Digitalization as Investment in Change

Joe Peppard

"We know that senior leadership's drive and support are critically important, particularly when you have to transform your organization."

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30

YEARS

Welcome Address by Prof. Danica Purg, President of IEDC-Bled School of Management

Dear Prime Minister of the Republic of Slovenia, Dr. Cerar,
Your Excellencies,
Dear ladies and gentlemen,

Welcome to Slovenia, the IEDC-Bled School of Management, and our Annual Presidents' Forum, a traditional event at our school. But this year is a special one because we celebrate the 30th anniversary of the establishment of our institution. When we set it up in 1986, the word "management" was not well regarded in former Yugoslavia. Therefore, I found a way around that and called the school "International Executive Development Center", IEDC. We have kept this name for the sake of tradition, even though "Bled School of Management" has now become our brand name.

You must have noticed some of the posters around the school. It is a small exhibition about school's history. Since the start, we have had 80,000 participants from 85 countries. About 4,000 of them have taken long programs, such as Executive MBA, doctoral studies, or our general management program for young managers.

IEDC-Bled School of Management was the first school of its kind in Central and Eastern Europe. It has become a real agent of change in this part of the world. We have also supported other schools so that they, too, become change agents in their own countries. With this aim in mind, we established CEEMAN in 1993. Today, this association has 220 members from 55 countries. Originally, it was a Central and Eastern European association of business schools but by now we have expanded our activities across the globe, in Africa, Latin America, and Asia. Next year, we are going to organize two important international conferences, in Hangzhou and Chengdu in China. We are also going to launch an executive MBA program on the "Silk Road" with the prestigious school of management at Zheijiang University in Hangzhou and three other schools on that "road".

Over the years, we have internationalized our school and have become well known as the institution that develops leaders in an innovative and responsible way. As the challenges of today's world require a new type of leader and leadership development, we focus on leadership as an integrative practice within organizations, emphasizing not only functional business skills but also worldly views on ethics, sustainability, creativity, and innovation. In this way, we continue to be an agent of change.

The topic of this year's forum is digitalization as an investment in change. It is a great pleasure for me to introduce you to Professor Joe Peppard of the European School of Management and Technology, in Berlin
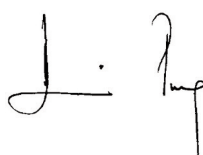
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and adjunct faculty member at the University of South Australia. He is an expert in information systems, digitalization, and digital strategies. Professor Peppard works closely with senior executives and board members of large and complex organizations in the public and private sectors. He has taught courses for companies such as ThyssenKrupp, Bosch, and E.ON. He has worked with a number of technology companies, helping them with their strategy, market positioning, and growth. Joe has also authored several books. Each participant today will get a copy of his most recent book The Strategic Management of Information Systems, Building a Digital Strategy.

I would like to read a quote from a recent article that he published in the Harvard Business Review: "Research over the years suggests that the overall failure rate of IT projects is around 70 percent. We know that the reason for that is usually not because the technology did not work but because the changes required at an organizational and employee level were not managed effectively". So, it always boils down to leadership.

At a roundtable after his lecture, we will hear how business leaders cope with management challenges, what experiences they have been through, the successes and failures that they have learned from, and their advice to all of us.

[02]   *We have with us Mr. Simon Kaluža, chief executive officer of SAP Central and Eastern Europe, Mr. Thomas Marschall, disruption advisor and business angel investor from Denmark, Mr. Dejan Ljuština, Price Waterhouse Coppers partner, and Mr. Robert Serec, chief executive officer of Pomurske Mlekarne, in Slovenia.*

Now, I give the floor to the prime minister of the Republic of Slovenia, Dr. Miro Cerar.

Prof. Danica Purg
President

Opening Address by Dr. Miro Cerar, Prime Minister of the Republic of Slovenia

Dear Professor Danica Purg,
Distinguished guests,
Ladies and gentlemen,

It is my great pleasure to address you at the opening of this Annual Presidents' Forum, particularly in the year when this school is celebrating its 30th anniversary. This anniversary reflects the excellent work and dedication of Professor Purg and her team, who have proved time and again that knowledge, determination, and hard work bring great achievements. Therefore, I sincerely congratulate Professor Purg. Dear Danica, thank you for this excellent atmosphere. I wish you and your team a lot of success in the future.

The topic of this year's Forum is "Digitalization as Investment in Change". This is indeed a topical issue as we live in a period of great shifts and change in all segments of society. Some analysts are talking about a new industrial revolution. This poses a particular challenge to governments that must implement these new contents in the operations of their systems while empowering their citizens so that they can use these contents and take advantage of all the advantages that they offer. My government recognizes that organized and strategically planned digital transformation is essential for the successful development of our country. To this end we have adopted key strategic documents that have been drafted on the basis of a broad debate and give clear development directions. We have also appointed a chief digital officer and have made a commitment to establish a wide digital coalition between businesses, the government, civil society, and the research sphere. We strongly believe that digital transformation is not simply computerization of existing business processes. It brings about radical change of business models, financial flows, supply, and demand. It will completely and irrevocably transform our way of life.

In the past, it was mostly companies that competed in international markets with their technologies and business models. Now, it is increasingly countries that compete in global markets, not on the quality of products and services but on the quality of their supporting environment. Thus, my government has given digital transformation absolute political priority. This is not merely a challenge or an urgent need in terms of our country's competitiveness. Above all, it is a tremendous opportunity. The initiative called "Slovenia, a green reference country in a digital Europe" shows our considerable ambition to become recognized as one of the leading countries in the digital transformation. Our aim is therefore not simply to benefit from future solutions but also to be involved in their creations. We are therefore

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unwavering in our resolve to work with the best in a spirit of mutual respect so as to achieve our common goals. The implementation of digital solutions at the system level will help bring about more efficient state systems with better governance, leading to a better life for us all.

As Darwinian theory tells us, it is not necessarily the fastest, largest, or strongest that survive. It is those that adapt best and fastest to a new environment. The environment of the Fourth Industrial Revolution, including Big Data, three-dimensional printing, the Internet, and many other technologies, has now emerged. It is up to us to adapt to this environment and take advantage of its technologies for the benefit of the economy and our citizens, and emerge among the victorious countries. By doing that, we will increase even further the already high-quality of life in our beautiful country, Slovenia.

Let me add something regarding the quality of our lives. When we talk about progress and development, new technologies, new ideas, and new services, we must not forget that we must stand on a sound ethical foundation. We all know that technology can be used for good and bad purposes. Our main purpose must be to use new technologies, innovation, and all new ideas, for the benefit of our people and all mankind. Throughout the history of the world, important achievements have been used to heal people, to give them jobs, and improve their lives in other ways. But they have also been used to make war and some are destroying our planet. We cannot have sustainable development if we do not have the appropriate values that will support life on this planet. I sincerely believe that this Fourth Industrial Revolution must be strongly pervaded with this kind of thinking. Otherwise we will run into conflicts that will harm us all.

Ladies and gentlemen, I would like once again to congratulate this excellent business school on its anniversary. I wish you all an enjoyable gathering and a lively and fruitful discussion.

