well as their contributions to our efforts to present the Digital Transformation agenda of Turkey.

I hope that you will enjoy reading the study **"CEO Perspective on Digital Transformation in Turkey"**, which we intend to repeat in subsequent years.

Yours sincerely,

Tansu Yeğen
Vice President, Samsung Electronics Turkey

Deloitte.

Tolga Yaveroğlu
Consulting Services
Leader, Deloitte Turkey

This study we undertook in cooperation with TÜSİAD, Samsung Electronics and GfK provided us the opportunity to take a look at digital transformation, which we at Deloitte believe to have an impact and pace much higher than we perceive, in light of the views of leading CEOs of Turkey, and global data.

Digital transformation necessitates a rethinking on part of the corporations of their strategies, operations, and human resources in a revolutionizing perspective, using the capabilities offered by the new and rapid-growing technology.

That is why leaders today;

- Rearrange their ecosystems and organizations,
- Redefine their business models, products, services, and experience offered to their customers,
- Rebuild the toolkit they use to establish a more effective relationship with their stakeholders as well as to develop innovative capabilities.

We observed six common characteristics of corporations based on our experience with digitally innovative clients: These corporations build innovative teams operating with a design-focused perspective, develop competencies, and come up with ideas for disruptive development. They have an understanding of digitalization extending way beyond an outlook of technology, have digitally reviewed the whole organization from supply to delivery, and have assessed the benefits of digitalization in all these processes. They turn into very strong players in the ecosystem. These corporations also have a disruptive mode of thinking. They have rapid decision-making and execution skills. Finally, all these corporations operate with a focus on the customer.

Corporations which intend to achieve digital maturation come to realize their disruptive edge once they establish these fundamentals. It is now recognized in global markets that digital technologies do not solely bring about digital transformation, rather this process can be successful only through the development of new business models by the employees who combine creative use of digital technologies and correct culture, objectives, infrastructure, and processes. Such developments which have been long in the making in these markets accompany a certain level of market maturity as well. Taking into account the percentage of turnover from digital channels as well as of investments into digital, combined with a clear and sensible digital strategy, appointment of CDOs, and assessments of the digital maturity level, it is safe to say that Turkey is still in the early stages of the process, but will have a rapid development from the CEO perspective.

Yours sincerely,

Tolga Yaveroğlu
Consulting Services Leader, Deloitte Turkey

Fulya Durmuş General Manager, Consumer Experiences GfK Turkey

Digital transformation's impact on the consumer in particular are surely on our agenda, as it is on the agenda of the marketing world. In this context, we investigate and assess market dynamics, the needs of consumers, areas of opportunity, and relevant tendencies. However, an investigation into the exact level of adaptation by leading corporations of Turkey in terms of the cycle of digitalization, as well as their perspectives, investments, and expectations in the future was only made possible through this study implemented through a cooperation between TÜSİAD, Samsung Electronics, Deloitte, and GfK. Our intent was to provide some clarity to the state of Corporate Digital Transformation in Turkey. Thanks to this cooperation, we had face-to-face conversations with CEOs, and derived numerous insights to shed light on our endeavors.

A glance at all the studies on digital transformation we have been recently undergoing, we can note that some of the study findings of **"CEO Perspective on Digital Transformation in Turkey"** are concerning. Given the facts that 94% of the approximately 13 million mobile phones sold in the last year are smart phones, that more than half of online users state that "they can purchase all the products and services they need online", and that online payments are on a rapid rise, while mobile payments are going through the "calm before the storm", we believe that every company in Turkey should have a clear digitalization strategy. Taking into account the significant demand for research from various industries in the past year for Mobile Payments, Smart Homes, Internet of Things and Internet Consumption Habits, we are excited for the opportunity to assess and interpret how digital transformation in Turkey will evolve in upcoming years.

Fulya Durmuş
General Manager, Consumer Experiences, GfK Turkey

Research Profile

Within the scope of the study **"CEO Perspective on Digital Transformation in Turkey"**, face to face interviews were carried out with senior executives from 58 corporations during 29 September, 2015 - 15 January, 2016.

Industries taking part in the study

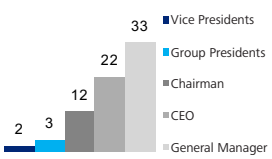
Banking	Holding	Retail	Fast Moving Consumer Goods	Telecommunications	Durable Consumer Goods
11	11	6	4	3	3

Insurance	Furniture Manufacturing	Construction	Packaging	Other
2	2	2	2	12

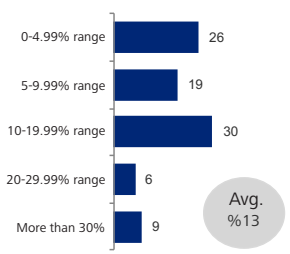
Corporate profile

Participants	Participants' average age	Average years of operation the corporation had	Average number of employees	Average turnover of the corporation	Total average shareholders' equity in the finance sector
16% Women 84% Men	47	35 years	10000+	$ 2,2 billion	$ 6,3 billion

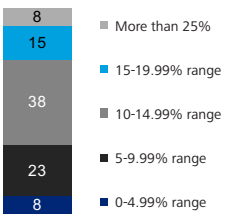
Position



Net profits before tax



Level of productivity in finance



Executive Summary

The first **"CEO Perspective on Digital Transformation in Turkey"** study carried out in collaboration between TÜSİAD, Samsung Electronics, Deloitte, and GfK intends to understand how senior executives of 58 leading corporations operating in various industries in Turkey perceive digital transformation in their corporations, what they focus on, and how they manage the process of change.

We define digital transformation as the process of transition to new modes of operation and thinking to create value for the customers and the ecosystem, to develop business processes, and to enhance competencies of the whole corporation by using digital, social, mobile, and new technologies. Digital transformation refers to the exposure of consumers, customers, corporations, value chains, sectors, and even the whole ecosystem we operate in to a level of change which is uncomparable to the traditional pace of change. Such transformation presents itself in the corporations'

- strategies,
- business models,
- products and services,
- customer experiences,
- processes,
- organizational structures,
- decision-making mechanisms,
- technological infrastructures they employ,
- and the alliances they engage in.

The study presents the following key findings:

- There is a robust level of correlation between digital maturity and digital strategy in the corporations. In this context, one can safely say that corporations operating in Turkey are well aware of the importance of a clear and comprehensible digital strategy. Indeed, the participants note "a clear and comprehensible strategy" as the single most important factor regarding the success of corporate digital transformation, and refer to the "lack of strategy" as the most important obstacle to digital maturation.
- Digital transformation is supported by senior executives in Turkey. 90% of the participants stated that the process of digital transformation is led by senior executives. Approximately 40% of the corporations noted that technology units led the process, while 20% mentioned that they plan to sustain leadership by these units in the future as well.
- However, in Turkey, digital transformation has yet to be taken into consideration as a complete picture. It is rather executed through initiatives developed and overseen autonomously within specific organizational units (silos). The corporations invest in individual technologies with an operational focus.
- Given the fact that demand from the consumers create different expectations in different sectors, the benefits expected out of digital technologies vary from industry to industry. As B2C companies come into direct contact with end users, their investment areas present a picture much different from those of the B2B companies.
- Telecommunications and Financial Services do not confine themselves to merely prioritizing digitalization, but also allocate a significant portion of their investments to this end.

Digital transformation, regardless of the industry, stands out as an issue which senior executives in Turkey exhibit a high level of awareness. This level of ownership proves that, we will be going through a real period of digital transformation in the corporate life.

Taking into account the turnover from digital channels, digital strategies, existence of a C-level position managing digital transformation, level of digital maturity, and digital investments, which are the significant indicators of digital transformation, we believe that the ensuing days will bring exciting developments for Turkish economy as well as the Turkish business world.

Indicators of digital transformation

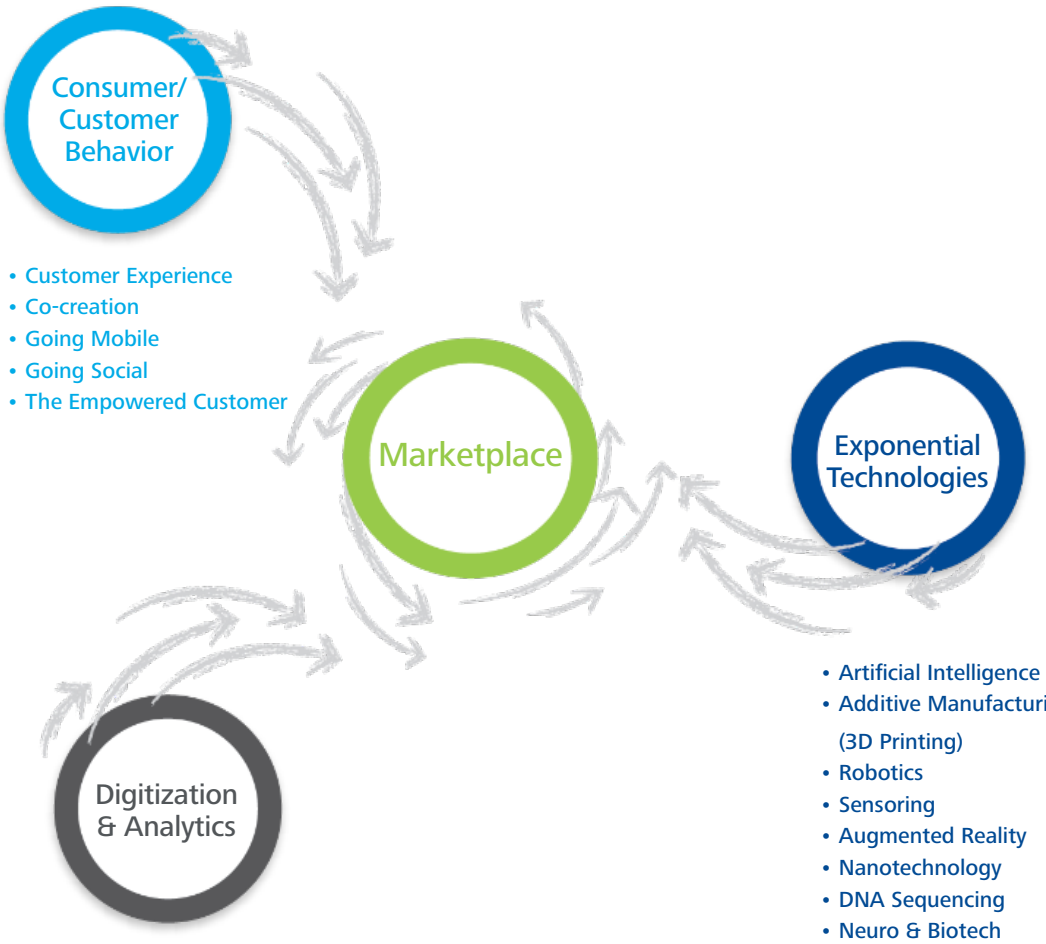
Percentage of Turnover from Digital Channels	Clear Digital Strategy	Existence of a C-Level Executive to Lead Digital Transformation	Level of Maturity	Percentage of Digital Investments
11%	66%	38%	Beginner 7% Developing 59% Mature 34%	27%

- The Percentage of Turnover from Digital Channels indicates the portion of the corporations' turnover derived from digital channels such as e-commerce and mobile apps. In case of banks, it refers to the percentage of deposits and loans received through digital channels. The participants' average rate of turnover is 11%.
- Clear Digital Strategy refers to the clarity and comprehensibility of the digital strategy. 66% of the participants stated that they definitely agree/agree with the statement "digital strategy should be clear and comprehensible".
- The Existence of a C-Level Executive to Lead Digital Transformation refers to the presence of an executive profile that matches the definition of CDO. 38% of the participants reported the existence of such an executive.
- Maturity Level refers to the perceived level of digital maturity. When asked what grade they would assign to their corporation on a scale of 1-10, in comparison to an ideal organization which completed transformation regarding digital technologies and competencies, 7% of C-level executives ranked their corporation as a beginner (1-3), while 59% as a developing (4-6), while 34% as a mature (7-10) organization.
- Percentage of Digital Investments reflects the percentage of the corporations' investments into digital technologies, out of all its investments. On average, the participants 'average digital investment level is 27%.

What does digital transformation mean for the corporations?

Today, corporations question their business models, products and services, customer experience, and their way of doing business, in the light of changing consumer and customer behavior, pace of technological development, and increasing level of digitalization. They embrace change to become the game-changing or ground-breaking corporations through such interaction, and they also change the ecosystem they operate in. The footsteps of digital transformation are heard in all sectors, regardless of the scale and level of maturity. And this is just the beginning...

Factors triggering digital transformation



Source: Deloitte

Today's digital world provides us a level and speed of access to information, products, and services through numerous channels, at levels we could not even dream in recent past. Corporations feel intense pressure to provide a continuous brand experience by offering a holistic approach to their brand image on numerous channels, tools, and contact points the customers utilize. Furthermore, data which was not possible to gather and process earlier, can now be processed through analytics tools which are easily accessible to the corporations. The corporations seek to understand the large volumes of data about their business and customers, with an aim to better understand their operations as well as the market, and gain competitive edge. The current state indicates that the digital strategies of the corporations are significant steps towards creating corporations capable of better decision-making.

In contrast to the prevailing perspective of a few years earlier, there is a consensus that digital transformation is not just about adaptation of new technologies, opening up a new sales channel, or engaging in social media interaction. Combination of tools such as smartphones and tablets which became indispensable parts of our lives, with trends including social media, mobile apps, cloud apps, and enhanced analytical capabilities grant consumers access to a virtually unlimited volume of information they can use when carrying out their daily purchase activities. At this stage, digital transformation means much more than merely building a new web site or creating an e-commerce platform. Digital transformation refers to the engraving of disruptive technologies into the DNA of the corporations, and presents itself as a concept which entails enhancement of the experience of all, from consumers to employees, from suppliers to customers.

What digital transformation entails:

Digital transformation necessitates a rethinking on part of the corporations, of their strategies, operations, and human resources in a revolutionizing perspective, using the capabilities offered by new and rapid-growing technology. That is why today's leaders;

- Rearrange their ecosystems and organizations,
- Redefine their business models, products, services, and experience offered to their customers,
- Rebuild the toolkit they use to establish a more effective relationship with their stakeholders (customers, suppliers, business partners and employees) and to develop innovative capabilities.

Through cooperation between TÜSİAD, Samsung Electronics, Deloitte, and GfK, we carried out a survey to understand how corporations position themselves in this period of digital transformation, and what they think of the process. The survey provided us the means to understand how corporations in Turkey differ from and what they share with each other as well as with corporations abroad.

The sound of footsteps of digital transformation is increasing in Turkey

The 9 findings established through the study suggest that digital transformation is under way, its footsteps are really audible, and it is bound to get only faster. The major elements of the Imagine the Future, Implement the Future, and Operate the Future stages of the digital transformation cycle in Turkey are as follows:

Digital Transformation Iterative Cycle

Imagine	Deliver	Run
SENSE In order to look forward we must explore broadly. Through in-depth discovery, we expose customer needs and identify critical touch-points and experiences. This process informs truly customer-centric design and technology.	**VALIDATE** We validate our assumption to ensure success. Ideas, designs, and technologies are tested against customer and stakeholder expectations, and mapped to capabilities to result in a clear set of commitments going forward.	**SCALE** We build, launch and deliver the value proposition. Plans to build and deliver the value proposition are executed and the business, products and services come to life. Customer and business operations are enabled and taken to market.
FRAME We frame our understanding to put opportunities in context. A strategically appropriate response to business conditions and customer needs shapes next steps and prioritizes commitments.	**DEFINE** We define the requirements of a successful engagement according to targeted outcomes. Using an agile methodology where appropriate, we establish a plan of execution, set milestones, scope and commit resources to meet agreed-upon expectations.	**OPERATE** We evaluate and improve the effectiveness of operational pillars. Ongoing focus on delivery excellence, process optimization, and adapting the execution capabilities enables clients run and lead an effective organization.

Source: Deloitte

9 key findings reached through the study

Imagine the future

1. Clarity and comprehensibility of digital strategies are highly correlated with the level of digital maturity and the industry the corporation operates in.

2. The factors driving digital transformation include efficiency increase and the ability to quickly respond to the clients' needs. Differentiation, innovation and the development of new sources of revenue are not yet considered among the factors encouraging transformation.

3. Macroeconomic factors, talent, and digital technologies are among the most important external developments.

Implement

4. Digital technologies are considered to produce the utmost value in the fields of operational efficiency, data and data analytics.

5. In terms of investments into digital, telecommunications, insurance and banking rank in the top three. Retail also gets a honorable mention among other sectors.

6. Contacts with end-users make investment with focus of B2C companies different than those of B2B companies.

Operate

7. Corporations in other industries or start-ups are expected to provide the highest sources of competition.

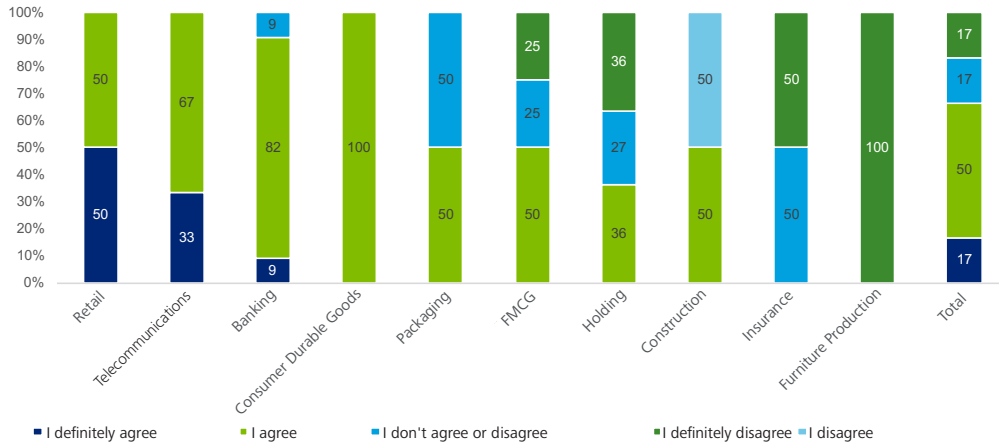
8. While the CIO/CTO (Chief Information Officer / Chief Technology Officer) position is still valid in terms of digital transformation, new job descriptions are also necessitated. C level posts responsible with digital transformation (Chief Digital Officer - CDO) are gaining rapid traction. CMOs (Chief Marketing Officers) are also expected to play a role in digital transformation.

9. Lack of competency and strategy, security problems and lack of association with robust commercial results rank top among the issues which slow down digital transformation at corporations.

1 Clarity and comprehensibility of digital strategies are highly correlated with the level of digital maturity and the industry the corporation operates in.

The results of the study strongly suggest that corporations in Turkey are aware of the importance of having a clear and comprehensible digital strategy. The participants stated that the most important element defining the success of digital transformation is the clarity and comprehensibility of the strategy. Two out of every three corporations which took part in the study believe that they have a clear and comprehensible digital strategy, while one out of every five corporations note that they lack one. The companies in Banking, Telecommunications, Retail, and Consumer Durables have covered some distance in the development of digital strategies, and making them comprehensible. On the other hand, in order to assess the digital maturity levels of the corporations, we tried to measure where C-level executives consider their corporation compared to an ideal organization which completed the transformation through digital technologies and competencies on a scale of 1-10. Their views were classified in three major categories: beginner (1-3), developing (4-6), mature (7-10). Although significant differences between individual sectors are revealed based on C level executive assessments of digital maturity,in general, 34% of the corporations consider themselves mature, 59% developing, and 7% beginner.

Percentage of clarity and comprehensibility of the organization's digital strategy per sector

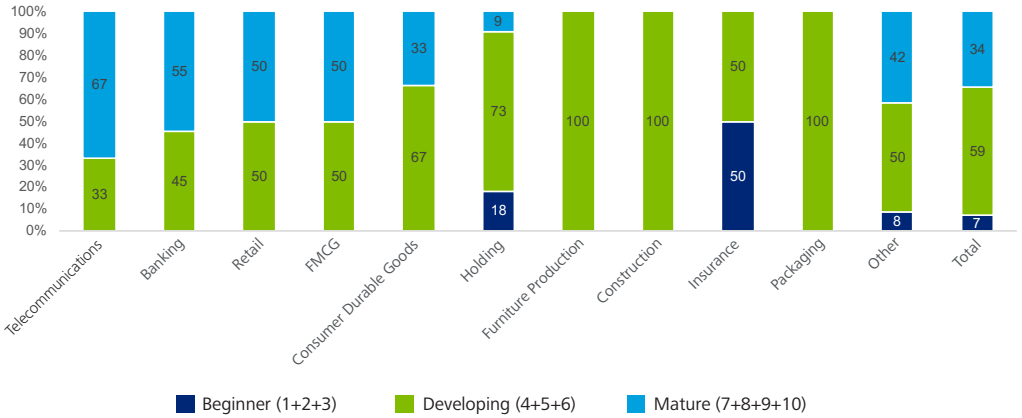


Other: Airport Operations, Energy, Textile, Logistics, Iron and Steel, Computer Systems, Information and Communication Technologies, Real Estate, Automotive, Press/ Media, General Industry, and Trade

Question: Could you please state your level of agreement with the statement I will read now? "The digital strategy of our organization is clear and comprehensible." Single answer

Base: 58

Percentage of digital maturity levels across sectors

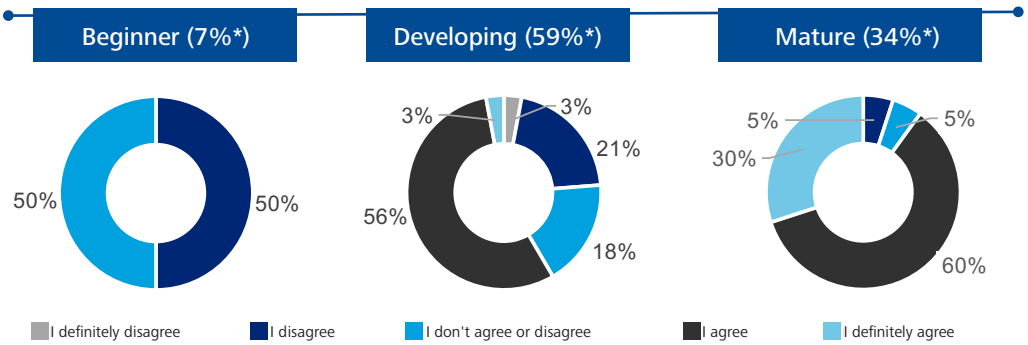


Question: Could you assign a level in the scale from 1 to 10, to describe the digital maturity level of your corporation?

Base: 58

The "Strategy, not Technology, Drives Digital Transformation" study carried out in 2015 through the partnership of Deloitte University Press and MIT Sloan Management Review revealed that just 15% of the companies which are in the earlier stages of digital maturity report the existence of a clear and comprehensible digital strategy. On the other hand, this figure for companies with a higher level of digital maturity approaches to 80%. A glance at corporations in Turkey reveals that no corporation in the earlier stages of digital maturity report the definition of a clear and comprehensible digital strategy. On the other hand, 90% of the corporations with a higher level of maturity report that a clear and comprehensible digital strategy is defined and communicated within the organization. There is a significant level of correlation between digital maturity and digital strategy.

Relationship between a clear and comprehensible digital strategy and level of digital maturity



Question: Could you please state your level of agreement with the statement I will read now? "The digital strategy of our organization is clear and comprehensible." Single response
Base: 58
* Share of the survey participants based on their level of digital maturity

A clear digital strategy is a must for agility for corporations in a digital world dominated by the idea of "think big, start small, scale quickly".

When asked the best companies to leverage digital technologies in Turkey, the survey participants noted the following ten corporations (in alphabetical order): Akbank, Boyner, Garanti Bankası, Hepsiburada, Migros, Sahibinden.com, Turkcell, Türk Hava Yolları, Vodafone, Yemek Sepeti.

2

The factors driving digital transformation include efficiency increase and the ability to quickly respond to the clients' needs. Differentiation, innovation and the development of new sources of revenue are not yet considered among the factors encouraging transformation.

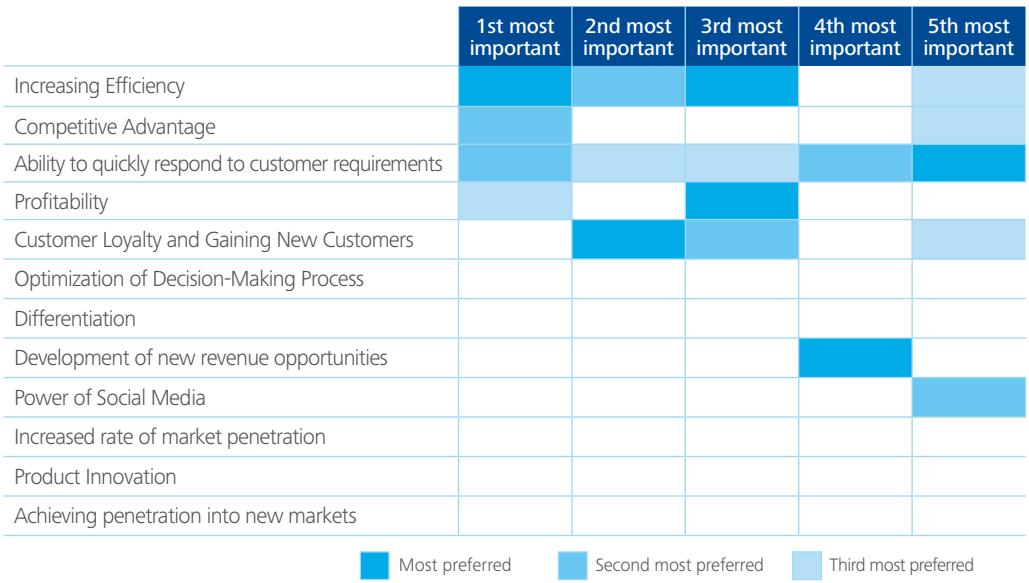
A glance at the factors encouraging digital transformation, increasing efficiency (17%), and the ability to respond quickly to customer requirements (16%) stand out among other options.

The ranking of the preferences, on the other hand, note increased efficiency (21%), competitive advantage (19%), ability to respond quickly to customer requirements (19%), and profitability (12%) as the top four options.

On the other hand, differentiation, product innovation, development of new revenue opportunities, increased penetration to new markets, and increasing the pace of market penetration, which are often used as the the most striking cases of digital transformation, are nowhere near the top of the list of reasons encouraging digital transformation.

Similarly, the survey by Samsung Electronics and GfK with small and medium scale companies in 2014 had revealed that cost control (66%), customer-focused approach (49%), and global economy (40%) rank top among the issues to become more important in the business world of the future.

Most important factors encouraging corporations to digital transformation



Question: Could you please choose top 5 reasons encouraging digital transformation? Could you rank top 5 reasons among themselves? (1- Most important, 5- Least important.) Ordering, single response
Base: 58
Note: Preferences which got the same score are marked with the same color.

CEO Perspective*

"The companies that achieved digital transformation will become agile companies which stand out in the crowd."

Erkan Akdemir
CEO, Turk Telekom Consumer Business Unit

"An inevitable field which requires us to position ourselves correctly."

Pelin Akın
Member of the Board of Directors, Akfen Holding A.Ş.

"Digital transformation would simplify and accelerate the life of corporations."

Uğur Bozluolçay
Chairman of the Executive Committee, Bozlu Holding A.Ş.

"As the road towards maximization of profits via a perfect customer experience runs through adoption of digital perspectives, digital transformation is my number one priority."

Meral Eredenk Kurdaş
General Manager, AvivaSA Emeklilik ve Hayat A.Ş.

"We are going through such a transformation. Nothing will ever be the same again. Digital transformation is the force behind it."

Galya Frayman Molinas
President, Coca Cola Meşrubat Pazarlama Danışmanlık Sanayi ve Tic. A.Ş.

"Digital transformation is crucial for us to stay closer to our customer."

Ronald Grünberg
Member of the Board of Directors, BSH Ev Aletleri Sanayi ve Ticaret A.Ş.

"Continuous customer experience is the indispensable strategy of corporations, and it can be possible only through digital transformation."

Bülent Gürcan
General Manager, Teknosa İç ve Dış Ticaret A.Ş.

"Digital transformation will create a significant opportunity and shape the market potential of the companies in the next ten years. Digital transformation in the next five years should be monitored, and business models should be investigated."

Ergun Hepvar
General Manager, Olmuksan International Paper Ambalaj San. ve Tic. A.Ş.

"Digitally change, or perish."

Osman Okyay
President, Kale Group of Companies

"Instead of digitalizing something, we are striving to embed the relevant culture. Digital processes are musts for the companies."

Ahmet Özer
Member of the Board of Directors, Hürriyet Gazetecilik ve Matbaacılık A.Ş.

"Compared with today, an extreme acceleration will render it an inseparable part of our main line of business."

Tamer Saka (Ph.D.) Chairman of the Executive Committee, Kibar Holding A.Ş.

"First mobile, just digital; all for the customers."

Kaan Terzioğlu
CEO, Turkcell İletişim Hizmetleri A.Ş.

"Digital transformation is the ability to offer most competitive new experiences, products and services to customers, through integration of new technologies to the processes of the firms, from marketing to human resources, sales to accounting, procurement to logistics."

Gökhan Tezel
General Manager, Aygaz A.Ş.

"Digital transformation is similar to moving up to a higher class in education system."

Cem Tüfekçi
(Executive) Member of the Board of Directors, Traçim Çimento San. ve Tic. A.Ş.

"Digital will become the sole channel to connect live and/or 'electrical devices' to each other."

Mustafa Ünal
Chairman of the Board of Directors Verusa Holding A.Ş.

"An unavoidable change"

Şükrü Ünlütürk
Chairman of the Board of Directors, Sun Tekstil San. ve Tic. A.Ş.

*Ordered alphabetically according to last names.

3 Macroeconomic factors, talent, and digital technologies are among the most important external developments.

Macroeconomic factors (28%) and qualified/capable human resources (19%) are noted as the top two factors among the external developments, while digital technologies are ranked a close third (16%). Technologies such as nanotechnology, robots, and energy, however, have yet to reach top spots.

These technologies, however, appear at the top of the list in specific sectors such as telecommunications and consumer durables.

Regulatory concerns are also named among external factors the corporations deem significant.

Ability to find qualified/capable human resources at all levels arise among key external developments for corporations. These rank top among the activities they need to focus in the digitalization process.

Leading external developments for the corporations

	Most important	Important	Least important
Macroeconomic factors			
Qualified/Capable human resources			
Regulatory concerns			
Digital technologies			
Socio-economic factors			
Technologies - nanotechnology, robotics, energy			
Globalization			
Geopolitical factors			
Nothing else			

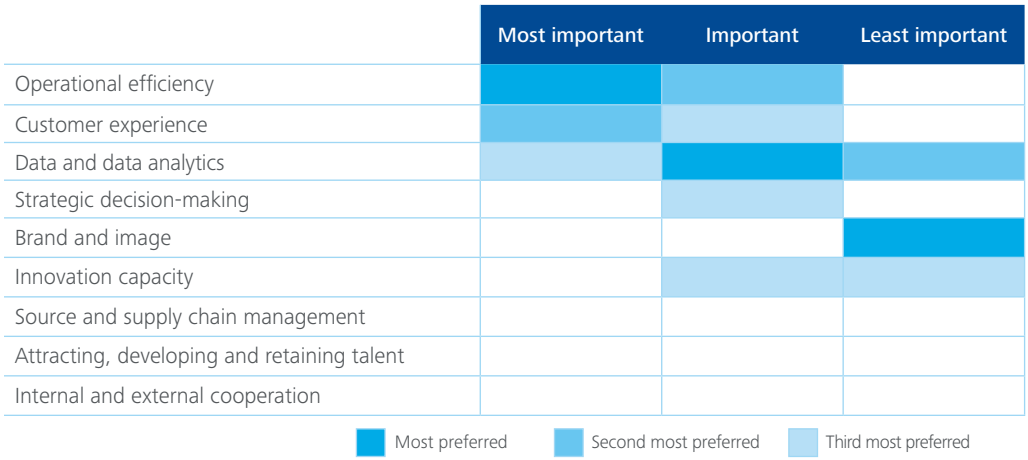
Most preferred Second most preferred Third most preferred

Question: Which external developments mentioned above are important for you? Could you rank top 3 important developments among themselves? (1- Most important, 3- Least important.) Ordering, single response
Base: 58
Note: Preferences which got the same score are marked with the same color.

4 Digital technologies are considered to produce the utmost value in the fields of operational efficiency, data and data analytics.

The companies taking part in the study are observed to rank the areas where digital technologies create value as follows: The most preferred areas by a wide margin are operational efficiency (22%) and data and data analytics (22%), while customer experience (16%) and strategic decision-making (12%) are also among the areas of significance.

The areas where digital technologies create the most value



Question: Could you please state the extent of value digital technologies create in the following fields, for your organization? Could you rank top 3 important developments among themselves? (1- Most important, 3- Least important.) Please attach a single score to each statement.
Base: 58
Note: Preferences which got the same score are marked with the same color.

On the other hand, innovation capacity, one of the most important value-generating aspects of digital transformation according to the study titled "Strategy, not Technology, Drives Digital Transformation" carried out in 2015 jointly by Deloitte University Press and MIT Sloan Management Review, is not yet prioritized as a field of generating value in Turkey.

A glance at the areas of priority reveals that the perspective is one of an incremental improvement, whereas no value generation is yet envisaged for another aspect of digitalization, disruptive change.