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DIGITALIZATION AS INVESTMENT IN CHANGE

Prof. Joe Peppard,
European School of Management and Technology (ESMT), Germany

Let me first tell you why I am here. In July, Danica called me and invited me to be this year's speaker at the Presidents' forum. She explained to me that the topic would be around the theme of digital disruption. I immediately accepted on the condition that if I came to speak to the forum's audience, I would not like to talk about Uber, Alibaba, Facebook, Apple or Google. Rather, I would like to speak about companies that the audience can identify with. This morning, I want to talk about what is really happening out there, specifically, to focus on some of the challenges that I am seeing in my work with organizations as they look to embrace digitalization.

And this is what brings us to the title of my talk. The history of computerization and digitalization in organizations is, unfortunately, not stellar. Research indicates that between 60 to 70 percent of the investments that organizations make in information technologies, are either under-achieving or failing to deliver expected business outcomes. This is where I would like to focus on in my talk.

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I have a couple of objectives that I have set myself. The first one is to re-orient your frame of reference. I will try to have you see the world through my glasses. I have been involved in digitalization in the last 30 years. I have seen some great examples and a lot of bad ones but I have learned a lot. From both my research and consulting I have constructed a particular frame of reference that I would like to share with you. Second, before beginning any conversation on digitalization, you need a language. I would like to provide you with one. Finally, since this talk is taking place under the auspices of a business school, I would like to give you a couple of models to help you make sense of what is happening in respect of digitalization today, enabling you to focus on the challenges that might be accompanying the digitalization agenda in your organizations.

When I teach a small group of executives, I often start with this question. You do not have to respond, but you might want to reflect on the question. **How does digitalization differ from information technologies?** As you can imagine, over the years I have received lots of different responses. And I point out to my audiences that this is exactly what all the technology vendors and consultancy and advisory organizations want you to believe: that digitalization is somehow

different from IT. IT is a digital technology and digitalization is being enabled and shaped by advances in IT.

Moreover, I can point to lots of examples of what leading companies tried to do over the decades when the technology was not nearly as powerful as it is today. Let us consider Otis Elevators. They compete against the likes of Schindler, ThyssenKrupp and Kone. Almost 40 years ago, in 1978, Otis launched a new service for their customers called Otisline. The service was, in effect, one that optimized the uptime of the elevator. To deliver this service required that the company could remotely detect when an elevator was likely to breakdown. On detecting a problem, the elevator would automatically contact a call center and an engineer would be dispatched to rectify the problem. Today, this example would be cited as a digital business model. My observation over the decades is that leading companies have always tried to seek out opportunities to harness the capabilities of technologies available at the time.

[06] Many of you will be familiar with the work of Michael Porter: value chain analysis, the five forces, and so forth. He wrote an article in the Harvard Business Review in 1985, the year before this School was founded. Its title was "How Information Gives You a Competitive Advantage". Even today, every single message in that article resonates with the conversations on digitalization that are taking place in organizations. Just read the first paragraph: "Most general managers know that a revolution is under way and few dispute its importance. As more and more of their time and investment capital are absorbed in information technology and its effects, executives have a growing awareness that the technology can no longer be the exclusive territory of EDP or IS departments. As they see their rivals use information for competitive advantage, these executives recognize the need to become directly involved in the management of the new technology. In the face of rapid change, however, they don't know how".

You recognize that today. And some of you may be here for that reason: "We are talking about digitalization. I do not really know what to do about it". This is not anything new.

As I prepared for today's lecture, I looked at a book written almost 20 years ago by Richard Heeks. There is a table in the book labelled "Phases of management strategies for the information age". Of course, if the authors were writing that book today, they would not be using the label "Information Age". They would probably have called it "the Big Data Era". But 20 years ago, someone from Gartner

had not yet dreamed up the term Big Data to confuse everybody and suggest that somehow Big Data is something new. **Big Data is simply a label describing the fact that today there are lots and lots of data.** It is not as if organizations have not been struggling with data. That was the very reason that companies started using computers in the first place! They needed to manage their data more effectively. Then, over the years, there was this realization that data are a critical resource and that data could be leveraged to provide a competitive advantage in the marketplace.

Twenty years ago, they used the label business transformation. Today we talk about digital transformation: changing an organization completely by transforming processes, particularly those that are customer facing or core to delivering the organization's value proposition. That is what the prime minister was referring to: harnessing information systems so as to meet the needs of citizens. Business processes are becoming more customer-focused. This is seen as a cornerstone of digitalization but digitalization is a lot more. It has been an ongoing challenge for organizations to optimize the value that they generate from their investment in digitalization.

Digitalization is not technology. I had an interesting conversation some weeks ago with the chief executive officer of a well-known German products company. Our conversation was about digitalization and digital strategies. I was not sure how he would respond but I did ask him if he would share with me his digital strategy. Before I had even finished my question, he responded, "I am glad you asked that. Our digital strategy is SMACIT -social media, mobile phones, analytics, cloud, and the Internet of Things". Now, what is wrong with this as a strategy? In fact, the reason that he had come to me in the first place was that his company had spent all this money on technology but was struggling to see a return on that investment. This is the crux: these are just technologies. The challenge is figuring out how to leverage their capabilities. This is not a trivial task. That is what they are.

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For me digital has two components. One is figuring out how you are going to harness the capabilities of digital technologies. Digitalization has an information technology component as well as an information systems component. The latter is essentially the strategy for your business to harness information and systems operationally and strategically. For simplicity, I talk about demand and supply. On the supply side, you have technology. We know today that there are lots of options in the marketplace for supply. You can even outsource supply but the demand side is something you can never outsource.

This is the big misunderstanding of outsourcing. If there is a perceived problem with technology, a perception that perhaps too much money is being spent, and a belief that IBM or HP can do a better job, the reaction of many organizations is, "Let them manage it for us because IT is not our core business". What they forget is that even when they outsource, they still need a strategy and still need to think innovatively how they are going to use the new technologies. IBM will not do that for you. You still need to run projects and programs and make sure that they deliver the benefits that you expect.

I would like to share with you some real examples that are happening out there, beyond Alibaba, Uber, and Facebook. The Slovene prime minister mentioned the search for new business models. There are opportunities today to harness data in a way that enables organizations to change fundamentally the essence of how they compete.

Rolls-Royce, Riddell helmets and other examples of innovation

Here is one of the best examples of business model innovation that I know. Most of you are familiar with the Rolls-Royce automotive brand which the company actually sold off over a decade ago. In their aerospace division, Rolls-Royce had a business model where it would come to an airline and sell to it engines. Over the life of that engine, there was a lucrative annuity for Rolls-Royce, it's called spare parts. Naturally, the older an engine, the more spare parts it needs, and the bigger the cash flow. It was a nice business model: a chunk of money upfront and a growing cash flow over the lifetime of the engine.

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Some years ago, Rolls-Royce abandoned that business model. Today, they do not sell engines. What they sell is availability. They have realized that airlines, particularly low-cost ones, do not want to own their engines. They do not want to bear the cost associated with maintenance, repair and overhaul. Rolls-Royce called its new proposition "power by the hour". It is now selling a service, although the product is still required to render it.

Now, if an engine has a technical problem, that has an adverse knock-on effect on schedules, Rolls-Royce becomes responsible. This is where digital technology comes into the picture. It would not be possible to profitably deliver this value proposition without modern technologies. What we have today is many sensors on engines collecting data. Some of the data are sent to the captain in the

cockpit. Most of it is sent to a monitoring center in the UK. There, engineers use prognostic, diagnostic and advanced analytical tools to make decisions about that engine. They call this "engine health monitoring". It is like monitoring the health of a human being. They can now do this for a total fleet. It is a completely new business model that would not have been possible 10 years ago because the technology would not have permitted it.