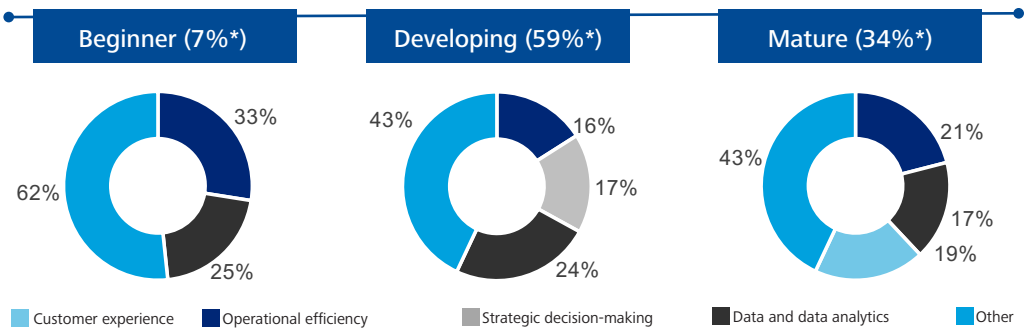
Achieving technological developments through more efficient use of existing resources and channels is considered incremental improvement. Incremental improvement entails not only changes implemented to increase customer loyalty in existing channels and gaining new customers through existing channels, but also actions taken to achieve increased efficiency in the management of existing resources and processes. The basic idea behind incremental improvement is to improve existing ways of doing business, and to increase efficiency. On the other hand, steps towards achieving product innovation, developing new revenue capabilities, and differentiation from the competition are considered disruptive due to their inherent focus on increasing the capability for innovation. Disruptive change is distinct from incremental improvement due to its disruptive effect on existing ways of doing business, and its impact of forced change on such ways of doing business. Given the fact that digitalization is sought after mostly due to reasons to provide incremental change, potential threats disruptive technologies may pose in the long term constitute major risks.

Global trends reveal that digitalization's ability to create value in terms of operational efficiency and customer experiences is a major objective of digital strategy. A glance at Turkey, on the other hand, reveals significant differences between sectors, and between corporations with different target audiences and maturation levels.

According to the conclusions (global survey results) of the study titled "Strategy, not Technology, Drives Digital Transformation" carried out in 2015 jointly by Deloitte University Press and MIT Sloan Management Review, a frequent problem reveals itself among companies which are in the earlier stages of digital maturation, as a focus on technology rather than strategy. When we compare the reasons encouraging corporations in Turkey towards digital transformation in two groups –reasons pushing towards disruptive change and towards incremental change–, we realize that corporations with a lower level of maturity enjoy incremental improvements more.

As the global results reveal, the results in Turkey also indicate a frequent problem of focusing on technology rather than on strategy, on part of the corporations in earlier stages of maturity. Even though operational efficiency and data analytics are named among the fields where corporations with a low level of maturity enjoy benefits, other fields also enter into the picture as the level of maturity grows. In mature companies, customer experiences become more important than data and data analytics.

The areas where digital technologies create the most value



Definition of the 'Other' for each level
Beginner: Strategic decision-making, customer experience, brand and image, innovation capacity, resource and supply chain management
Developing: Attracting, developing, and retaining talent, customer experience, brand and image, innovation capacity, resource and supply chain management
Mature: Attracting, developing, and retaining talent, strategic decision-making, brand and image, innovation capacity, resource and supply chain management

Question: Could you please state the extent of value digital technologies create in the following fields, for your organization? Could you rank top 3 important developments among themselves?
(1- Most important, 3- Least important.) Please attach a single score to each statement.
Base: 58
* Share of survey participants based on their level of digital maturity

CEO Perspective*

"The most important thing to achieve profits, cash flow and efficiency is digital transformation."

Ahmet Akın
Member of Board of Directors, Akın Holding A.Ş.

"Digital transformation is a must for taking one's place in the globalized world, and for creating a competitive welfare society. The technology to achieve this is ready and available; however we can talk about a successful digital transformation only when all components of the society, the state, educational institutions, corporations and individuals embrace digital life as their culture."

C. Müjdat Altay
Chairman of the Executive Committee, Netaş

"Digital transformation is plain and practical. It also makes life simpler. It is quantifiable and reliable as the data is registered, while also providing efficiency and time-savings."

Evrim Aras
Chairman of the Board of Directors & CEO, Aras Kargo Yurtiçi ve Yurtdışı Taşımacılık A.Ş.

"Digital transformation and developments are unavoidable. Regardless of the sector, the road to a most efficient form of work is through achieving digital transformation."

Burak Başarır
Chairman of the Executive Committee, Coca-Cola İçecek A.Ş.

"At Arçelik A.Ş., we believe digital transformation is the key to growth in new areas of business and to achieving operational perfection. We keep a close eye on demographic, technological, and environmental developments, and continue to invest in digital transformation."

Hakan Bulgurlu
General Manager, Arçelik A.Ş.

"Digital transformation is crucial for the corporations, in terms of achieving competitive advantage in real estate sector. However, its impact is not limited to entities only; the products and services we offer to our individual and corporate customers make utmost use of the innovations digital transformation introduces and offers with respect to private and professional lifestyle."

Ceyda Çarmıklı Kılıçaslan
(Executive) Member of the Board of Directors, Nurol Gayrimenkul Yatırım Ortaklığı A.Ş.

"Digital transformation is inevitable if one is to exist and achieve sustainable growth."

Ahmet Dördüncü
CEO, Akkök Holding A.Ş.

"Fail to internalize digital technologies, and you'll lose your competitive power."

Faruk Ekinci
Co-Chair of the Board of Directors, Ekinciler Holding A.Ş.

"Digital transformation; the next reason to exist and sustainable competition."

Esin Güral Argat
Member of the Board of Directors, Gürallar Group

"Digital transformation is an inevitable form of mutation for the corporations."

Önder Halisdemir (Ph.D)
Chairman of the Executive Committee, Ağaoğlu Group of Companies

"Achieving competitive advantage through digital transformation."

Erkan Kafadar
Member of the Executive Committee, Borusan Holding A.Ş.

"10 years ago we began implementing the e-transformation process methodology to use technology as an effective means and to accelerate transformation. We proceed with our 'digital journey' in line with developing technologies and business models."

Erdal Karamercan (Ph.D)
CEO, Eczacıbaşı Group

"At Vodafone, we believe that the road to Turkey's sustainable economic and social development lies through digitalization; and we wish to lead that transformation with the strategic program titled 'Digital Transformation Movement' we announced in November 2013."

Gökhan Öğüt
CEO, Vodafone Turkey

"Digitalization is a field which companies must invest in. Holding back is not an option."

Özgür Şimşek
Member of the Board of Directors, Eren Holding A.Ş.

"Taking into account customer profile and change, only digital transformation is capable of making companies differentiate from the competition, as well as transform themselves."

Süha Taşpolatoğlu (Ph.D)
CEO, Abdi İbrahim İlaç Sanayi ve Ticaret A.Ş.

"Streamlining and accelerating the decision-making process by digitalizing employees, brands, and ways of doing business."

Tankut Turnaoğlu
CEO, P&G Tüketim Malları Sanayi A.Ş.

"Digital transformation is the future. The level of intelligence humanity has achieved, and the digital technologies created with such intelligence will bring a quality of life and a higher level of happiness to the humanity with less resources. Our people deserve it as well."

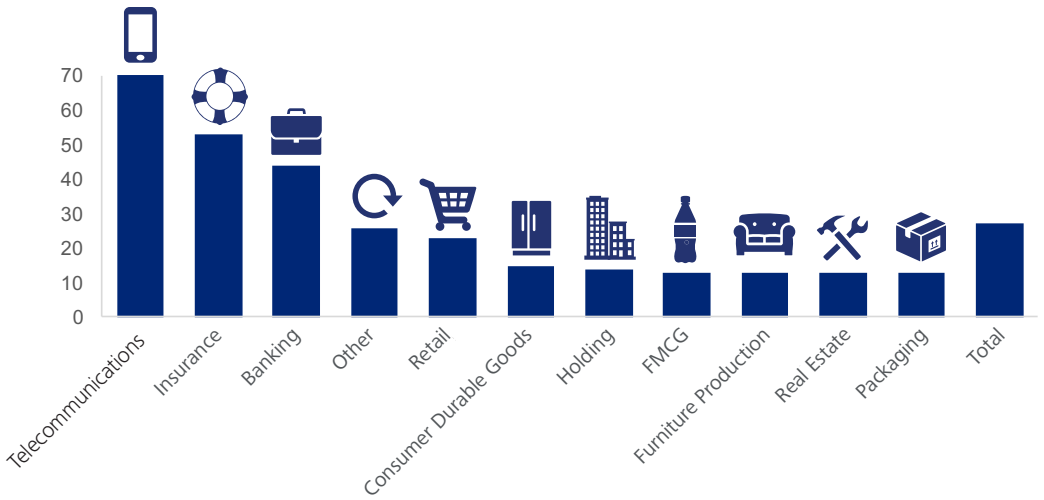
Muharrem Yılmaz
Chairman of the Board of Directors, Sütaş Group

*Ordered alphabetically according to last names.

5 In terms of investments into digital, telecommunications, insurance and banking rank in the top three. Retail also gets a honorable mention among other sectors.

A glance at the companies analyzed in the study reveals that on average 27% of their investments in year 2015 had been into digital (e.g. internet, mobile apps, hardware). In particular, banking, insurance and telecommunications sectors were observed to engage in major investments. While the average investment figure these three sectors had in the digital domain was 55%, the average investment into digital in other sectors was just 16%.

Investments in the digital domain



Question: What percentage of all your investments are made into digital? (e.g. internet, mobile apps, hardware)
Base: 58
Other: Airport Operations, Energy, Textile, Logistics, Iron and Steel, Computer Systems, Information and Communication Technologies, Real Estate, Automotive, Press/ Media, General Industry, and Trade

Even though the retail sector considers digitalization among its priorities, retail corporations were observed to invest into digital a maximum of 40% of their total investments. In a similar vein, while all corporations in the consumer goods* sector note the significance of investments into digitalization, 90% of these corporations invested only a maximum of 20% of their overall investments into digitalization efforts.

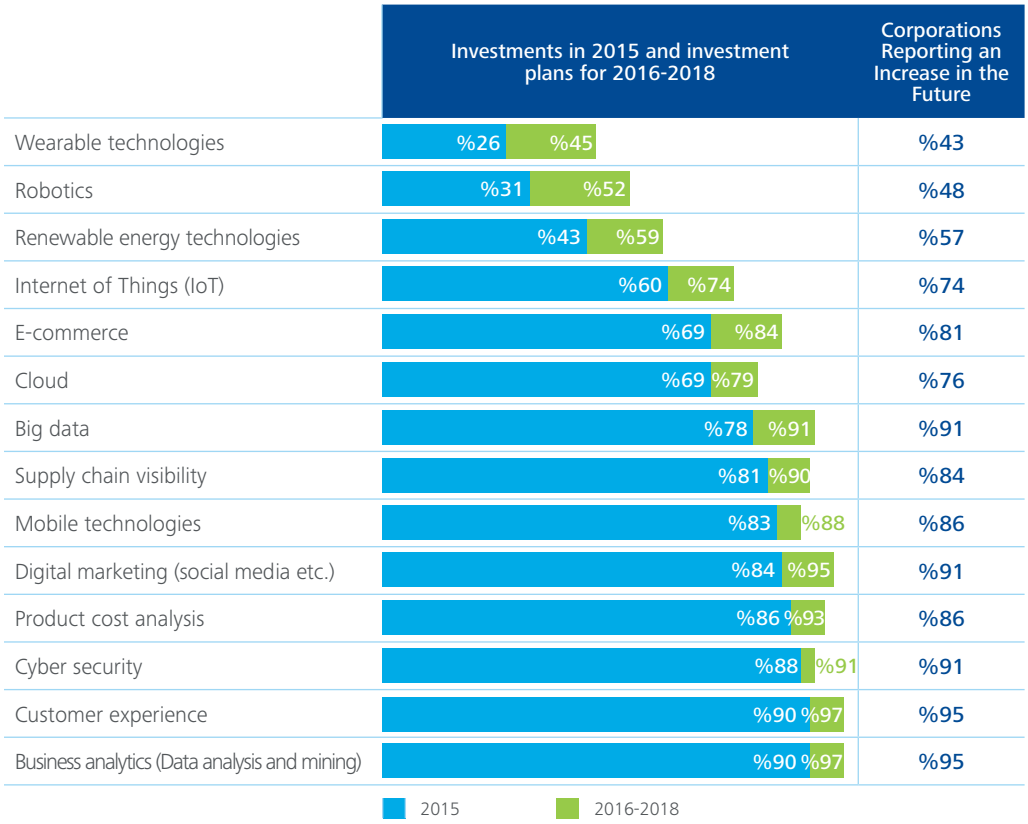
Distribution of digital investments in each sector, as a percentage of overall investments

Percentage of investments into digital	Consumer goods*	Telecommunications	Financial Services	Retail	Manufacturing
0-10 range	54%			17%	50%
11-30 range	36%	34%	46%	67%	50%
31-50 range			15%	17%	
More than 51	9%	67%	38%		

Question: What percentage of all your investments are made into digital? (e.g. internet, mobile apps, hardware)
Base: 58
Note: The percentages displayed on the columns may not add up to 100% due to rounding.
* Fast moving consumer goods, consumer durables, textiles etc..

The most important question to ask for corporations which begin to invest into digital within the scope of a clearly defined digital strategy is about where to focus in terms of such investments. As the study titled "Strategy, not Technology, Drives Digital Transformation" carried out in 2015 jointly by Deloitte University Press and MIT Sloan Management Review revealed, global results indicate that the higher the level of maturity of a corporation, the more homogenous approach to investments in social, mobile, analytics, and technology. An analysis of the case in Turkey confirms this finding as well. We realize that corporations currently have certain investment plans and plan to increase their investments in subsequent years, in all fields of investments into technology, other than wearable technologies, robotics investments, and renewable energy technologies.

Percentage of corporations investing into digital technologies - Percentage of corporations to invest within two years



Question: Which of the areas of technology noted in the table above will you be investing in this year? In the next 2 years? Which areas will see increased investment? Multiple response
Base: 58

Global trends reveal that corporations at the earlier stages of digital maturity invest in individual technologies with a more operational focus. The corporations in Turkey, which are in the lower levels of maturity, are also observed to invest mostly in customer experience, supply chain visibility, and cyber security. A glance at the fields which are reported to draw more attention as the focus of investment in subsequent years points at product cost analysis, followed by supply chain visibility. These corporations currently prioritize their investments with a view to visibility and traceability.

Fields of technology which receive the highest level of investment

	Beginner	Developing	Mature
Customer experience	12%	9%	9%
Supply chain visibility	12%	8%	8%
Cyber security	12%	9%	8%
Digital marketing (social media etc.)	8%	8%	9%
Mobile technologies	8%	8%	9%
Renewable energy technologies	8%	5%	4%
Business analytics (Data analysis and mining)	8%	9%	9%
Cloud	8%	7%	7%
Big data	8%	8%	8%
Product cost analysis	8%	9%	8%
Internet of Things (IoT)	4%	6%	7%
E-commerce	4%	6%	9%
Robotics	4%	4%	2%
Wearable technologies	0%	2%	4%

Question: Which of the areas of technology noted in the table above will you be investing in this year? Multiple response
Base: 58

Mobile and the Fruits of 4.5G

The 4.5G technology which entered into use by early April is expected to contribute to the impact of digitalization in Turkey. The value a service or product increases in parallel to the level of mobility it exhibits. Up until recently, the cost of providing a mobile connection for a product was in excess of the additional benefit such connection would bring. However, thanks to developments in mobile broadband technologies in particular, now all things and devices, not to mention individuals and organizations, can be connected enabling high-speed data transfers. In exact compliance with Metcalfe's Law (the value of a network is proportional to the square of the number of connected users of the system), the benefits provided become more valuable as the number of things connected to mobile networks rise.

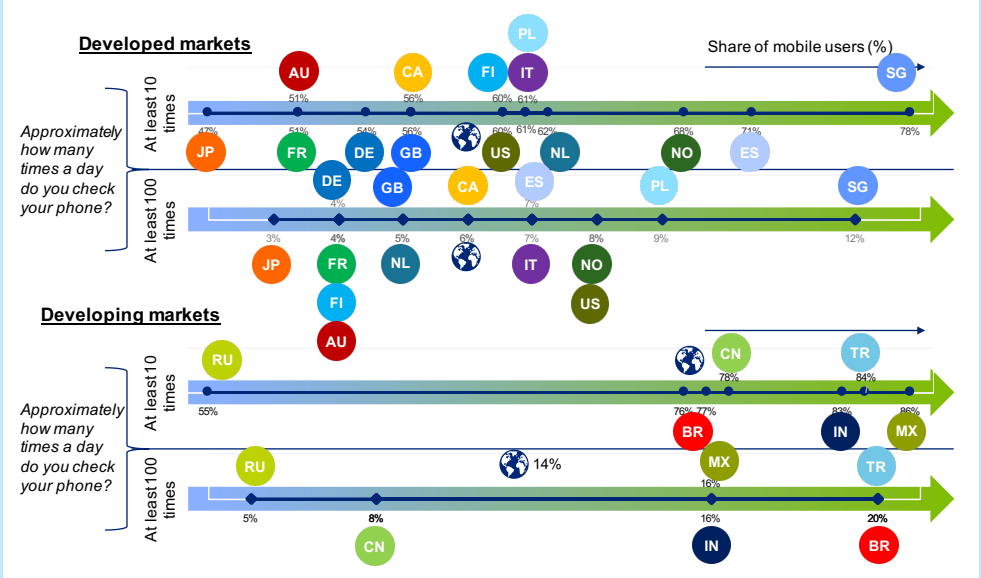
The first thing 4.5G technology brings to mind is the ability of higher-speed access to mobile networks. The typical download speeds in 4.5G LTE Advanced networks are approximately 7 times higher than those of 3G HSPA+ based networks, while the upload speeds are higher by 8 to 9 times. However, the main contribution 4.5G technology provides is about the increased capacity and efficient use of frequency to lower cost per megabit substantially, rather than an increase in access speeds and fall in latency. As mobile broadband connections begin to be used in numerous devices, the use of which had initially been unfeasible due to cost concerns, the internet of things, cloud computing, and big data applications will start to creep into our daily life much faster.