Let us have another example, but from a small company. Riddell is a manufacturer of American football helmets. It is nearly 100 years old and has been very successful. The materials that they use to manufacture the helmets have changed over the decades, but their functionality remains the same: they protect the players during a football game. Whoever has seen a game of American football is aware that a lot of tackles take place. A big concern now in this sport is the long-term consequences of concussions and other head injuries. Some players can have up to 2,000 head collisions in a season. Some of them are minor but some are pretty significant. And if you are a big linebacker and get a hit to the head and fall to the ground, you will usually try to get up, not admit to you opponents that you have been hurt, and rejoin the game as soon as possible. That can be detrimental, not just for your health but also for the performance of the team. After a head trauma, you may not be thinking straight and you are more likely to make mistakes.

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Riddell has now put sensors in the helmets. When a player is tackled and there is a head collision, the sensors can determine the location and force of the impact. This information is immediately sent to a medical team that can decide right away if the player needs to leave the game for an assessment.

This is where the business model shift is. Riddell is not selling helmets anymore. Helmets are, in many ways, incidental to what the company is now selling. It is embedding itself in the activities of the medical staff and the coaches. The data produced by those sensors are becoming very valuable to them. It is a completely different value proposition.

Some of you may be in service businesses. Yet, you can still innovate your business model in the service sector. Let us look at the insurance business. In every country, 17 to 25-year-olds are a unique category. According to statistics, they account for most deaths, claims, and accidents. The Co-Operative Group in the United Kingdom launched a product targeted at this segment of the population. On becoming a customer, they install a little box in your car engine that picks up data concerning your driving behavior.

Typically, when actuaries assess risk, they will use surrogate measures. They do not actually analyze actual driving behavior because they do not have the necessary data. They look at a small number of data, points like where you live, how long you have been driving, and what age you are. Today, they can assess risk based on actual driver behavior. The data is collected from the car as it is being driven and indicates how well you, as a driver are driving it. Are you speeding? What is your cornering like? What about your accelerating? Do you drive mostly during the day or at night?

This is where we start to see some of the disruption. I would imagine that your insurance cycle is typically one year. This timescale goes back to an era when there was no technology and a year was probably the optimum time cycle. It would have been just too complex to issue insurance for a shorter period. Now, when you buy this insurance product for your car, your policy is reviewed every 90 days. If you drive safely, your premium will be reduced. If the algorithms that they have built assess that your driving is not improving, your premium will be increased. A lot of cars now have the capability to collect this kind of data. And it is possible that in the future car manufacturers will start offering insurance products. They have the data that are needed for risk assessment, not surrogate data that the insurance companies have historically relied upon.

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But there is further disruption taking place. There is a start-up in Silicon Valley called Metromile and they have an "on demand" business model. The basic proposition is that if you are not driving your car, you do not need insurance beyond insurance against theft. There are technologies that allow Metromile to ascertain when you have ignited your engine and started to drive; this is when your need for insurance kicks in. Insurance companies used to lock-in a customer for a year but now customers have an on-demand alternative. This can have tremendous implications for cash-flows and financial positions of incumbents.

A key message to take away is that your business model ultimately depends on the customers' willingness to support it financially. You can come up with a great business model, like Rolls-Royce or Uber. But it is up to customers to decide that they are willing to pay. On the other hand, it is you and your team that determine your ability to deliver the promises of the business model. It is all very good to come up with a new business model; this is the sexy front end. Over the last years, I have facilitated lots of executive workshops where the focus was on coming up with new potential business models. That is the enjoyable part. The challenge is to execute it. This is the operating model.

Let us consider an example. The value proposition of a low-cost airline Ryanair is low fares. Now, that is also the exact same proposition of Air Berlin. But they are struggling because they cannot make it work. **It is not hard to invent a new business model. The hard task is to make it work.**

Blockbuster was a tremendously successful video rental company. In 2000, Netflix entered the market. Why was Blockbuster unable to adopt a similar business model and compete? Borders was a similar case. It was a leading book retailer in the United States. In 1995, Amazon emerged. In the next 10 years, Borders was unable to adopt Amazon's model and compete against that company. Eventually, it went out of business. For an established company, adopting a new business model and making it work is very difficult. It is very easy to get executives excited in a strategy workshop and get them to design a new business model but the real challenge is to execute it.

Research by MIT, published in July, supports this. They studied what is holding back organizations from succeeding in the digital environment. The main reasons they identified are internal issues, a lack of agility, complacency, and an inflexible culture. I have done research at Rolls-Royce and I have observed that one of the main challenges that they faced was achieving cultural change. As a well-established British manufacturing company, the engineer has historically been king. Today, the main value proposition is no longer engineering superiority but service. Consequently, the most important employees are the frontline staff. That is a big cultural shift.

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Another challenge that Rolls-Royce faced was to align their whole supply network to deliver this new value proposition. If an engine is "not available", it is Rolls-Royce that must pick up the cost of this unavailability. When the old model was in place, if there was a technical problem, the airline would pay for the repair work and the costs of rebooking passengers on alternative flights. In the new business model, we see a shift in risk back to the manufacturer.

There are other findings to note: a lack of resources, too much data, and a lack of strategic focus.

The message from all of this is in the title of my presentation. What we need to do is reframe the challenge. The challenge of digitalization is not so much investments in technology. The challenge is that digitalization needs to be seen as an investment in change. This change being enabled and shaped by digital technology and the change is getting increasingly complex. Technology is now enabling you to do things that used to be impossible without

technology. Rolls-Royce would not be able to profitably implement its new model without digital technology. Investments in digitalization should not be seen as investments in technology. They are better viewed as investments in change. **Ultimately, the success or failure of your business model will depend on how well you manage change in your organization.**

When you start thinking about mapping your organizational journey, it is important to establish where your organization sits. Are you an analogue company or a digital one? There are companies like Facebook, Uber, Alibaba, and LinkedIn that were born digital. But a lot of other companies were not born that way. Even software product companies, such as Microsoft or Oracle, were not born digital. If you used a Microsoft product in the 1980s, how did you get it? On a floppy disk. Then, they started using CDs. Now products are delivered via the Internet.

Even Microsoft has struggled to adapt its model to the new realities. In their old business model, they essentially sold licenses. Today, they have adopted a completely different business model, selling on demand services.

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Whether they be traditional media companies, public administration, banks, insurance companies, or logistics companies, they must first understand where they are coming from. One of the really good examples of a company that is trying to transform itself using digital technology is the large US-based conglomerate General Electric. In last year's letter to the shareholders, chief executive officer Jeff Immelt wrote, "You go to bed as an industrial company and you wake up as a software company. We believe that every industrial company will become a software company".

If I was to ask you to name the biggest software company in Europe, you would probably say that it is SAP. But it is not. It is Siemens. They have the highest number of software developers among their employees. Traditional product companies, like Siemens and Bombardier, are now embedding technology in their core products. Consequently, industrial companies are increasingly becoming software companies. That can be a challenge for them. Look at the clock-speed of software companies. It is so much faster than the speed of traditional industrial companies.

All the large OEMs in the automotive industry openly state that they do not see themselves as manufacturing companies anymore. They see themselves in the business of mobility. That is a fundamentally different business, raising all sorts of opportunities

and challenges. Some now see their competitors among consumer electronics players, not car manufacturers. As one brand put it, a car is becoming a computer network on wheels. As a result, those car companies are employing growing numbers of software developers. The main product is still important. But it is not as important as the service and the delivery of that service to customers.

So, to begin with, it is important to understand where you are starting from. And then decide where exactly you want to go. I would like to give you a mapping tool to help you think how you are going to transform yourself digitally and what changes you need to implement in your organizations.

I want to highlight the seduction of technology for many executives. Suppose you are working for a global company; you are head of marketing or sales, and you know that you have problems in customer management. In one of their ads, Oracle tells you that if you buy their CRM software you can have global customer relationship management in 90 days. What chief executive officer or chief management officer would not buy into that? But is this misleading advertising? They ran this ad for six months. You may say that it is misleading or that it is not. Yet, the Oracle people will tell you that this ad is now obsolete; the company now has an on-demand cloud offering that can help you achieve the promised result in 19 days. While they might be able to deploy the technology in the promoted timescales, the benefits will take considerably longer. Achieving these will likely require implementing new business processes; revisiting remuneration and reward systems for salespeople. You may even need to change your organizational culture.

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In the past, technology might have been a bottleneck. Rolling out new customer relationship management software may have taken you a year or two. At present, technology is not a bottleneck. You can do that very quickly. But we haven't figured out how to collapse the achievement of organizational change.

Looking at the issue of value for money from digital investment, where do companies tend to focus their attention? They focus it on the cost side. If there is a belief that an organization is spending too much money on digitalization but is not getting the expected return on its investment, it will typically turn off the tap. "Let us spend less on information technologies". But I would argue that it should probably spend more on information technologies. That is not the challenge. Their challenge is their inability to realize the benefits from that investment. The problem is not the amount that they are

spending but their inability to generate value from the money that they have spent. I believe that is where the problem lies for most organizations. Technology is the easy piece. And it has absolutely no inherent value. You can give all your sales people iPads. Yet, if they are not using them, you will get no benefits.

You may have a problem, such as a glitch in your supply chain. Or it may be a customer management problem. You should not believe that technology is a silver bullet: you fire it at that problem and it magically disappears. Today, a lot of companies are grappling with big data. Software companies will try to convince you that they have the right product for you to deal with that problem. They will offer you magic bullets for all sorts of situations. But technology does not solve any problems on its own. If you automate a mess, it is still a mess. Technology will not sort it out for you. The challenge is to sort out your mess first and then maybe look at technology as part of the process.

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When I talk about frames of reference, I see a model that dominates the thinking of a lot of senior managers that I work with. They think that there is some sort of direct relationship between digital technology and business outcomes. Think about your own experiences with digital technology projects at your organization. I would imagine that there is a lot of planning in order to get the technology in. Information technology experts are really good at this. The assumption is that once the technology has been installed on time, it will work. And then, magically, all the benefits will come on their own. This amounts to leaving the achievement of benefits to chance. **There is no direct relationship between technology expenses and benefits. That relationship is mediated by change. The reason that projects underachieve or fail is generally not because the technology did not work. Generally it does work. That is not the issue. The issue is the organizations' inability to unlock the benefits of that investment. That unlocking requires change management.**

My message is that benefits cannot be delivered without change and change cannot be sustained without benefits. We have to have benefits for users, including employees and customers, and that change needs to be sustained. And the only way to sustain it is to make sure that the benefits stick.

"Benefit Dependency Network" tool

I want to give you a tool to help you think through the logic of how any expected benefit will be delivered. I call this tool the "Benefit Dependency Network". First of all, I want to describe the logic of the

network. I am sure that you will get it as I have not come across anybody who has argued against it. But as we will see in a moment, the challenge is actually using the tool.

Let us say one of your key goals is to increase your return on capital employed. This is a key business driver for lots of companies. You can do that by increasing profits. How do you do that? You can do it by increasing sales volume or by reducing costs. And how do you increase sales? Improve your product and your marketing. The key point that I am trying to make is that the technology that is going to support you in what you do does not deliver any benefits on its own. I think that everybody will agree with that. Still, a lot of executives see a direct relationship between technology expenses and direct benefits, and give little attention to everything else.

I am going to take you through an example to show you the power of this tool in illuminating the changes that will be necessary for a digital investment to be successful.

I make a difference between sustaining and enabling changes. When I developed this tool over 20 years ago, I labeled all changes in the same way. But some of the companies that I was working with said, "We have found that it makes sense to distinguish between one-off change and more on-going changes". Now I call the one-off changes "enabling changes". The sustaining changes are the more ongoing changes. Some companies that I work with just say, "Let us not get confused. Let us just call change 'change'". It is up to the company. [15]

Here is an example. A couple of years ago, I was working with a paper manufacturer based in the United Kingdom, operating in seven countries across Europe. The company has 300,000 customers. It was trying to implement a customer relationship management system and it was considering buying Salesforce.com. What that company was saying created the impression that customer relationships would somehow improve automatically after the purchasing of their product. I stepped in and tried to explain to the chief executive officer that this was not a sure thing. It was bound to be a challenge. I tried to explain the changes that needed to be made in the organization. Then I began to work with his team, trying to help them understand what those changes would be. Over a few weeks we mapped out all the changes that needed to take place in the European organization.

One of the investment objectives in that case was to improve the effectiveness of the expenses on advertising and promotion. Another objective was to increase the volume of sales to new customers. What

were the benefits? There was a list of 17 or 18 items, such as reducing costs by avoiding waste on irrelevant customers and increasing the response rate of advertising and promotion. These are typical benefits that you would expect from investment in customer relationship management.

Then, it started getting difficult. I said, "OK, guys, how is that going to happen? You have to do things in your organization that you are not doing now. Or things that you are doing but you have to do them better". So, they struggled to identify the changes that they needed to make. The result of that discussion was a partial network. We built it over a couple of weeks. There were a number of investment objectives and expected befits, such as reduced buying volumes and inventory reduction, improved working capital and accurate inventory, increased sales, reduced cost of markdowns, lower operational expense, better track and trace, improved merchandise planning, and improved operational efficiency.

We mapped all the changes that this organization would need to make in work processes, in culture, work practices, the way people were rewarded, and so forth. Because this is a dependency network, unless the changes happen, there will be no benefits. Changes and benefits have a knock-on effect on each other. If one does not happen, that has a negative effect on the opportunity for another one to take place. This will negatively impact the achievement of the overall benefits.

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I also recommend that you identify accountable owners for each change. It is not just drawing up a list of all the changes that you are going to make in your Italian operation or your French operation. Who is going to make those changes? Change does not happen automatically. Failure to understand that explains why a lot of investments that companies make in digital technology fail.

Let me go back to my earlier point. **Companies buy technology and put in place elaborate plans to get the technology in, assuming that all the benefits will take place. But in most cases that just does not happen.** As a result, the project is a failure. And it is seen as an information technology project failure. But it is actually a failure of the business because it has not taken into account the changes that need to occur for the benefits to be delivered.

I can explain this very quickly. And you can do the same for your team. **The challenge is building a dependency network. It is not easy to do. It takes time and resources.** But a lot of organizations are not prepared for that. Many times, after I present this tool, executives say, "Joe, we understand the tool and we like it. But we just won't get

on with it". My response to that is, "If you do not put in the time and effort now, upfront, I guarantee you, you will go back to square one, spending five times more resources to sort out the mess that you could have averted if you had done your homework at the start.