Mobile Technology	Download Bandwidth	Model Applications
3/3.5G – UMTS/HSPA	768K – 1.5 Mbps	E-mail, VoIP, vehicle tracking systems
	1.5 Mbps – 3 Mbps	Music, SD Video
	3 Mbps – 6 Mbps	File sharing, IPTV
	6 Mbps – 10 Mbps	Online games, Video on Demand
4/4.5G – LTE	10 Mbps – 25 Mbps	Tele-medicine, Distance learning, HD IPTV, Augmented reality for field technicians
	25 Mbps – 50 Mbps	HD video security
	50 Mbps +	(Multi-) Video conference, Remote super-computing, 4K Ultra HD IPTV, Synchronous data collection, Real-time video medicine/examination, non-optimized applications, smart traffic flow infrastructure

The impact of mobile broadband coverage on the society can be discussed under three major categories:

- Economic impact: Integration of sections of the society which lack access to high-speed broadband into the economy; increased productivity; access to new markets; development of an innovative entrepreneurship ecosystem, etc.
- Social impact: Quicker access to public services; increased penetration of medical and educational services; increased access to cultural and social wealth, etc.
- Environmental impact: Higher efficiency in terms of energy consumption, efficient waste management, etc.

According to a study by Deloitte, the multiplier impact of 4G mobile broadband investments is 2.9x on GDP, and 14.7x on employment.[1] In other words, each dollar spent on mobile broadband infrastructure contributes approximately three dollars to the economy, and each million dollar investment creates 15 new employment opportunities.In Turkey, while only half of the households have a personal computer, each household has at least one mobile phone. As mobile broadband speeds become comparable to fixed-line broadband, thanks to 4.5G, many segments of the society which lack high-speed broadband access are expected to have higher level of socio-economic activities and increased integration into the economy. In addition to increased penetration, the intensity of use of mobile devices is also of note in Turkey.[2] It is observed that social media and mobile communications have permeated more into the social fabric of Turkey compared to other countries, and that a significant portion of the users exhibit symptoms of addiction. For instance, according to a study carried out in 2015 by Deloitte, Turkey ranks second right after Mexico as the group of consumers which check the phone most frequently during the day.[2] 90 percent of smart phone users in Turkey check their phone within 15 minutes of waking up, while 71% take at least one photo a day, and 46% play games each day.



Source: Deloitte Global Mobile Consumer Survey, 2015

AU: Australia, CA: Canada, FI: Finland, PL: Poland, IT: Italy, SG: Singapore, JP: Japan, FR: France, DE: Germany, GB: United Kingdom, US: United States of America, ES: Spain, NL: Netherlands, NO: Norway, RU: Russia, CN: China, BR: Brazil, MX: Mexico, TR: Turkey, IN: India

[1] http://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-impactof4g-101914.pdf
[2] Deloitte Global Mobile Consumer Survey, 2015

A high pace of adaptation is expected for the innovative and value-added opportunities 4.5G technology will offer for a group of consumers which are addicted to their mobile devices at such a level. This suggests the high level of potential mobile products and services enjoy in Turkey.

On the production side of the business, on the other hand, the adoption rates for numerous new technologies are expected to increase in parallel to increased penetration of mobile broadband, and these technologies are soon destined to become indispensable parts of the value chains of corporations. For instance, in the field of supply chains, 12 innovative technologies stand out with reference to types of connection.

1 Physical to Digital	**1.1 Sensors & Controls** Advancing technologies that track a wide variety of measures and control an of actions to optimize processes and information flow	**1.2 Wearables** Accessories that are worn and incorporate advanced electronic technologies (computers, sensors) to enhance operations	**1.3 Augmented Reality** Physical, real-world elements that are "augmented" by a computer generated sensory inputs (typically visual)	**1.4 Connected Communications** Enable man-to-machine or machine-to-machine connectivity and automated communications – like edge computing
2 Digital to Digital	**2.1 Signal Transformation** Identifying and aggregating data from new internal and/or external sources (e.g., installed base, sensors, R&M partners, Twitter, etc.)	**2.2 Cognitive Computing** Computing that solves a new class of problems by being adaptive, interactive, iterative, and contextual (like a human), in additional to aggregating computing power	**2.3 Visualization and POU Delivery** New ways to visualize or display data to draw insights or inform specific and targeted actions at a specific point in time	**2.4 Cyber Security** Protection against unauthorized use of company data across all devices or protocols within a network
3 Digital to Physical	**3.1 Digital Design and Simulation** Capabilities that enable increasingly complex product digital designs and simulation in a wider variety of digital environments	**3.2 Additive Manufacturing** A process by which digital 3D design data is used to build up a component in layers by depositing material (as opposed to subtractive manufacturing methods)	**3.3 Advanced Materials** New materials and changes to existing materials to obtain superior performance in one or more characteristics that are critical for the application under consideration	**3.4 Autonomous Robotics** A robot that performs behaviors or tasks with a high degree of autonomy, while understanding and reacting to external stimulus

For example, wearable technologies were adapted to increase efficiency levels and to reduce the level of errors in deliveries in warehouse operations by one of the leading global logistics providers. The company implemented a solution entailing smart glasses and augmented reality, to do without the lists on paper and handheld devices used by its warehouse staff, to release their hands completely. The result was lower error rates and increased productivity.

The smart glasses they wore remained always connected to centralized systems, to provide real-time access to information such as to-do lists, the fastest route to the ordered item within the warehouse, and provided them guidance in their movements. The employee productivity was observed to increase 25% following the solution.

6 Contacts with end-users make investment with focus of B2C companies different than those of B2B companies.

The companies which are in contact with end-users are observed to invest more in digital marketing, mobile technologies, customer experience, and e-commerce, compared to B2B companies. On the other hand, compared to B2C companies, B2B companies are understood to invest more on fields such as internet of things (IoT), renewable energy technologies, business analytics, robotics, and supply chain visibility.

The investment preferences of the companies which come into contact with end-users run in parallel to the expectations of visibility and closeness to the consumers in all channels. Among the companies which come into contact with consumers, the ones in retail business in particular are observed to prioritize investments in e-commerce, with the belief that new developments which may rival them in the future will arise on the technology front. Even though higher prevalence of e-commerce in companies which come into contact with consumers suggest these investments are made to reach out to the consumers through any channel available, the supply and sales portals of B2B companies as e-commerce media are also influenced by digital trends. Since customer experience, as a concept, is not associated with end-users only, understanding consumers' needs, reviewing the customer's journey through the decision-making process, and the design of the best systems to respond to such needs are also imperative in terms of relationships with B2B companies as well.

Fields of technology which receive the highest level of investment

	B2B	B2X*-B2C
Business analytics (Data analysis and mining)	11%	9%
Cyber security	11%	9%
Renewable energy technologies	10%	4%
Supply chain visibility	10%	8%
Product cost analysis	10%	9%
Internet of Things (IoT)	8%	6%
Big data	8%	8%
Customer experience	6%	10%
Cloud	6%	7%
Digital marketing (social media etc.)	5%	9%
Mobile technologies	5%	9%
Robotics	5%	3%
Wearable technologies	3%	3%
E-commerce	3%	8%

Question: Which of the areas of technology noted in the table above will you be investing in this year? Multiple response
Base: 58
***B2X:** Corporations which have sales to both corporate and individual customers

CEO Perspective*

"I believe that a company which cannot keep up with the digital world would feel 'marginalized'. If they do not feel already, its customers would certainly make them feel that way."

Hulusi Acar
CEO, Doğtaş Kelebek Mobilya San. ve Tic. A.Ş

"Corporations and professions which are incapable of developing new business models required by the digital world are bound to get extinct."

Murat Akgiray
Chairman of the Board of Directors,
Bimeks Bilgi İşlem ve Dış Tic. A.Ş.

"Those who fail at digital transformation will not have a place in the business world of the future."

Erol Bilecik
CEO, İndeks Bilgisayar
Sistemleri Mühendislik San. ve Tic. A.Ş.

"Digital transformation is inevitable. Companies which do not go digital are bound to die. The sooner, the better."

Barış Karakullukçu
CEO, Mudo Satış Mağazaları A.Ş.

"The faster one gets ahead. That is why digital is important; for the sake of speed. If the faster one wins, the digital one will do so."

T. Murat Kolbaşı
Chairman of the Board of Directors,
Arzum Elektrikli Ev Aletleri San. ve Tic. A.Ş.

"You'll meet your end if you miss the digital train."

Mehmet T. Nane
General Manager, CarrefourSA Carrefour
Sabancı Ticaret Merkezi A.Ş.

"Failure to interpret and perceive digital transformation will mean to take the first step towards extinction in your current sector in the next 5-10 years."

Ö. Özgür Tort
General Manager, Migros Ticaret A.Ş.

"Those who fail to go digital would perish."

Nuri Öztaşkın
General Manager, Yataş Grup

"The single most important cause of failure for corporations is hanging on to the correct behavior of the past for far too long."

Murat Özyeğin
Member of the Board of Directors, Fiba Group

"Digital transformation will affect not only the internet companies, but also all well-established companies from mining to textiles. Those who are aware of this fact, and who take action today, will rise up in the ladder of competition."

Mehmet N. Pekarun
Industry Group President, Hacı Ömer Sabancı Holding A.Ş.

"Those who bring supply and demand together quickly will win. Those who are late in this, will lose."

Mustafa Sani Şener (M.Sc., Ph.D.)
Chairman of the Executive Committee,
TAV Havalimanları Holding A.Ş.

"Digital transformation: The rules of the game have changed; adapt or perish."

Deran Taşkıran (Ph.D.)
General Manager, Boyner Büyük Mağazacılık A.Ş.

"One cannot escape from digital."

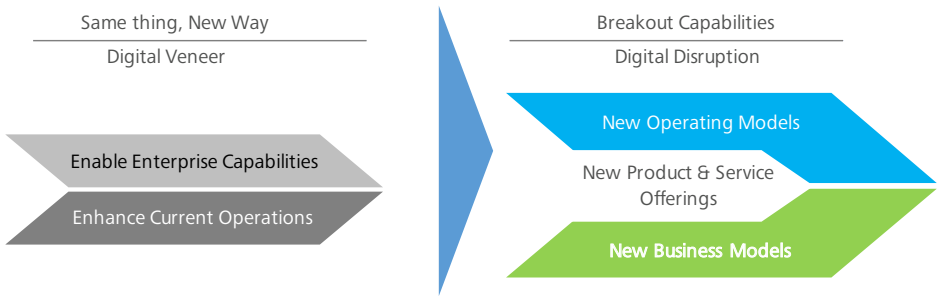
Haydar Yenigün
General Manager, Ford Otomotiv Sanayi A.Ş.

*Ordered alphabetically according to last names.

Incremental Improvement - Disruptive Change

Disruptive change, referring to a mode of change which replace existing market and value chains, and which substantially alter the existing market structures by creating a new market and value chain, was coined by Clayton M. Christensen, and saw significant adoption since 1995. Christensen came up with this term to define entrepreneur companies which carve up new markets by creating new customer categories, within the framework of the theory. What enables these companies to serve customers which had hitherto been left unserved by established names in the market is the use of new business models which employ new technologies or different applications of old technologies. In contrast, incremental improvement takes place through the enhancement of existing products.

We think that organizations must redesign their business models to evolve, respond, and stay relevant:



The most frequent example cited in this context is the disruptive change brought about by the personal computer, in contrast to the much larger machines predating it. With the advent of PC, computers, which previously could be afforded only by major corporations or universities due to size and high costs required, had now become available to consumers, and a new market was born.

The revolutionary nature of an innovation would not always translate into disruptive change. The story of automobile, which was noted first in Wikipedia, and quoted widely, is telling this. The invention of automobile did not lead to a disruptive change. Given high prices and affordability not reaching beyond the elite, horse-drawn carriages, as a means of transportation, was able to maintain its existence in the market for an extended period even after the invention of automobiles. Yet, the disruptive change came with Model T introduced in 1908 by Ford, making automobiles affordable at a lower price level.

Disruptive change usually comes from competitors which enter the sector from outside. The competitive dynamics of industry often prevent the established players from seeking in disruptive change. The corporations dedicate their limited resources to developing their existing products and services with a view to providing better services to the customers they already serve, and gaining edge above their existing competitors. R&D and testing stages of disruptive innovation may often take a different course, and entail higher risks regarding achievement. Yet, once such elements of change are developed, much faster market penetration and the shattering impact on the dynamics of the established market provide substantial benefits.

In a nutshell, according to the theory of disruptive change, for a company to be considered in this category, it should achieve cost advantages through a new technology or operating model, to an extent forcing all existing operating models in the market.

Can one, in this context, point at Uber or Tesla as examples of disruptive change, as is the custom now? Recently Tom Bartman used Christensen's theory of disruptive change to review if Tesla constitutes disruptive change, in an article published in Harvard Business Review. In that article, Tesla was not deemed to be a company which brought about disruptive change in the traditional sense, for it is possible for any competitor to do what Tesla does in a better, cheaper, and faster way, and therefore to gain edge over Tesla. Tesla had not forced the whole market to revise the operating models, through the sheer impact of its new business model.

Even though the traditional disruptive change theory provides a useful construct to reveal the impact of technological development on existing ways of doing business, it is not always sufficient to understand each and every influence technology would have on the dynamics of the competition.

Indeed, a new movement in the literature is in the process of developing, arguing, in contrast to Christensen's theory of disruptive change, that competition comes not from the niches of a given market, but from complete outsiders. For instance, when Uber ventured into the transportation sector, it first began with upper-segment limo service, followed by UberX as an affordable taxi service. Now, Uber has set its sights on many areas from grocery or catering distribution to vaccination services to the development of self-driving cars, and began to pose threats to numerous industries.

Tesla's story, on the other hand, reveals the company's strength in the electrical vehicles category. Yet, the actual change which would revolutionize the operations of the industry will happen with the opening in 2017 of the plant called Gigafactory where it will produce lithium-ion batteries. The plant's battery cell production is planned to exceed the current volume of all other battery producers of the world. By achieving economies of scale, the lithium-ion batteries used in electrical vehicles are expected to fall, making it possible for the company to offer in 2017 vehicles which have a range of more than 800 kilometers on a single charge, at an affordable price level of USD 35,000. The ability to use the same battery technology at homes, for the storage of solar power opens up venues to the building of self-sufficient homes, and thereby contributing immensely to energy efficiency of urban environments. A longer term perspective leads to the considerations of the possibility that Tesla can buy out the conventional players in the market, rather than competing against them for market share, due to the impact of economies of scale to be achieved through such developments. The widespread use of affordable electrical vehicles is expected to have disruptive effects not only on the automotive sector, but also on spare parts suppliers, automotive dealers, petroleum companies, refineries, and gas stations.

The disruptive change presents itself as a concrete risk at any area where technology is applicable. That is why the companies need to discover new ways to secure themselves against such new competitors to show up from nowhere, and to reinvent themselves at all times.

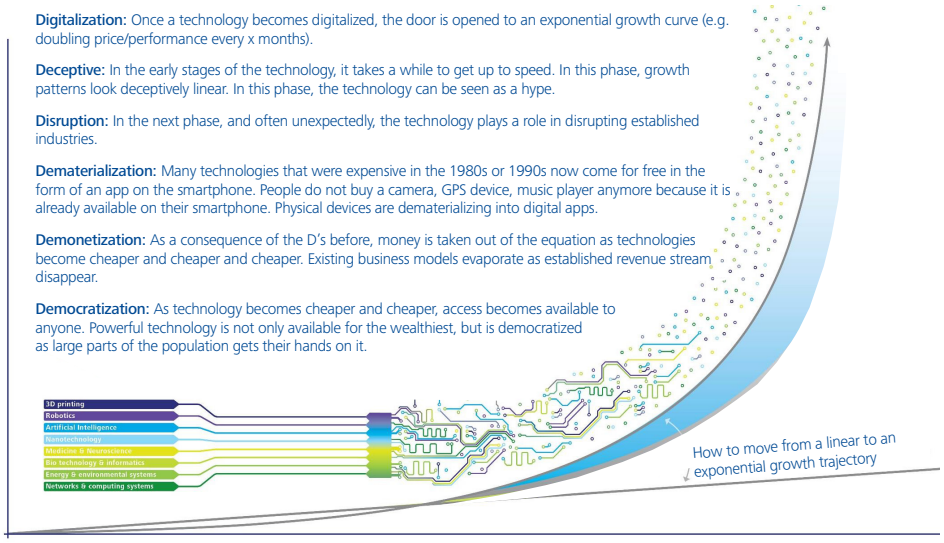
Pace of Change

Even though we witness the examples of disruptive change more frequently, human brain lags in terms of perceiving the pace of change. The people who lead and manage corporate life usually have a linear mode of thinking. However, in many fields technology grows at an exponential level. This leads to an inability to perceive or delay in the perception of the pace of change and its impact on existing structures.

Today, the connections between various technologies are beginning to arise at a staggering rate, and we stand the breaking point of exponential growth. The business world of the future is right behind the corner. It is that close.

The power of exponential growth

While our minds are stuck in linear thinking, digital technology has the ability to follow an exponential growth track. This creates a huge gap between what we intuitively think to be possible and what technology is actually making possible.



Source: Singularity University, XPrize Foundation and Deloitte

At this junction, the most important question corporations have is about when each sector and business model will be affected by such change, and how to prepare for such change.

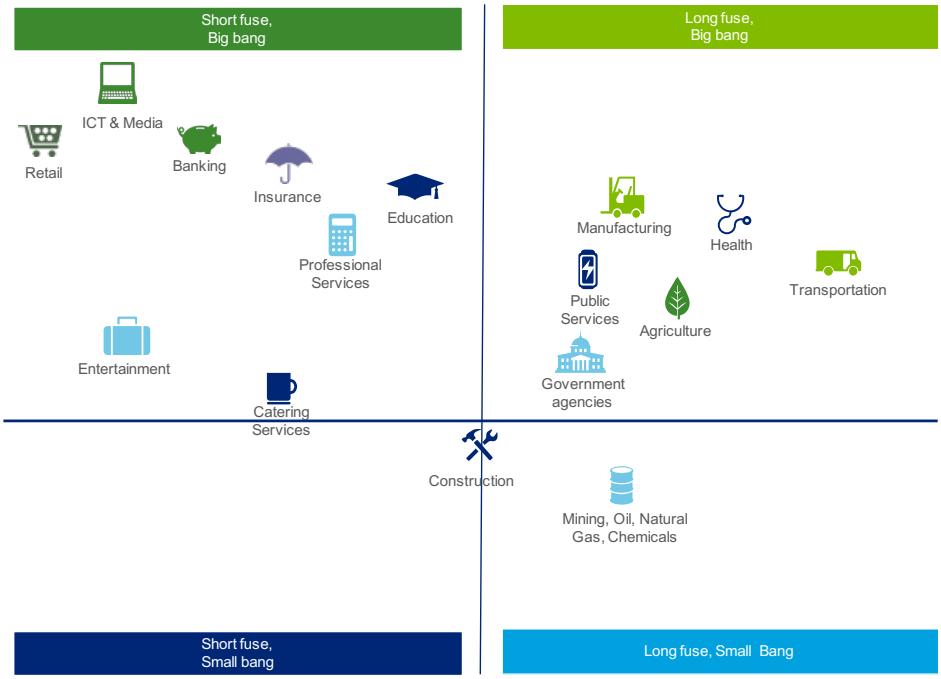
Deloitte Digital Transformation Intensity Map

Deloitte Digital Transformation Intensity Map compares 16 industries in two perspectives, with reference to their sensitivity to change: the scale of impact, and imminence of change. Factors taken into account in the reviews are as follows:

- Physical availability of products and services
- Customers' tendency to use digital channels
- Importance of broadband and information infrastructure in business operations
- Mobility level and average age of the customers and employees of the corporation
- Importance of innovations such as cloud computing, and social media
- Level of restrictions regulations and other factors would pose on digital innovation

The corporations to be exposed to significant digital transformation in the next three years are considered as companies to face "change in the short term". Corporations which expect large-scale change in four to ten years, on the other hand, are considered as companies to face "change in the long term".

The scale of impact, on the other hand, is presented in the percentage of change expected in a number of fundamental business criteria. Corporations which expect a change in the 15-50 percent range regarding criteria such as revenue channels and cost structures will face a "major impact- big bang". Corporations to face a change less than 15 percent, on the other hand, will see a "lower impact- small bang".

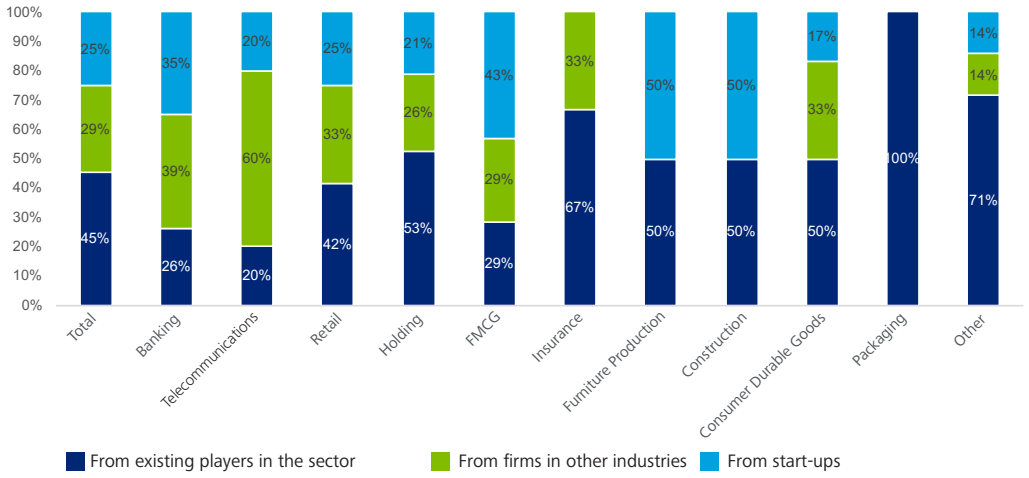


Source: Digital disruption – Short fuse, big bang?, Deloitte Australia, 2012

7 Corporations in other industries or start-ups are expected to provide the highest sources of competition.

45% of the corporations which took part in the study expect competition to arise from the existing players in the sector. 30% expect competition from other industries, while 25% brace for competition by start-ups, hence underlining the significance of competition from outside the sector.

Source of competition against the company

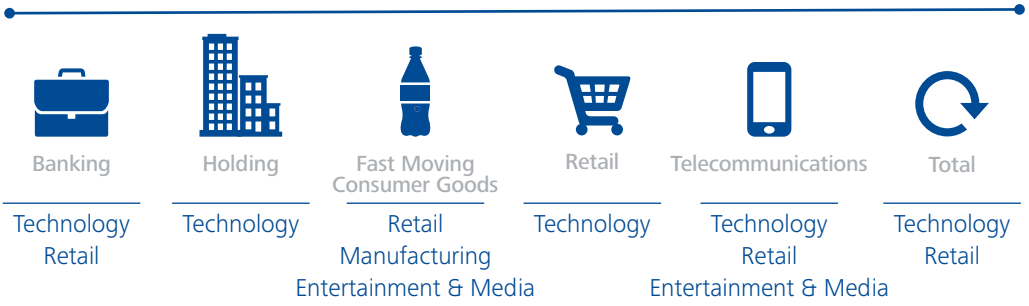


Question: What will be the source of new entities which may compete with your company? Multiple responses
Base: 58

In particular, corporations in banking, telecommunications, and fast-moving consumer goods perceive other sectors and start-ups as potential sources of major competition. Telecommunications sector is of the opinion that companies in other industries will lead to new developments.

When asked which sector may present a source of competition, the corporations which believed in other sectors and start-ups as the source of potential competition, overwhelmingly pointed at the technology and retail industries.

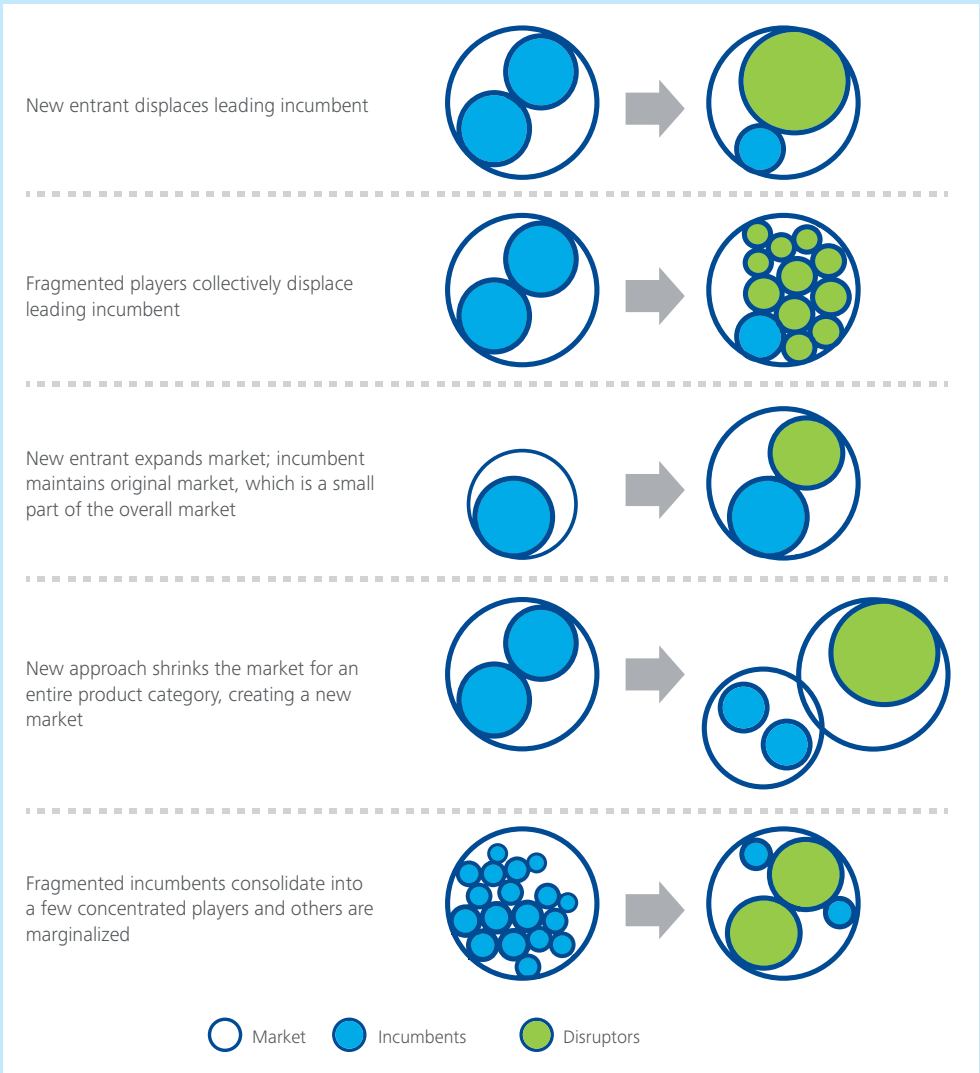
Potential sources of competing organizations



Question: Please specify the "other sectors" which will provide the potential sources of new developments to compete with your corporation. Could you please specify which sector listed above would provide new competitors for you?
Base: 37

Means of Entry Employed by Start-ups

Start-ups are observed to take five distinct routes to replace existing players in the market:



Source: Patterns of disruption, Anticipating disruptive strategies in a world of unicorns, black swans, and exponentials, Deloitte University Press, 2015

8

While the CIO/CTO position is still valid in terms of digital transformation, new job descriptions are also necessitated. C level posts responsible with digital transformation are gaining rapid traction. CMOs are also expected to play a role in digital transformation.

Leadership in the process is as important as the employment of the right vision and strategy in the implementation of digital transformation for the corporations in order to support such vision and implement the strategy. The corporations in Turkey are well aware of this fact. According to the corporations, the success of digital strategy requires the support of executives and the provision of leadership in the digital transformation process, as the second most important factor, right after the existence of one such strategy.

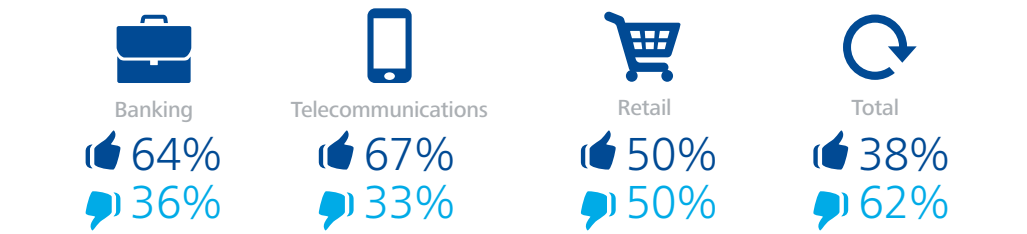
The Chief Digital Officer (CDO) position is defined as the one which establishes the digital strategy to realize the growth targets of the organization, and which implements the change throughout the organization by employing digital technologies. In this study, CDO is discussed as a concept covering all positions which play a role and assume responsibility regarding digital transformation, rather than as a spesific title or position. The establishment of the job description and role of CDO will provide value to other senior executives in the context of digital transformation, from a number of perspectives.

The CDO enhances the rest of the C-suite

Source: The Rise of Chief Digital Officer, Key Considerations for Driving Digital Growth from the C-Suite, Deloitte Digital, 2015
CEO: Chief Executive Officer, **CMO:** Chief Marketing Officer, **CFO:** Chief Financial Officer, **CSO:** Chief Strategy Officer,
CIO: Chief Information Officer, **COO:** Chief Operating Officer

Currently, 38% of corporations in Turkey have an executive which matches the job description of CDO. However, just 26% of the corporations which took part in the study noted that this position is titled exactly CDO. This figure is 67% in Banking, Telecommunications, and Consumer Durables, and is about one half in the Retail sector.

Existence of an executive matching the definition of CDO



Question: CDO (Chief Digital Officer) (or Digital Transformation Director or Vice President) position is defined with reference to senior executives who are responsible with the development and implementation of digital strategies of the corporations, and in brief, with all digital activities; and is experienced in most of the fields of information technologies, sales, marketing, strategy and business development, and finance. In this context, does your corporation have an executive profile matching the definition of CDO? If yes, please specify the name of the position, and to whom the relevant executive reports. Single answer
Base: 58

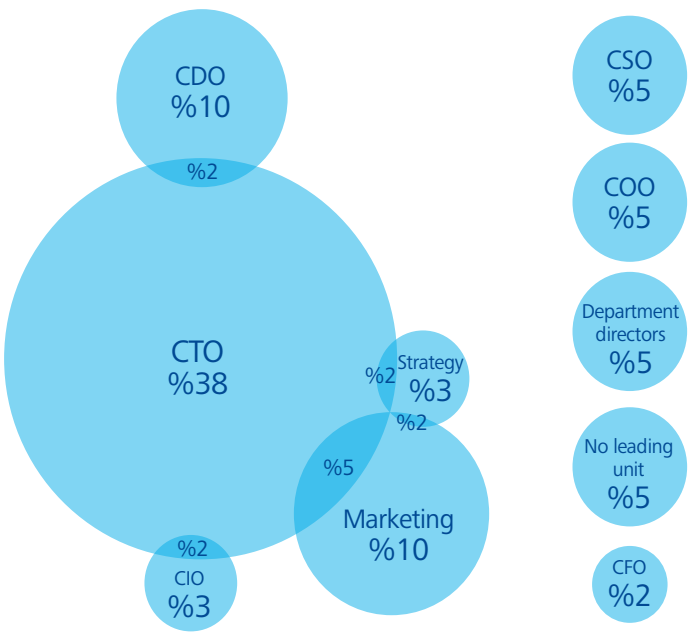
No company in the earlier stages of maturity reported an executive to match the CDO job description, while 70% of corporations with a higher level of digital maturity reported the existence of such an executive.

Existence of an executive matching the definition of CDO

Question: CDO (Chief Digital Officer) (or Digital Transformation Director or Vice President) position is defined with reference to senior executives who are responsible with the development and implementation of digital strategies of the corporations, and in brief, with all digital activities; and is experienced in most of the fields of information technologies, sales, marketing, strategy and business development, and finance. In this context, does your corporation have an executive profile matching the definition of CDO? If yes, please specify the name of the position, and to whom the relevant executive reports. Single answer
Base: 58

80% of the corporations which lack a CDO position, on the other hand, intend to create such a position within the next 3 years. However, more often than not, it is the Information Technologies (CIO/CTO) which leads the digital transformation.

Who leads digital transformation?