Another point I would like to make is that when I developed this tool it went from right to left. But how do people read? From left to right. The last thing that you want when you are presenting this to an executive is to say that information technology will drive the business. So, you have to flip it around and start with the key business drivers that people recognize. Then, you discuss the investments and the changes that the organization needs to make for your five-million euro investment to be successful.

Clients that I have worked with sometimes blow up the dependency network into A3 size and produce posters. They place them strategically around the organization. Even if from the viewpoint of the business this is an information technology project, you have to emphasize the key role of business and business changes in the overall success of the investment outcomes.

I did some work with a European retailer based in the United Kingdom. It has 600 stores. It was looking at rolling out its information technology at the item level. Retailers have used information technologies but at the pallet level. I had worked with this company previously and they knew that they needed to understand all the changes that should take place all the way down to the clothes manufacturer in Thailand and Vietnam. They spent a week mapping out all of those changes to really understand what they would have to do for this technology to be successfully deployed in their organization. It is a very simple and very powerful tool to use.

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This can help you when you start building a business case. You analyze the benefits and the new ways of working, including culture, as well as the way in which you are going to make all this happen. This tool works very well for a lot of information technology investments, particularly traditional information technology investments in customer relationship management, patient administration systems in hospitals, and suchlike. It works when you have a known destination: you want to travel from here to Vienna. You know the end point, you map out your route, and you get there. That is essentially the logic behind the network.

But in today's digital environment there are a lot of investments that do not look like that. It is a bit like an expedition into unchartered territory. Just think of the first people that arrived on the shores of the United States or Australia. They did not know what

they were going to find. They brought along geographers, medicine men, and soldiers because they needed to figure out what kind of land they had discovered. There were interesting fruits for example but were they edible or poisonous? What about the water?

When you look at big data, that is the environment that you are in. You do not know what you are going to find. You have a massive set of data but you do not know what it is going to tell you about your customers, the marketplace, your business processes, or whatever else the data are supposed to tell you. In that scenario, you would struggle with the mapping approach that I detailed in my presentation. And the reason for that is that you do not know what your endpoint it. That is one of the big challenges of analytics. It is very difficult to justify an investment in analytics because you do not know the endpoint. Therefore, traditional return-on-investment techniques do not work. They work for customer relationship management, and supply chain management, and other types of investment, but not for analytics investment.

I want to give you a tool to help you think through some of the options that you have when you start working with big data. As William Edwards Deming put it, "Without data, you are just another person with an opinion". That is an opportunity for me to explain the logic that most organizations adopt in the context of big data analytics. The equation is: executive + data = decision or insight. The more data you give to executives, the better their decisions will be. This is the logic behind a lot of investments that companies are making today in analytics. But maybe the problem is not with the data. Maybe we do not need to give executives more data or better data. Maybe they already have enough data. The problem may be with the executives: how they make decisions, how they discover new knowledge. Essentially, that is what insight is. The executives' experiences, biases, and analytic abilities may be what we need to focus on now when we start looking at data and the use of data.

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I do not know if you remember Donald Rumsfeld's statement at a press conference over a decade ago: "There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. There are things we don't know we don't know".

I have put this in a framework. His statement is a great definition of big data. There are things in the data that we know and there are things that we do not know. There are also things that we know that the data should be revealing but we have not quite figured out what that is. I use this framework when I work with companies on big data

analytics. What we map is whether we know the data that we need to answer our questions and the questions themselves. We must remember that when we talk about analytics and insight one of the key phrases that we hear in the context of big data is that insight comes about only through questioning. A good label for big data would be "big questions". Those of you who teach at a business school and do research know that all research must start with a research question. Big data projects are closer to research projects than they are to information technology projects. But what I see happening in most organizations is that they manage big data analytics projects as if they were information technology projects. That is one of the reason that they fail.

There are things that you know that you know. These are for example your reports. Then, there are things that you do not know that you know. These are your unknown knowns. For example, Rolls-Royce collects a massive amount of data from its engines. They know that the data contain information that could potentially reveal something interesting but they have not been able to figure out yet what those questions are. That is an analytics example of an unknown known. They exist in every organization.

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We also have known unknowns. These are the things that we know that we do not know. These are the big questions that we have and we need answers to them. We have to identify the data that can help us answer those particular questions.

We finally have unknown unknowns. These are the things that we do not know that we do not know. Google has said that it will collect any data that it can even if today they do not know what this information is going to be used for.

I have done some work with a global insurance company. They do not have a database. They do not maintain a data house anymore. They have something that they call a "data lake". I had never come across this term before. It proves that the information technology industry likes to dream up new labels. It is actually a data base that they call "data lake". They like to collect a lot of data from everywhere even if they do not know how they are going to use them. They are operating in the unknown unknowns quadrant. The things that we know that we know frame the data that we collect. They also frame the questions that we are going to ask. This is why companies are now beginning to employ people called "data scientists" to help them come up with questions about their data that they previously never thought about.

The key point to take away from here is that **framing the question is critical with big data analytics.** Asking the right question and getting it right is essential.

Now I would like to share with you some warnings about big data. Yes, they enable us to come up with innovative questions. They also enable us to identify new data sets. But we must also remember some warnings.

The first one is about the confirmatory bias that we see happening all the time. This is what happens when you search for evidence supporting your beliefs. You may be a manager with 20 years of work experience. You would like your organization to be data-driven. But because of your biases, you look at your big data set for evidence that supports your beliefs. If you have a large dataset, you can prove almost anything you want. In that case, the data will not be objective.

There are also spurious correlations. In a large dataset, what appears to be a relationship between things may be just random noise.

Finally, we must be aware of the distinction between correlation and causation. You can find a lot of correlations in your data but that does not necessarily mean that there is a cause-and-effect relationship between your variables. Still managers sometimes forget about that. There is a saying that if you torture your data long enough, they will confess to anything. And it will confirm your beliefs.

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We must also remember that data and data sets are not objective. They are creations of human design. Let us go back to the known knowns quadrant. Think of your dashboards and some of the reports that you may be using on a daily or weekly basis. Do you ask yourself how old that report is? It may be a report that you have been getting for the last 10 years. It may be that when it was designed the assumptions on which it was based and subsequently built have changed fundamentally by now. Nevertheless, you are still using that report. Very often the designer of a dashboard makes assumptions about the data that underpin that dashboard.

A really great example is Hurricane Sandy. In 2012, it lashed the East Coast of the United States and caused a lot of damage. There were about 20 million tweets that night. If you analyzed them, you would not get the impression that the hurricane caused much damage. You will read about heavy winds and little damage. Why? In 2012 smart phones were not as prevalent as today. Where did those who could afford smart phones live? In Manhattan, which was not hit very badly. Meanwhile, poorer areas were hit harder but they are

populated by people who could not afford smart phones. This creates a bias. The tweets came from more affluent people living in areas that did not suffer much damage. Those that suffered the greatest damage could not tweet about it. As a result of that bias, you might think that if you analyze the 20 million tweets you would get a great picture of the hurricane. But you would not. You would get a biased picture.

Analyzing big data often starts with a hunch or an intuition. People often say that we must move away from making decisions based on a hunch to more data-driven decisions. I think that both are important. Very often, the initial question comes from an experienced manager who has a hunch. He has been working in the industry for 20 years. "I have a hunch that customers who live in this part of the city go to this type of establishment and buy this type of product". Now, you can actually use that hunch and then analyze the data to find out if the results support it or not.