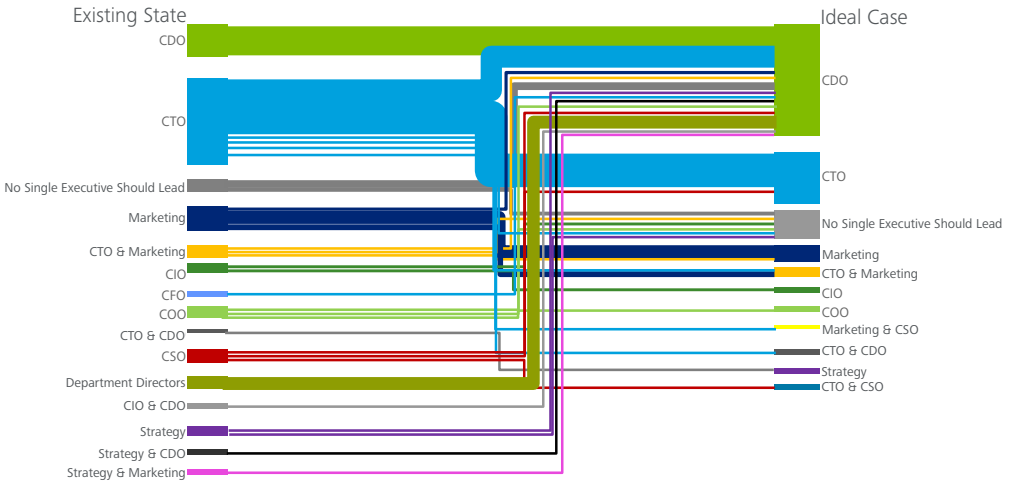
Question: Who exactly, meaning which position(s) leads digital transformation at your corporation? Could you please distribute an overall score of 100 among the options provided in the table above? You can assign all 100 points to a single position, or distribute it to multiple positions. Then, could you please state the ideal distribution?
Base: 58

CEO: Chief Executive Officer, **CMO:** Chief Marketing Officer, **CFO:** Chief Financial Officer, **CSO:** Chief Strategy Officer, **CIO:** Chief Information Officer, **COO:** Chief Operating Officer, **CTO:** Chief Tecnology Officer, **CDO:** Chief Digital Officer

The sectors where CDOs come to the forefront are Telecommunications and Retail. On the other hand, in the case of Financial Services, in line with the pressure regarding the more efficient use of existing channels, the marketing and strategy units receive more limelight. In the retail sector, digitalization draws attention as a new means to reach out to customers through e-commerce investments. In this context, marketing and sales units draw attention.

When asked about what ideal state would look like, 47% of the corporations noted that the process should be led by a CDO. Where digital transformation is currently implemented by department directors, or where no unit takes the lead, such a lack of leadership encourages the corporations to respond by noting 'ideally, the process should be managed by the CDO'. On the other hand, it is striking that 22% of the participants in the survey noted the need for CTOs to assume leadership of this process. In particular, more than half of the companies where currently the CTO manages digital transformation responded by noting that in the ideal state, the process should be managed, again, by the CTO. However, 16% of the respondents want functional units such as sales, marketing, and operations to be involved in the process.

Ideal distribution based on the position currently leading digital transformation



Question: Who exactly, meaning which position(s) leads digital transformation at your corporation? Could you please distribute an overall score of 100 among the options provided in the table above? You can assign all 100 points to a single position, or distribute it to multiple positions. Then, could you please state the ideal distribution?
Base: 58

This ratio rises up to 29% among the companies which project to generate more than 20% of their revenues from digital channels in the future. Among the functional units, the most often mentioned one for involvement in the process is Marketing (CMO). The expectation for the marketing department's leadership in the digital transformation reveals that the companies consider digital transformation as a journey affecting customer and consumer experience as well, extending well beyond mere technological development.

Top 3 positions to lead digital transformation among the companies which project to generate more than 20% of their revenues from digital channels in the future

Question: Who exactly, meaning which position(s) leads digital transformation at your corporation? Could you please distribute an overall score of 100 among the options provided in the table above? You can assign all 100 points to a single position, or distribute it to multiple positions. Then, could you please state the ideal distribution?
Base: 58

Comparison with the global picture leads to a state wherein more than half of the corporations with a high level of digital maturity states that digitalization process is managed by a specific individual or group. The results derived from corporations in Turkey also concur with this finding. Just 10% of the participants have stated that no single department plays a central role in the digitalization process, or that the process was managed by department directors. With reference to the level of maturity, 25% of the corporations in the earlier stages of digital maturity report to have the process managed by department directors. This figure falls as the level of digital maturity of the corporation increases. It falls to around 15% among the corporations in the developing category regarding digital maturity. According to global results, two thirds of the participants note that the digitalization process is supported by senior management. In Turkey, this figure is around 90%. At all corporations exhibiting digital maturity, the senior management assumes the leadership of the process. The level of priority the Board of Directors ascribes to digitalization, on the other hand, is closely correlated with the maturity level of the corporation.

Leadership in the Digital Transformation Process / Turkish Perspective

Prof. Yeşim Toduk,
Founding Partner of Amrop

The process till 2023 will be a very special one, for the digital age where certain generations and generational change will be felt much more dynamically. As I noted in my book "Leader of 2023", and as evidenced by the findings of this study, today no sector, corporation, executive or individual can afford to disregard the change brought about by technology and digitalization.

In this "game changer" process, the business world is already on the lookout for leaders and young talent to direct, narrate, and manage this change, clarify it within the framework of the strategic plan, identify and ensure the implementation of applicable business models.

The leaders to succeed in the next decade will stand out with their enterprising skills, digital capabilities, strong connections (networks) and ability to cooperate, and achievement of a vision and participants' commitment. Achieving lasting impact on the digital era we live in, and making a difference requires of the entrepreneurs the placement of innovation as a must item on their agenda. For achieving the respect and trust of the employees of the new generation which grew right in the digital world requires the placement of innovation to the heart of daily life, in addition to making it a major element of the vision. In the same vein, digital capabilities are also most important. Today, all corporations, regardless of the sector, should have employees with digital capabilities. "Digital" is not a new medium. It is a new age with a new mode of thought, which entails its authentic and new leadership model with a new set of rules.

When formulating that new model of leadership, combining capabilities and talent leads to the concept of "Customization", the new name of the game. Customization refers to the need of the new age we live in, to manage all individuals just like a corporation is managed. The young leaders of the day, applying digital capabilities and talent for enterprise at the right time, at the right place, will be managing their customized business, and the digital transformation process for their organizations which they develop through their intellectual capital.

Most international corporations try to include CTO (Chief Technology Officer), CIO (Chief Information Officer), CSO (Chief Security Officer) CDO (Chief Digital Officer) members in their executive teams, while seeking out new business leaders to assume the role of catalyst at the Board of Directors level, with respect to digital transformation and game-changing innovation.

At Amrop Global, we carried out an analysis in 2015, with 1280 Independent Board Members of 110 largest public corporations in 11 countries in Europe and America, leading to the observations that;

• Digitalization is still taking baby steps at the Board Member Level, but is gaining pace,

• In case of technology companies, 36% of Board of Directors members have digital capabilities as part of their profiles,

• This ratio was just 5% for corporations which are not in the technology business.

Corporations which increase their investments in digital areas take the road to diversify their investments taking into account the need for and fact of "digital investments", and consider the possibility that they could stand out with Board Members which have a grasp of the digital world, and which keep a close eye on technology. In our study, we observed that;

• Digital Board Members serve as both role models and catalysts, and that corporations provide "institutional workshops" built on openness and innovation,

• Digital Transformation and Online Security risks are still important elements of the agenda; that online security poses a major priority for Boards of Directors, but a clear grasp of the issue was yet an elusive objective,

• Boards of Directors should achieve a balance of risk management and digital innovation, if they intend to remain current and innovative,

• The Chairmen performed lower than expected with respect to the digitalization of Boards of Directors, even though they should have led the change by providing connections between Board of Directors, strategies, senior management, and operations; that executive coaching and annual digital strategy meetings could be proposed as solutions in this context,

• Digital Boards contain individuals which have a complete digital profile, who are in their early 30s, albeit in minority.

In the Independent Board of Directors Members survey we, at Amrop Turkey, carry out on an annual basis, we observed that just 4 Board of Directors Members were present which had a background in "technology", and which, therefore, could bring change to the summit of the organization. Abroad, this figure rises to 67% in Finnish companies with a focus on technology, while in non-tech companies it is at 4%, and is rising rapidly.

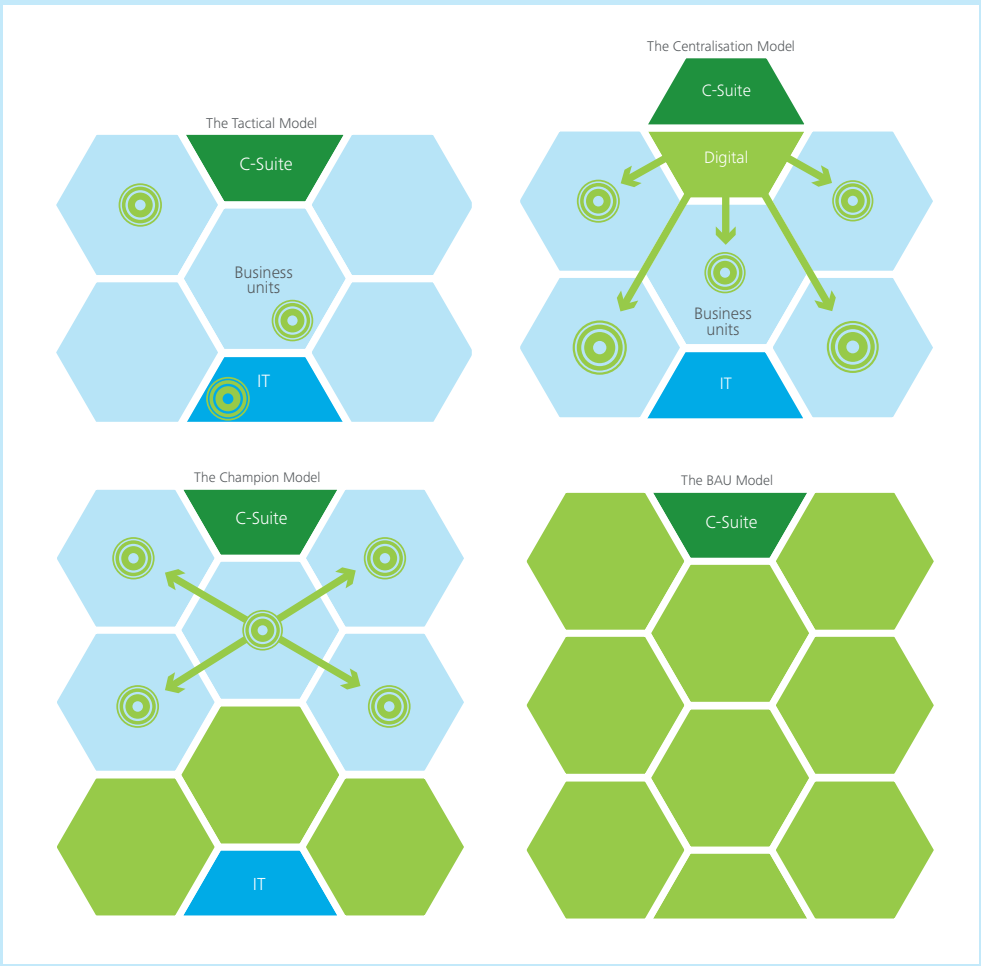
Yours sincerely,

Prof. Yeşim Toduk
Founding Partner of Amrop

The Process of Transition to a Digital Organization

In terms of ensuring continuity of digitalization within the organization, the structure employed by the entity plays a major role. Even though one cannot talk about a single correct means towards that goal, four fundamental models were observed in use by digitalizing companies (Source: Building Your Digital DNA, Deloitte, 2014). Even though the corporations are often observed to proceed with these models in specific orders, they are certainly not under obligation to try and experience each and every single model.

The models for transition to a digital organization



Tactical Model: The first type of digital organization is the tactical model in which digital technology and ways of working are used within business units to achieve existing targets. Business units use technologies that create great value quickly such as digital marketing, online sales channels, and technologies that support field force mobility without the need to re-engineer the way the business works. A challenge, however, is that these investments are often made in silos. Investments are typically large but not strategic. Digital remains at the edge of the business, its challenges and opportunities restricted to the minds of a few, and the subject treated as an exception to business as usual. In our experience the Tactical Model is extremely common in organizations that have a stated desire to establish a digital market presence, but who have so far not articulated a coherent digital strategy. And in our view there will soon become a time, and a competitive imperative, for these organizations to move to a more strategic use of digital.

The Centralization Model: In the Centralization Model, digital initiatives and skills are consolidated into a central unit. This enables appropriate governance over spend on digital. It also creates a structure for turning corporate strategy into priorities for digital initiatives with the central team being able to work with the business units to implement them. This structure enables the organization to scan the market for digital initiatives that will be beneficial for business units. As with most centralized organizational approaches, it also tends to be more efficient. In general, the central digital team is a transient feature of the organization that helps it gain control of investments, breaks down silos and teaches and empowers leaders to use digital techniques to transform the organization. It could become the optimum model for organizations where the role of the central team becomes a 'Digital Centre of Expertise'. However, in the majority of instances responsibility for digital should be broken up and passed to the business's operational leaders.

The Champion Model: In the Champion Model a digital strategy is in place and has been effectively communicated across the business. A central digital team no longer holds all responsibility for digital, all business units own the responsibility. The emphasis is placed on sharing knowledge, educating and enabling others in the business to develop processes. Organisations with this structure have enough openness and trust that they can focus on doing things rather than having meetings to plan how to decide how to do them. The most significant enabler of this model is deep understanding amongst leadership and employees of what digital really means and having a clear, shared digital strategy. It is also critical that shared capabilities such as data science, innovation and rapid prototyping enable the organization to be self-sufficient in digital techniques and ways of working without always relying on a central team.

The Business As Usual (BAU) Model: In this fourth and final model digital culture, processes, business models and technology are no longer unusual, but are fully embedded in daily working life. The business is flexible and responsive to change at all levels. There is no longer a need for a centralized function and those working on initiatives and with specific digital skills re-join business units. The business now behaves like a digital organization.

9

Lack of competency and strategy, security problems and lack of association with robust commercial results rank top among the issues which slow down digital transformation at corporations.

The study titled "Strategy, not Technology, Drives Digital Transformation" carried out in 2015 jointly by Deloitte University Press and MIT Sloan Management Review asked about the obstacles blocking an increase in digital technology development level. The responses referred to the lack of strategy and a failure to make clear definition of priorities as the leading obstacles. In Turkey, the responses to the same question include lack of capabilities (14%), lack of strategy (13%), security issues (13%), and lack of a robust business case (12%).

Issues slowing down the development of digital technologies

	Most important	Important	Least important
A general lack of strategy			
Security issues			
Lack of a robust business case			
Lack of capability			
Regulations			
Failure to keep up with digital developments			
Lack of a benchmark for the return on digital investment			
Lack of a roadmap for digital technology			
Failure to supply the resources to be required by digitalization			
Lack of coordination between departments			

Most preferred Second most preferred Third most preferred

Question: Which elements slow down the development of digital technology at your corporation? Could you rank top 3 important developments among themselves? (1- Most important, 3- Least important.) Multiple response
Base: 56
Note: Preferences which got the same score are marked with the same color.

For corporations in the earlier levels of digital maturity in particular, the lack of a clear digital strategy stands out among the obstacles (42%). The failure to achieve a robust business case ranks second (25%).

Issues slowing down the development of digital technologies

	Beginner	Developing	Mature
A general lack of strategy	42%	7%	0%
Lack of a robust business case	25%	16%	13%
Security issues	8%	7%	13%
Lack of capability	8%	24%	13%
Failure to supply the resources to be required by digitalization	8%	5%	0%
Lack of a roadmap for digital technology	4%	17%	0%
Regulation	4%	0%	0%
Lack of coordination between departments	0%	0%	13%
Failure to keep up with digital developments	0%	3%	25%
Lack of a benchmark for the return on digital investment	0%	13%	13%
Regulations	0%	5%	13%
Excessive cost of investments	0%	1%	0%
Deposits	0%	0%	0%

Question: Which elements slow down the development of digital technology at your corporation? Could you rank top 3 important developments among themselves? (1- Most important, 3- Least important.) Multiple response
Base: 56

As the level of maturity increases, clashing priorities and digital security rank top on the list of obstacles the corporations face at the global scale. However, a glance at the results for Turkey reveal that the lack of capabilities stands out as the most important problem corporations at the developing maturity level suffer (24%). It is closely followed by the lack of a digital technology roadmap. A third obstacle is the lack of a robust business case for digitalization, an obstacle suffered by corporations in the earlier stages of maturation as well. In parallel to the rising maturity levels of the corporations, the lack of a clear and definite means to assess the returns from digital investments are noted among the problems faced by corporations in the developing and mature levels of the scale.

The corporations note the failure to keep up with digital developments (25%) as the most important issue hindering the development of digital technology. As a natural result of the perspective the corporations gain as they mature, these organizations realize that the lack of coordination between the internal departments of the organization is a significant problem, in stark contrast organizations in other maturity levels.

General Assessment

Taking into consideration the global tendencies, instead of targeting individual digital initiatives as quick gains and seeking the development of digital technologies in silos, a planned approach in light of a digital strategy to support the corporate strategy is becoming a necessity if one expects success in digital transformation. When developing digital models, the corporations choose to evolve into more agile structures in order to survive in and adapt to a continuously changing digital world.

Within the scope of digital transformation, they focus on their customers, employees, and business partners, and create value for their corporations by employing strategies to optimize the processes and experiences of such stakeholders. In this context, the development of an infrastructure to enhance cooperation, and transition into more effective network models are starting to take their toll on the organizational silos. Rather than thinking in terms of static ecosystems, they choose to optimize the value chain in a dynamic manner.

Digital corporations do not restrict themselves to a limited physical space. Within the organization, they mobilize the cultural change to facilitate and encourage mobile and online business, and they provide infrastructure elements such as the cloud.

Furthermore, they increase visibility in order to understand their internal processes, and develop the capabilities to transform the big data they gather into smart data.

On the governance aspect, the corporations review their organizational structures on the path to digitalization, seek to acclimatize with the changes happening in the market with an aim to maintain their business models up to date, and also change the market in turn. Instead of maintaining their existing processes utilizing their current set of capabilities, the corporations adapt new products and services, business and operating models, and lead digital disruption.

In the digitalization process, the corporations are required to think big but start small with respect to technology, to develop rapid sampling capabilities, to test them actively at every stage of implementation, and to scale them in time. As noted above, disruptive change is distinct from incremental improvement due to its disruptive effect on existing ways of doing business, and its impact of forced change on such ways of doing business. Therefore, one should take into account the fact that the major difference between disruptive change and incremental improvement is not about the pace of implementation, but about their impact on the operations of corporations.

The single most important element concerning this process is about the execution of digital transformation by a leader, and the support of the CEO and the board of directors. In the current state of affairs, corporations in Turkey present a grasp of the importance of the matter at a level rivaling those of the global corporations. In the subsequent periods, how the corporations manage the digitalization process will play a crucial role. The crucial concept, in this respect, is the transformation of corporations to digital organizations aiming to render digital ways of operation as the ordinary ways of doing business. Through this process, a really successful CDO turns into a CDO which intends to complete the digital transformation and to render herself redundant.

One of the leading matters requiring development in the days to come is considered to be the creation of a set of capabilities to support digitalization. With a view to preventing a capability deficit in organizations undergoing rapid change and development, it is elementary for the corporations to provide trainings and initiatives required to provide the capabilities to support maturation in the digital context.

Levels of digital maturity are now beginning to be listed among the criteria talent seeks in potential employers. According to the results of the global surveys, the individuals prefer to work at corporations with a more advanced position on the digital maturity scales. This tendency may be expected to spill over to next generation of employees and students in Turkey as well.

Deloitte, with reference to its experience with digitally innovative corporations, observed six shared characteristics of such entities:

1. They build innovative teams operating with a design-focused perspective, develop competencies, and come up with ideas for disruptive development. These teams push the envelope for every possibility; build on their successes and include them in the primary field of operation of the corporation.
2. They have an understanding of digitalization extending way beyond an outlook of technology, and have digitally reviewed the whole organization from supply to delivery. They also assess the benefits going digital would have on these processes.
3. A third shared characteristic lies in their strength as ecosystem players. They refuse to carry out their operations in silos, and at all times take steps to ensure the integration of various functions.
4. Their fourth shared characteristic is their disruptive mode of thinking. They set brave targets, and refuse to take only small steps towards the target. They do not fear failure in their path towards their goals.
5. The fifth shared characteristic of these corporations is the skill to take and implement decisions rapidly. They wear R&D activity glasses for digital initiatives, and help grow ideas through small and iterative steps. They risk failure with some ideas, with the will to proceed quickly with the ideas which do succeed.
6. Finally, all these corporations operate with a focus on the customer. Their first priority is to create value for the customer at all touchpoints, by adapting an outside in perspective. They focus on revenues and key performance indicators showing the added value generated on the road towards digitalization.

Corporations which intend to achieve digital maturation come to realize their disruptive edge once they duly establish these fundamentals. It is now recognized in global markets that digital technologies do not solely bring about digital transformation, and that this process can be successful only through the development of new business models on part of the employees on the basis of combination of creative use of digital technologies and correct culture, objectives, infrastructure, and processes. Such developments which have been long in the making accompany a certain level of market maturity as well.

Digital transformation, regardless of the industry, stands out as an issue regarding which senior executives in Turkey exhibit a high level of awareness. Taking into account the turnover from digital channels, the digital strategy, appointment to the CDO position, level of digital maturity, and digital investments, which are among the important components of digital transformation, it is clear that we have substantial distance to cover. A high level of awareness about digital transformation, on part of the senior executives of corporations, and their embracing of the issue suggest that this distance will be covered quickly.

Dedicated Section: An Assessment of the Banking Sector

CEO Perspective*

"Digital transformation is the single most important element which can enhance the global competitive power of Turkey."

Pınar Abay
CEO, ING Bank A.Ş.

"In essence, the issue is about converting the convenience you will provide to the customer, to actual competitive advantage."

Faik Açıkalın
General Manager, Yapı ve Kredi Bankası A.Ş.

"The new age already began, but most are not yet aware of it."

Hakan Ateş
General Manager, Denizbank A.Ş.

"One word summarizes what digital transformation means to me: 'disintermediation'. Disintermediation in what? Doing away with the parts of the value chain, whose conventional role based on the former business model became fictional due to the process of technological digital transformation. This would lead to a shorter distance between the provider of the service or the product, and its end user; effectively simplifying and increasing the efficiency thereof. This process cannot be stopped, neither by entry barriers, nor by an operating license, or the lock-in applied on the customers."

Adnan Bali
General Manager, Türkiye İş Bankası A.Ş.

"Digital transformation is a must for our future."

Hakan Binbaşgil
General Manager, Akbank T.A.Ş.

"Digital transformation is the new definition of both the experience we offer to our customers, and of our own ways of doing business."

A. Fuat Erbil
General Manager, Türkiye Garanti Bankası A.Ş.

"Even though Turkey could be leading digital transformation given its demographics, it cannot do so, due to regulations."

Temel Güzeloğlu
General Manager, Finansbank A.Ş.

"The cost of not investing in digitalization is way higher than investing in it."

Cemal Kişmir
General Manager, BNP Paribas Cardif Emeklilik A.Ş.

"Digitalization is the efficient use of time for both the consumer, and the producer."

Ümit Leblebici
General Manager, Türkiye Ekonomi Bankası A.Ş.

"Digital transformation increase the pace of decision-making processes and curb our costs, by providing efficiency."

Hüseyin Özkaya
General Manager, Odeabank A.Ş.

"In every branch of the economy, the corporations seek to reinforce their digital reflexes. A leap forward on this front is not an option; it is a must."

Galip Tözge
Financial Services Group Director,
Çalık Holding / Banking Sector

"In particular in countries like Turkey, which are in need of wide-ranging change, both the consumers and the companies should make utmost use of technology, and utilize the transformative power of digital. The competitive edge of a company can be built on that ground."

Özcan Türkakın
General Manager, Türkiye Sınai Kalkınma Bankası A.Ş.

*Ordered alphabetically according to last names.

Dedicated Section: An Assessment of the Banking Sector

Having ventured forward with digital transformation earlier than other sectors of Turkish economy, banking sector stands out among the crowd on many fronts. Our assessment of the agenda of digital transformation, on the basis of interviews with CEOs of 11 leading banks of Turkey is provided separately.

The share of digital channels: A glance at the share of digital channels in the deposit and credit revenues reveal a figure of 11-20% for 5 banks, while a rapid digitalization is expected by the banks, in 2016. By 2019, more than half of the banks are expected to generate 30% or more of their deposit and credit revenues over digital channels.

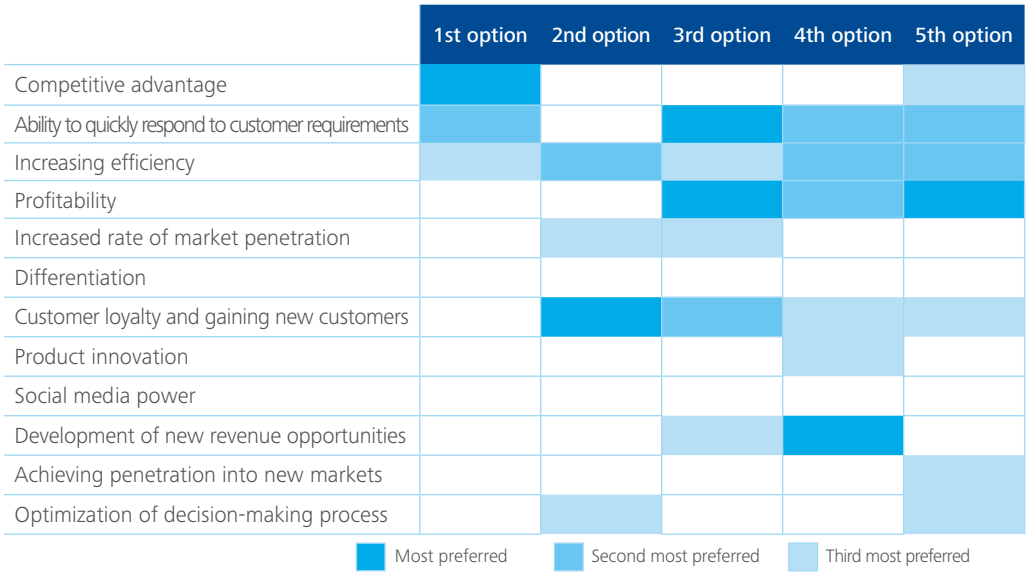
Number of banks with reference to the share of turnover from digital channels

	Number of Banks - Current Digital Revenues	Number of Banks - Digital Revenues in 2016	Number of Banks - Digital Revenues in 2019
More than 51%	0	0	1
41% - 50% range	0	1	3
31% - 40% range	1	0	3
21% - 30% range	1	3	1
11% - 20% range	5	6	3
5% - 10% range	3	1	0
Less than 5%	1	0	0

Question: What percentage of your turnover is derived from digital channels? Could you provide us with the projections for future periods? Single response for each column. Digital channel: E-commerce (web site), mobile apps etc.
Base: 11

Grounds for digitalization: When asked about the grounds of digitalization, the first reason voiced was competitive advantage (36%). Increased efficiency (20%) and faster response to customer requests (18%) stand out among other reasons mentioned. These responses are followed by profitability (16%) and customer loyalty and attracting new customers (16%).

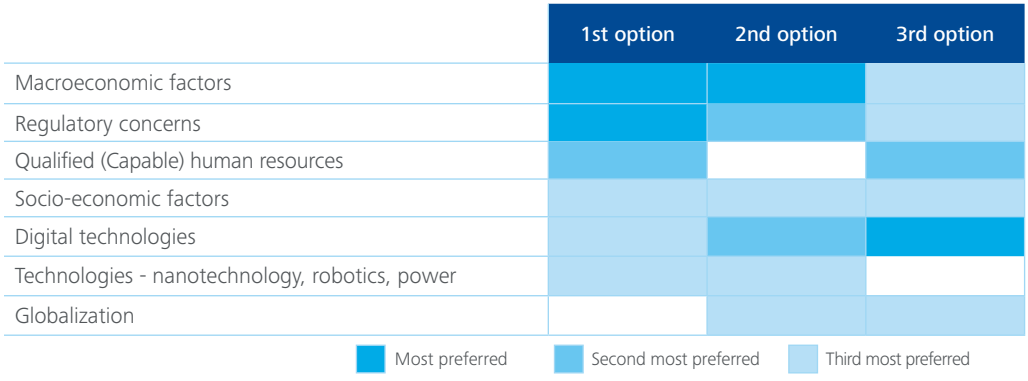
Causes encouraging digital transformation



Question: Could you please choose top-5 reasons encouraging digital transformation described above? Could you rank top 5 reasons among themselves? (1- Most important, 5- Least important.) Ordering, single response
Base: 11
Note: Preferences which got the same score are marked with the same color.

The impact of external developments on the banking sector: The top three external factors regarding the banks were macroeconomic factors (26%), regulatory issues (19%), and digital technologies (19%).

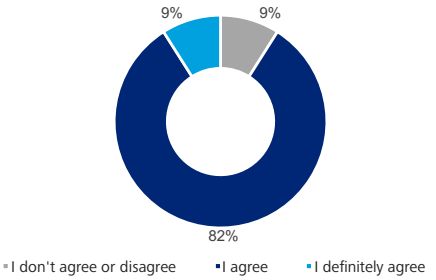
Significance of external developments



Question: Which external developments mentioned above are important for you? Could you rank top 3 important developments among themselves? (1- Most important, 3- Least important.) Ordering, single response
Base: 11
Note: Preferences which got the same score are marked with the same color.

Digital strategy: The banks believe that their digital strategies are clear and comprehensible. For the digital strategy to succeed, it should have a very clear definition (82%), followed by the ability to secure human resources capabilities (55%).

Clarity and comprehensibility of the organization's digital strategy



Question: Could you please state your level of agreement with the statement I will read now? Single response: "The digital strategy of our organization is clear and comprehensible."
Base: 11

Factors contributing to the success of digital strategy

Question: Could you assign scores on a scale of 1 to 5 to the importance of the criteria I will read now, with reference to the success of the digital strategy, from the perspective of your company? Each line, a single response
Base: 11

The obtaining of the returns from digital investments: Senior executives note a clear vision regarding the competitive advantage digital technologies bring (91%) and a well-thought investment plan entailing a measure of success (91%) as crucial elements in terms of maximizing the benefits of digital investments for the bank. Leading the use of digital technologies within the company as a CEO (45%), is not considered to be a factor with a comparable level of importance.

The fields of investment for the banks: The banks mention digital technologies (73%) and required human resources (73%) as the areas of investment with the highest priority in the current and next year, yet consider them relatively less important within 3 and 5 years into the future (64% and 55%).

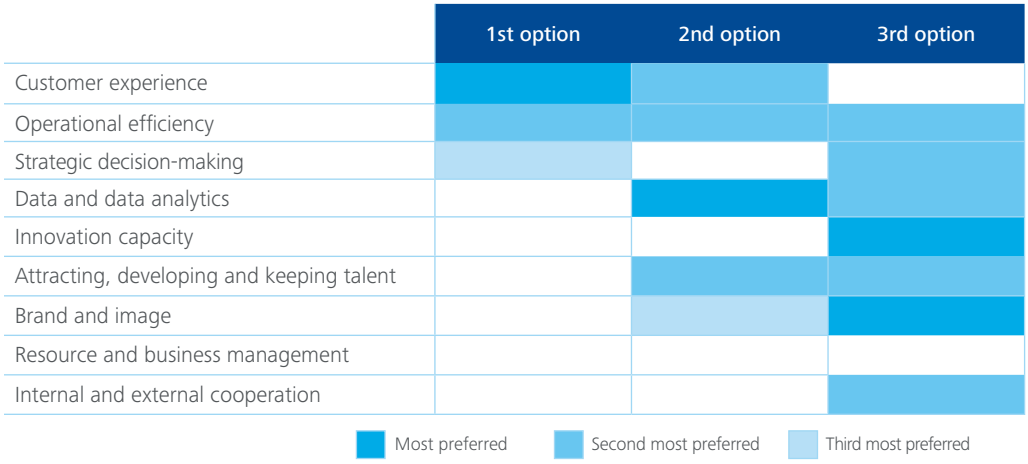
Priority of the investments regarding digital technologies and human resources

Question: What is the level of priority your organization assigns to investments on digital technologies and required human resources? Could you please provide separate responses for each year I will ask for? Each line, a single response
Base: 11

Even though the investments in this context are believed to influence the enhancement of customer experience (36%), operational efficiency (18%), data and data analytics (18%) are also issues of note.

In a similar vein, the banks consider data and data analytics (82%) among the leading areas where digitalization create the highest level of value. It is followed by the innovation capacity (64%), brand and image (64%), and operational efficiency (55%).

Top value creating digital technologies



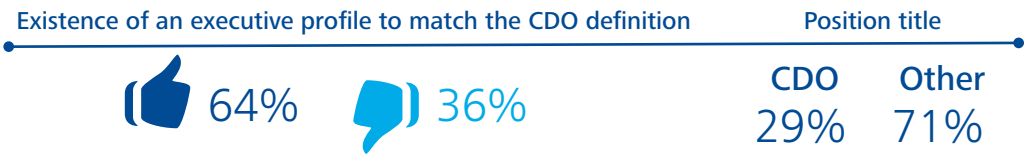
Question: Could you please state the extent of value digital technologies create in the following fields, for your organization? Could you please rank the top 3 (1- Most important, 3-Least important)? Please attach a single score to each statement.
Base: 11
Note: Preferences which got the same score are marked with the same color.