We often do not see the obvious in the data. That is a big challenge. Anybody who follows classical music will know Joshua Bell. For a number of years, he gave concerts across the United States. As far as I know, the cheapest seat costs 400 US dollars. The Washington Post did an experiment when he was in Washington. He played a couple of nights there. One morning, he went to a train station dressed as an ordinary man. He played for an hour and nobody recognized him. He collected 28 dollars for playing most of the repertoire that he had played the previous evening when people paid 400 dollars each.

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Why was he not recognized? Because they did not expect to see Joshua Bell at the train station. The same experiment was repeated with the rock band U2. A couple of people stopped and looked at them but did not recognize them.

That is the problem with big data. Very often you do not expect to see things and therefore you do not see them. You look for what you want to see to confirm what you believe. When we look at big data, the obvious is often very difficult to spot.

There is a convenient response to the digital challenge: hire a chief digital officer. The prime minister did mention that the government has hired a chief digital officer. I have not come across a chief executive officer who does not recognize the power of digitalization and its disruptive impact. The difference is in how they respond. Unfortunately, some of them hire chief digital officers and abdicate their responsibility. "I have done my job. I have hired this person and given him a lot of money to do the task". That, I believe,

is a failure in waiting. The chief digital officer cannot deliver on that expectation. Unfortunately, that is what a lot of companies are doing. Or they are rebranding their chief information officer into a chief digital officer. This is the convenient response that organizations often adopt to deal with the digital challenge against all the evidence that it is not going to work. A chief digital officer can play a role but ultimately the success of a digital initiative comes down to business leaders. They may work with digital officers but it is the chief executive officers that carry the ultimate responsibility.

There may be another message to take away from here. **If you are serious about your digital agenda, you should not let your chief digital officer drive it. That person should support you, and provide guidance and tools, but it is the leadership team that drives the digital agenda.**

I have mentioned the high failure rate of digital investments for over a decade. The reason for most of those failures is the lack of business leadership. This is not anything new. I could have said this many years ago. I looked at publications in McKinsey Quarterly in 1965. In their article "The payout on computers", John Garrity and V. Lee Barnes say: "Lacking top management support and the discipline of management planning, the computer effort tends to bog down". In 1989, Michael Fleischer and associates published an article called "Breaking the systems logjam" in the same magazine where they say: "It is about time that top management took a serious hand in taming the IT tiger, rather than trying to pacify it by feeding dollar bills through the bars of its cage". And in 2013, in "Mobilizing your c-suite for big-data analytics", B. Brown, D. Court, and P. Willmott tell us that "it is becoming apparent that without extra executive horsepower, stoking the momentum of data analytics will be difficult for many".

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McKinsey recognized the source of the problem back in the 1960s even though the concept of "digital" did not exist. And since then, they have been repeating that this is an issue for top management. This demonstrates that we have a knowing-doing gap. We know that senior leadership drive and support are critically important, particularly when you have to transform your organization digitally. You have to re-wire your organization fundamentally. Yet, somehow it does not happen even though McKinsey has been advocating it for over 50 years.

Transformation is a journey. Chief executive officers do recognize that. However, in today's era of short tenure, few executives would make a long-term effort as they may not be around

to see the fruits of that investment. All we have to do is look at banking. One of the big issues there is legacy. There are technologies that were implemented in the 1970s and 1980s that are still used today to run the banking business. When they start to roll out mobile services, they struggle because the back end is so old and consumes a lot of resources just to continue to run. But the biggest problem is that nobody in the organization knows how exactly it runs because the people who put it in have long retired. That is the problem. The challenge is that transformation is a journey but many chief executive officers will not be around to see the results.

I have been doing a longitudinal case study with a law firm as part of my research. It is one of the biggest law firms in the world, called Allen & Overy. They started their digital journey back in 2001, although they did not use that term back then. They wanted to find how information technology could innovate the business. This initiative was very much driven by a new managing partner who believed that the future of the law industry was going to be shaped by new digital technology and digital services. That was a revolutionary thought. I remember talking to him at the time. He said, "Usually, you do not put 'law firm', 'innovation' and 'technology' in one sentence. But I want to do that". He maintained that momentum over the years, retiring only last year.

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He did some very interesting things. One of the key measures of success at law firms is fee income. Still, he told one of the senior partners that for the next five years there would be no earning requirements. There was no need to work with any clients. What he wanted was the senior partner to drive the digital agenda in the organization. It was quite revolutionary to tell a senior partner that he did not have to bring in fees and manage relationships with customers. They did hire a really great expert from the media industry to head up what they called an "e-commerce" division and made that person a partner. That is unheard of. A law firm made somebody who is not a lawyer a partner.

I am trying to draw this to a conclusion and pull out some lessons. The success of your value proposition will ultimately be determined by the customer. It is the customer who decides whether to buy that proposition or not. **A lot of companies are doing lots of activities around business models trying to come up with something that is enabled and shaped by digital technology. But it is organizational change that determines your ability to deliver. And this will be shaped by your new work practices and procedures. Ultimately, it will be shaped by your people.**

As for big data, you need cognitive change. That is why the mapping tool that I presented - the benefit dependency network - does not work for big data investments. It is very hard to map out the thinking processes of business managers. You cannot really map the way that people think. The cognitive change, which is the impact of knowledge and learning, is very much driven by people. Thus, we have three types of change: strategic, organizational, and cognitive.

Critical lessons in conclusion

There are some lessons that we can take away. I will try to summarize some of them. What I see happening in some companies is that it is easier to wait than to start. When to invest is a key question. And where in the organization should you make those investments? The speed of business is accelerating. And if you are at a more established company, you often struggle with your decision-making processes as you attempt to respond to these rapid changes. In some of the work that I am doing with companies, I see that they want to become more agile. Why? Because they recognize that they are complex. They want to be more agile in their ability to respond to the changes that are taking place in their environment and they recognize that their decision-making processes are such that they are slowing them down.

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You have to answer some tough questions: why, what, and how. They are not only about your business model but also about the operating model that you have in place to deliver your business model. The business model of Rolls-Royce is very attractive but they are still struggling with their operating model.

Unfortunately, I see in my work that there is a significant amount of digital illiteracy, particularly in boards, but also in chief executive officers. They just do not get what is going on in the digital world. Sometimes, the place where the transformation should start is not the organization but the leaders.

Very often you have to re-wire the whole organizations. This process needs to be led, not by a chief digital officer but by the chief executive officer. Individual managers have to make a cognitive change in the way that they engage, embrace, and use data. The business case just does not add up. Many times I see business cases being justified before investment committees by saying that although the investment may not increase revenues, it makes sense because it will help steady the game. There is a need to invest in a mobile channel, not because it will increase revenues but because if you do not do it, you will not have any customers.

I have also mentioned analytics. Building a business case for analytics for big data projects is a challenge if you use traditional return-on-investment criteria. Assessing these investments using the criteria that venture capitalists might use, or maybe using something like the real options used in the stock market, might be more appropriate than the traditional return-on-investment method.

Neither top-down, nor bottom-up approaches work on their own. You need both. Therefore coordination becomes a challenge. The risks are unfamiliar because you have not done this before. A lot of organizations are still learning about digital technology, particularly how people react to it. And usually the time that it takes to achieve a successful digital transformation is longer than the time that has been allocated to the project.