Top value creating digital technologies

	Very high value	High value	Medium value	Low value	Very low value
Data and data analytics	82%	9%	9%	0%	0%
Brand and image	64%	18%	18%	0%	0%
Innovation capacity	64%	27%	9%	0%	0%
Operational efficiency	55%	36%	9%	0%	0%
Customer experience	55%	36%	0%	9%	0%
Strategic decision-making	45%	45%	9%	0%	0%
Attracting, developing and keeping talent	27%	55%	9%	9%	0%
Source and supply chain management	27%	45%	27%	0%	0%
Internal and external cooperation	27%	55%	18%	0%	0%

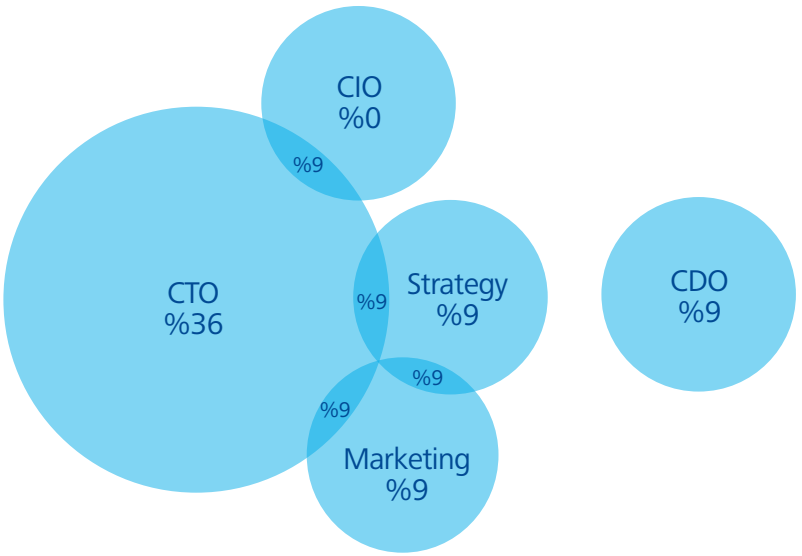
Question: Could you please state the extent of value digital technologies create in the following fields, for your organization? Could you rank top 3 important developments among themselves? (1- Most important, 3- Least important.) Please attach a single score to each statement.
Base: 11

Roles which assume responsibility for digital transformation at the banks: 64% of the banks report the existence of an executive which meet the job description of CDO, while 29% of these banks note that the position is assumed by an executive titled exactly CDO. On the other hand, a significant number of the banks have CTO assuming the leadership of digital transformation (63%). A significant number of respondents (68%) state that CTOs should assume the leadership of digital transformation in the future.



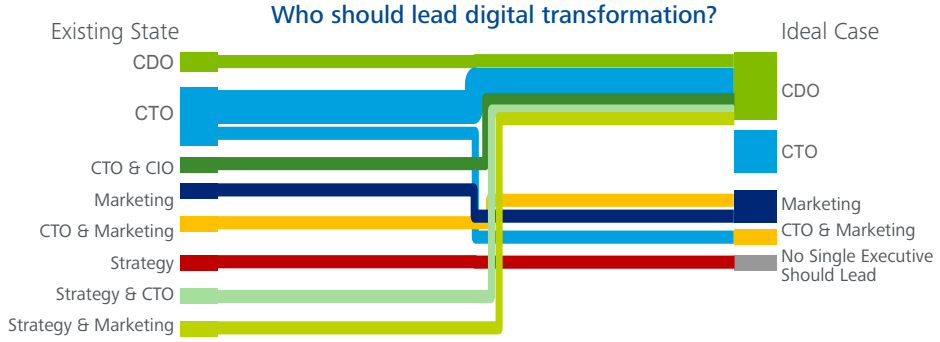
Question: CDO (Chief Digital Officer) (or Digital Transformation Director or Vice President in Turkish) position is defined with reference to senior executives which is responsible with the development and implementation of digital strategies of the corporations, and in brief, with all digital activities; and is experienced in most of the fields of information technologies, sales, marketing, strategy and business development, and finance. In this context, does your corporation have an executive profile matching the definition of CDO? If yes, please specify the name of the position, and to whom the relevant executive reports. Single answer
Base: 11

Leader of digital transformation at the corporation



Question: Who exactly, meaning which position(s) leads digital transformation at your corporation? Could you please distribute an overall score of 100 among the options provided in the table above? You can assign all 100 points to a single position, or distribute it to a multiple of positions. Then, could you please state the ideal distribution?
Base: 11

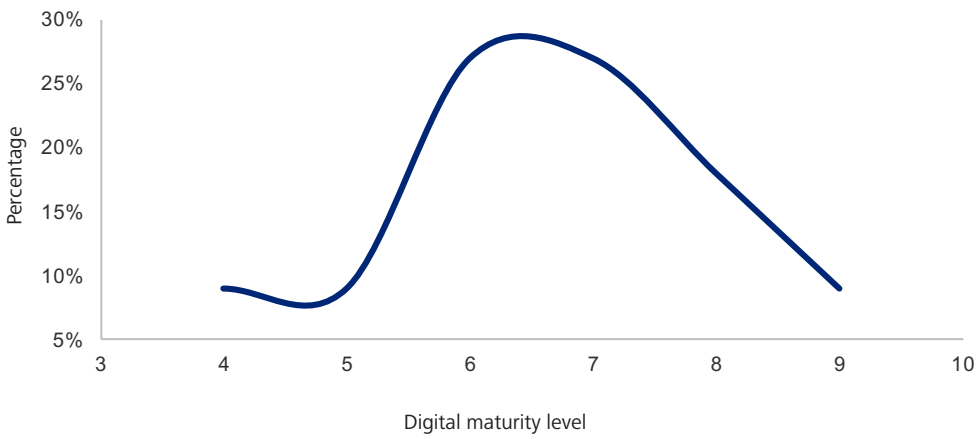
Who should lead digital transformation?



Question: Who exactly, meaning which position(s) leads digital transformation at your corporation? Could you please distribute an overall score of 100 among the options provided in the table above? You can assign all 100 points to a single position, or distribute it to a multiple of positions. Then, could you please state the ideal distribution?
Base: 11

Digital Maturity: 45% of the banks state their level of digital maturity as "developing", while 55% consider themselves to be mature.

Digital maturity levels of banks



Question: Could you assign a level in the scale from 1 to 10, to describe the digital maturity level of your corporation? Single answer
Base: 11

Communication of digital transformation and access: 64% of the banks report substantial emphasis on digitalization in their most recent annual report, while all the banks report the ability to reach out to their clients via social media, and 73% report employees sharing content about the corporation.

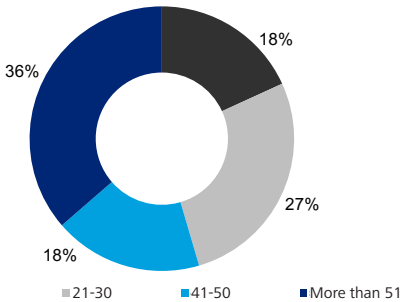
Communication of digital transformation

Digitalization received significant attention in the latest annual report	We are able to reach out to our clients via social media	Our employees share content about our corporation via social media
64%	100%	73%

Question: Could you please respond to the statements above, with reference to their applicability to your corporation?
Base: 11

Investment level: It is significant that the banks divert a significant part of their investments to digitalization, in line with their maturity levels. All the banks invest on digital marketing, internet of things, wearable technologies, mobile technologies, renewable energy technologies, e-commerce, customer experience and business analytics, and plan to increase their investments in the subsequent periods. No plans for a comparable level of investments into cloud and big data are expected to follow in the future, particularly due to reasons associated with the regulations.

Percentage of investments into digital



Question: What percentage of your all investments are made into digital? (e.g. internet, mobile apps, hardware)
Base: 11

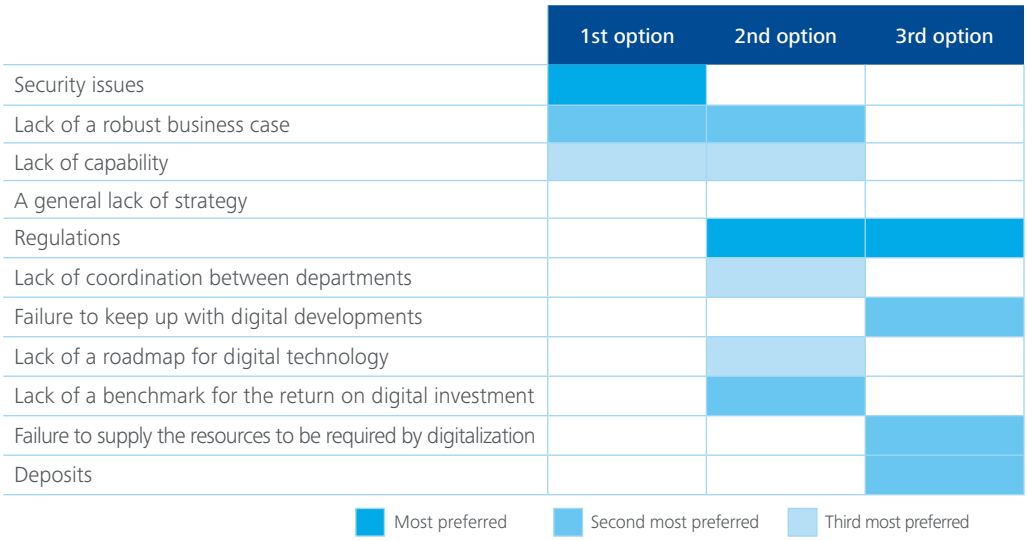
Areas receiving investment, current state - future

	2015	2016-2018	To increase
Digital marketing (social media etc.)	100%	100%	100%
Internet of Things (IoT)	100%	100%	100%
Wearable technologies	100%	100%	100%
Mobile technologies	100%	100%	100%
Renewable energy technologies	100%	100%	100%
E-commerce	100%	100%	100%
Customer experience	100%	100%	100%
Business analytics (Data analysis and mining)	100%	100%	100%
Cloud	91%	91%	82%
Big data	82%	82%	82%
Supply chain visibility	64%	64%	55%
Product cost analysis	45%	64%	45%
Cyber security	9%	27%	27%
Robotics	9%	18%	18%

Question: Which of the areas of technology noted in the table above will you be investing in this year? In the next 2 years? Which areas will see increased investment? Multiple response
Base: 11

Obstacles before digital transformation: Banks consider regulations (73%) to be among the leading factors which slow down the development of digital technologies. A second such factor is the inability to present a robust business case for digital technologies (45%), while security issues are a third. Lack of capabilities (27%) is also mentioned as significant.

Issues slowing down the development of digital technologies



Question: Which elements slow down the development of digital technology at your corporation? Could you rank top 3 important developments among themselves? (1- Most important, 3- Least important.) Multiple response
Base: 11
Note: Preferences which got the same score are marked with the same color.

Perception of competition in the future and start-ups from other sectors: The banks believe that new competitors they will face in the future will rise among the ranks of other sectors (82%), as well as from among start-ups (73%). Such newcomers in the competition are expected to come from the technology companies mostly (82%). They are followed by financial services providers (55%), and retail sector (45%) as a significant third.

Where will the competitors rise from?

Start-ups	Current sector	Other sectors	No change
73%	55%	82%	0%

Question: What will be the source of new entities which may compete with your company? Multiple responses
Base: 11

Where will the competitors rise from?

Financial services	Retail	Health	Technology	Entertainment & Media	Energy
55%	45%	9%	82%	18%	9%

Question: Please specify the "other sectors" which will provide the potential sources of new developments to compete with your corporation. Could you please specify which sector listed above would provide new competitors for you?
Base: 9

With gratitude to CEOs who took part in our survey...

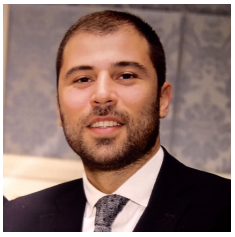
Pınar Abay
CEO
ING Bank A.Ş.

Hulusi Acar
CEO
Doğtaş Kelebek Mobilya San. ve Tic. A.Ş

Faik Açıkalın
General Manager
Yapı ve Kredi Bankası A.Ş.

Erkan Akdemir
CEO
Türk Telekom Consumer Business Unit

Murat Akgiray
Chairman of the Board of Directors
Bimeks Bilgi İşlem ve Dış Tic. A.Ş.



Ahmet Akın
Member of the Board of Directors
Akın Holding A.Ş.

Pelin Akın
Member of the Board of Directors
Akfen Holding A.Ş.

C. Müjdat Altay
Chairman of the Executive Committee
Netaş

Evrim Aras
Chairman of the Board of Directors & CEO
Aras Kargo Yurtiçi ve Yurtdışı Taşımacılık A.Ş.

Hakan Ateş
General Manager
Denizbank A.Ş.

Adnan Bali
General Manager
Türkiye İş Bankası A.Ş.

Burak Başarır
Chairman of the Executive Committee (CEO)
Coca-Cola İçeçek A.Ş.

Erol Bilecik
CEO
İndeks Bilgisayar Sistemleri Mühendislik San. ve Tic. A.Ş.

Hakan Binbaşgil
General Manager
Akbank T.A.Ş.

Uğur Bozluolçay
Chairman of the Executive Committee
Bozlu Holding A.Ş.

Hakan Bulgurlu
General Manager
Arçelik A.Ş.

Ordered alphabetically according to last names.
Titles are based on the titles valid on the date of interviews.

Ceyda Çarmıklı Kılıçaslan
(Executive) Member of the Board of Directors
Nurol Gayrimenkul Yatırım Ortaklığı A.Ş.

Ahmet Dördüncü
CEO
Akkök Holding A.Ş.

Faruk Ekinci
Co-Chair of the Board of Directors
Ekinciler Holding A.Ş.

A. Fuat Erbil
General Manager
Türkiye Garanti Bankası A.Ş.

Meral Eredenk Kurdaş
General Manager
AvivaSA Emeklilik ve Hayat A.Ş.

Galya Frayman Molinas
President
Coca Cola Meşrubat Pazarlama Danışmanlık Sanayi ve Tic. A.Ş.

Ronald Grünberg
Member of the Board of Directors
BSH Ev Aletleri Sanayi ve Ticaret A.Ş.

Esin Güral Argat
Member of the Board of Directors
Gürallar Group

Bülent Gürcan
General Manager
Teknosa İç ve Dış Ticaret A.Ş.

Temel Güzeloğlu
General Manager
Finansbank A.Ş.

Önder Halisdemir (Ph.D.)
Chairman of the Executive Committee
Ağaoğlu Group of Companies

Ergun Hepvar
General Manager
Olmuksan International Paper Ambalaj San. ve Tic. A.Ş.

Erkan Kafadar
Member of the Executive Committee
Borusan Holding A.Ş.

Barış Karakullukçu
CEO
Mudo Satış Mağazaları A.Ş.

Erdal Karamercan (Ph.D.)
CEO
Eczacıbaşı Group

Cemal Kişmir
General Manager
BNP Paribas Cardif Emeklilik A.Ş.

Ordered alphabetically according to last names.
Titles are based on the titles valid on the date of interviews.

T. Murat Kolbaşı
Chairman of the Board of Directors
Arzum Elektrikli Ev Aletleri San. ve Tic. A.Ş.

Ümit Leblebici
General Manager
Türkiye Ekonomi Bankası A.Ş.

Mehmet T. Nane
General Manager
CarrefourSA Carrefour Sabancı Ticaret Merkezi A.Ş.

Osman Okyay
President
Kale Group of Companies

Gökhan Öğüt
CEO
Vodafone Turkey

Ahmet Özer
Member of the Board of Directors
Hürriyet Gazetecilik ve Matbaacılık A.Ş.

Hüseyin Özkaya
General Manager
Odeabank A.Ş.

Nuri Öztaşkın
General Manager
Yataş Group

Murat Özyeğin
Member of the Board of Directors
Fiba Group

Mehmet N. Pekarun
Industry Group President
Hacı Ömer Sabancı Holding A.Ş.

Tamer Saka (Ph.D.)
Chairman of the Executive Committee
Kibar Holding A.Ş.

Mustafa Sani Şener (M.Sc.,Ph.D.)
Chairman of the Executive Committee
TAV Havalimanları Holding A.Ş.

Özgür Şimşek
Member of the Board of Directors
Eren Holding A.Ş.

Deran Taşkıran (Ph.D.)
General Manager
Boyner Büyük Mağazacılık A.Ş.

Süha Taşpolatoğlu (Ph.D.)
CEO
Abdi İbrahim İlaç Sanayi ve Ticaret A.Ş.

Kaan Terzioğlu
CEO
Turkcell İletişim Hizmetleri A.Ş.

Ordered alphabetically according to last names.
Titles are based on the titles valid on the date of interviews.

Gökhan Tezel
General Manager
Aygaz A.Ş.

Ö. Özgür Tort
General Manager
Migros Ticaret A.Ş.

Galip Tözge
Financial Services Group Director
Çalık Holding / Banking Sector

Tankut Turnaoğlu
CEO
P&G Tüketim Malları Sanayi A.Ş.

Cem Tüfekçi
(Executive) Member of the Board of Directors
Traçim Çimento San. ve Tic. A.Ş.

Özcan Türkakın
General Manager
Türkiye Sınai Kalkınma Bankası A.Ş.

Mustafa Ünal
Chairman of the Board of Directors
Verusa Holding A.Ş.

Şükrü Ünlütürk
Chairman of the Board of Directors
Sun Tekstil San. ve Tic. A.Ş.

Haydar Yenigün
General Manager
Ford Otomotiv Sanayi A.Ş.

Muharrem Yılmaz
Chairman of the Board of Directors
Sütaş Group

Ordered alphabetically according to last names.
Titles are based on the titles valid on the date of interviews.

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