I hope that if you use the benefit dependency network tool, you will have a more realistic assessment. If you do not map out the changes and do not understand them, how can you put an accurate timeline for those changes?

Here is a final lesson. It is not just about digitalization. It is about a lot that probably happens at your organization. I ran a workshop some years ago for a well-known telecommunications company. It was probably five or six years ago. We discussed big data analytics. They wanted to find out how they could best embrace data and think up new business models. They wanted to start a whole analytics journey. It was a typical workshop that many of you must have attended many times. At the end of the sessions, you pick up your papers and go for lunch. As that happened, somebody asked if I could recommend a company that was doing really well in this area. I said, "You guys sponsor a Formula 1 team. Why don't you go and spend some time with that team?" The rules in Formula 1 are such these days that every team on the ground is limited to 20 people. The bulk of the team is at headquarters. So, the race may be in Sao Paolo but most of the team is in Oxfordshire in the United Kingdom, collecting data on the performance of the car. And the way that they use race data is phenomenal. They know for instance that the tire pressure is falling. That information would be conveyed to the team leader and appropriate instructions will be issued. After they have all the data in, they analyze them and try to learn about the car and the track. All that is data-driven.

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There was a lady at the back of the room who had participated in the workshop. She said, "Joe, there is a difference between a Formula 1 team and us". I thought that she was going to talk about the different types of business that they are in. Instead, she mentioned

unity of purpose. She said, "Everybody on that team knows that their job is to get that car around the track as fast as possible. No matter if you are an engineer, a mechanic, or anything else, that is what your job is about. But in our business there is not any unity of purpose. We all have our own agendas and strategies. We are all trying to achieve different things". For me, that captured in just one statement the challenge that this organization was facing with respect to big data analytics.

If I were to give you one piece of advice about your digital transformation, I would say that it is really about re-wiring your business and your business model, and if you do not have this unity of purpose, if the leadership team is not pointing in the right direction, and if it is not everybody's goal to make sure the car goes around the track as fast as possible, that will greatly decrease the chances of success for any digital transformation initiative.

On this note, I would like to thank you very much for your attention.

Iztok Seljak, CEO, Hidria, Slovenia

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I see a need to emphasize the scale and speed of the change that is ahead of us because I am not sure that everybody feels that way. Some people might say that nothing is going to change dramatically as we have had digitalization for quite some time. But I would say that everything is going to change. What is not going to change is the fact that technology is just an enabler. I agree with that. But this enabler is changing radically. The big data of today cannot be compared to the big data of the 1970s or even 1990s. And the big data of today cannot compare to what is going to be available tomorrow. When we combine this with connectivity and computing power, and with artificial intelligence on top of that, we are looking at a huge magnitude of change that is incomparable to anything that we have seen before.

In our companies, we are putting people in charge of not only sustainable technological innovation but also business model innovation. The combination of this and the new technologies is an unprecedented change. We had better get ready for it in time.

I just felt I had to point this out. I visited Silicon Valley with a Slovene delegation for 10 days. I had always known this but I also saw for myself that there are big things coming up.

Joe Peppard

I was not trying to suggest that this tsunami of change was not coming. The key point that I was trying to make is that this is

nothing new in the sense that digital technology has been around for many decades and companies have struggled to harness the capabilities of that technology. We are certainly going to have new technology in the future but I do not think that it is going to be any easier to adopt that technology. What I am saying is that we may have to learn lessons from the past. What matters most of all is not investment in technology but investment in the changes that are necessary to harness the capabilities of those technologies. That was my key point.

As I indicated, business model innovation has become very popular. The label "business model innovation" may be new but the practice is old. Companies have always had business models. Even 100 years ago, there were business models even if they were simple, something like "I sell a machine". Then, in the 1970s or 1990s, some companies decided not just to sell products to their customers but have a relationship with them. That is a shift in the business model because now you have to put an emphasis on organizational processes. You have to shift from selling transactions to relationships. If you decide to move to providing on-demand services, that is another shift.

What is different today compared to 30 or 40 years ago? Probably speed and the acceleration in new capabilities. Ultimately it has to do with my distinction between demand and supply. On the supply side, we see new capabilities. Organizations now have to figure out how they are going to harness them. That has always been the challenge, even when the capabilities were limited, as in the 1970s, and the 1980s, and the 1990s. It has always been a challenge to figure out how to harness those limited capabilities. [27]

Janez Damjan, Director, Higher Vocational School for Catering and Tourism, Slovenia

The speed of change is indeed tremendous. But it is all subjective. Change is like beauty. To some people some things may be a tremendous change but others may see the same phenomenon as something normal. If some public sector officers had to change their offices, they would see that as a revolution. But for a business person it is a normal thing. So, I do not know if things are that different. But that is not so important.

I think that what is happening is an asymmetry of information. And it is much greater than it used to be. The chief executive officer of Rolls-Royce has vast amounts of information whereas the manager of a small enterprise knows much less. Is there any

research on this? Is it true that this information asymmetry has grown? Or has it always been the same?

Joe Peppard

It is quite extraordinary that you are mentioning information asymmetry. It is a label that I use to characterize what I see happening but it is not a term in widespread use. You are the second person who has used this phrase this week. The other one was Christof Mascher, chief operating officer of Allianz. He and I were talking about what was happening in the insurance business. He said, "What is disrupting us is information asymmetry".

It is a concept from economics. It means that one party to a transaction has more or superior information. There are examples from the insurance sector and what is happening in the automotive industry. With the new technology onboard the cars, car companies know more about the behavior of drivers than do insurance companies. That puts car manufacturers in a position to sell that information to insurance companies or launch their own insurance businesses. Or they can create an eco-system, a partnership with an insurance company. In that case, that insurance company will have far superior information than their competitors. That means that they can price risk more accurately. That will have an impact in terms of claims and ultimately the profitability of the business. This makes information asymmetry critical.

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I do quite a lot of work with startups in Berlin. They see problems because of this information asymmetry. They recognize that insurance is all about information. Health care is all about information. A lot of industries are all about information. Let us take a very mundane example: car parking. What is its information problem? Drivers do not know where the free slots are, whereas the car park does not know where you are. There are companies now that are trying to match cars with free slots. We are talking about smart cities. Thirty percent of the traffic in Los Angeles is estimated to be generated by drivers looking for parking space. That is an information problem.

There is another good example from the public sector in Boston. In a city at that latitude roads break up in the spring when the snow begins to thaw. The result is lots of potholes. They represent an information problem. How have cities traditionally identified potholes? They would send engineers around the roads with maps and they would map the potholes. Then, they go back to the

office and start prioritizing, determining which potholes they are going to fill first. The city of Boston has recognized that this is an information problem as they do not know where the potholes are. So, they developed an app and asked citizens to download it. Now, when you drive to work, you have your phone in your pocket or dashboard. As you go over a pothole, your phone records it. In that way, the city is crowd-sourcing where the potholes are. In this way, it took them just a week to get a good sense of the location of most of the potholes. And they can prioritize because they know how many cars a particular pothole is impacting.

Lots of ideas come from startups because they see traditional problems as information problems. My definition of a startup is a business idea looking for a business model.

Mark Pleško, President, Cosylab, Slovenia

You mentioned change. Since the Industrial Revolution, mankind has been dealing with change. That is the reason that we have had annual GDP growth of about three percent for the last couple of hundred years. Now you are saying that we have to change even faster. However, we know that we are human and there are limits to our speed. Have we reached those limits? We can preach about change as much as we want but we cannot accelerate change any further because we have probably reached the limit.

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Joe Peppard

This is an interesting question. It is a matter of perspective. We can take the view that we have reached a limit and cannot change any more. But I also think that we tend to resist change. When we are hit with something revolutionary, we do not see the potential. Remember that Henry Ford said that if he asked what his customers wanted, they would say "a faster horse".

We have probably worked for a couple of companies and our understanding of a career is different from the understanding of somebody who is entering the workforce now. They do not see things in the same way. A career now is not associated with working for a few companies and moving up a corporate ladder. Instead, they try to gather competencies. The work-life balance means a lot more. The way that they frame the issue is different from the way that we frame it.

I worked with a retailer recently. That company tried to look at the future and figure out what an employee would want from it

10 years from now. So, they considered a number of scenarios. Today's 13-year- olds are adept at using smart phones and the social media. What does that mean for the future? Consider a 14 old boy. This afternoon he is playing football for the school's football team. By the time he is home, most of his friends will have commented on Facebook on his performance during the game. The feedback is immediate. Now, he comes to work for your organization. How often does he get a performance review? Every year. Or, if he is lucky, every six months.

I think a big area of opportunity is to re-imagine management. It should take account of the opportunities provided by new technologies. A lot of the management practices in our organizations today go back to an era without technology. We learned them at business schools 20 or 30 years ago and we continue to perpetuate them today. Yet, there are different ways that we can do things now because of technology. One of these new things is how we give our employees feedback. This may be a theme for a future Presidents' Forum. It is a big area of opportunity.

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ROUND TABLE WITH BUSINESS LEADERS

Joe Peppard

I would like all panel members to say a couple of sentences about themselves. Then, I will kick off with a few questions. After that, we can take additional questions from the audience. I also have a lot of questions that I am sure our panelists would be happy to answer. They do not need to limit their response to what I spoke about. If they would like to make any observations about digital disruption, that would be fine.

Simon Kaluža, *CEO, SAP CEE*

Perspective matters, so I could also present myself - I play guitar in a rock band and I am a passionate sailor. In my free time, I work for SAP. I am responsible for Central and Eastern Europe.

Thomas Marschall, *Disruption Advisor, Business Angel Investor, Denmark*

My corporate career started in traditional companies. I worked for Maersk for many years. Then, in 2000, I moved on to the technology space because it seemed at the time a great place to be. But by the time I left Maersk, the party was over and instead I was thrown into a turnaround of the company. I took this experience with me to my next company, Precise Biometrics in Sweden. In these jobs I have been disrupted, myself, by other companies, and I have disrupted other people as well.

Today, I am an angel investor. I provide consulting services to companies in the field of technology and its main uses.

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Dejan Ljuština, *PwC Partner, SEE*

I am a partner at Price Waterhouse Coopers. That is a global consultancy firm. I run a strategy and operations consultancy business in our region. Earlier, I worked for Ericsson and Intel. I am an alumnus of IEDC. I do many things but the most important is that I help many companies in Central and Eastern Europe transform digitally and seize the opportunities that digitalization provides.

Robert Serec, *CEO, Pomurske Mlekarne, Slovenia*

I describe myself as a chief change officer. I make sure that a company turnaround happens in three to six months. If that is not the case, we probably will not make it. That is the way I describe change. If it takes you two years, you will be the one who will be changed.

Joe Peppard

Dejan, as a partner in Price Waterhouse Coopers, you have lots of experience with different companies trying to become digital. What does the landscape look like in Central and Eastern Europe?

Dejan Ljuština

I will start with a global perspective because we do a lot of global surveys. One is the Chief Executive Officer Survey for the 1,000 largest companies across the world. We ask them what worries them most of all. More than 80 percent respond that it is technology and the threat of digital disruption.

We have also done a Chief Digital Officer Survey at the world's 1,500 largest companies. We realized that the number of such positions is rising. In 2015, only about seven percent of all those companies had a chief digital officer. Now it is 30 percent. This means that companies are taking this job very seriously.

As for Central and Eastern Europe, there is a lot of awareness of the disruption that technology brings about but there is not that much action inside the companies unfortunately. Of course, this depends on the sector. The telecoms and the media were hit by digitalization years ago and some have even completed their transformation. At present, we see that retail and the tourism industry are getting disrupted, too. The manufacturing sector will be next. And I think that there is going to be huge disruption in the financial sector.

I think that this is framing the agendas of chief executive officers. There is not a single industry that will be left unaffected by digitalization. It is important for chief executive officers to start preparing and acting right now.

Joe Peppard

I was asked about the role of the chief digital officer. That is something that I have had to grapple with because I do a lot of work looking at the evolving role of the chief information officer. Very often I see the chief information officer's role morphing into a chief digital officer's role. Sometimes companies simply replace the former with the latter. Or they will hire a chief digital officer to drive the transformation. What do you see?

Dejan Ljuština

I would not say that the evolution of a chief information officer into a chief digital officer is something inherently wrong as long as the former has the necessary skills and attitudes. However, what we see in our work

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is that most chief digital officers do not come from technology. They tend to come from marketing and customer services.

Second, most of them are board members. I think that the digital transformation must be led by the chief executive officer. It cannot be delegated to a sub-unit in the marketing department as that sub-unit would not have enough power. The chief digital officer must be the key person to run this transformation because the chief executive officer cannot take care of all the details.

Some companies define a narrow role for the chief digital officer and have him in the marketing department where he is responsible for digitalization. There is a bolder approach: to let the chief digital officer be responsible for all interactions with customers. That is where a digital experience is important. Customers are currently using Alibaba, Amazon, and Facebook, and are expecting a similar customer experience everywhere. Even if the main players in your industry are not providing this yet, customers expect this experience. There is an opportunity for everybody to redesign and improve the customer experience. That is the reason why a chief digital officer needs to have power to run this business. We often see that the chief digital officer takes care of this plus what we call "value-added information technology". These are new digital channels and tools rather than the old information technologies, such as servers and laptops. These can still be maintained by the head of information technologies or a traditional chief information officer.

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Andrej Vizjak, *Managing Partner, AV Management Consulting, United Arab Emirates*

I am a colleague of Dejan. Being inspired by the digital era, I founded a digital consulting company with my wife, based in Dubai. I would like to ask Dejan how digitalization has affected him. Have you had to change some processes?

Dejan Ljuština

We use collaboration platforms. One of the aspects of digital culture is collaboration as you need to have tools to share the knowledge. If we do not share it fast, we will not be useful. Therefore, we are investing a lot, buying technology and technology companies, so that we do not fall behind and stay competitive.

I think we focus too much on the technology part of digitalization. But it is actually about changing business models. Now, the question is why you would change your business model. Some companies do that because they are forced to do so. They realize that the competition is now coming

from completely different places. And then there are companies that can predict the future.

There is a company that produces compressors. For some time, it supplied other companies with pneumatic tools. Then, it realized that somebody in the Far East was copying their machines. As a result, the Far East company came up with a better product and 30 percent cheaper than the original one. Of course, this had a detrimental effect on the European company and it found itself facing a wall. We worked with that company and helped it completely rethink its business model. It redesigned it, turning it into a service for its customers and has been quite successful at that.

Another example is Under Armour, a company started by American football player Kevin Plank. Originally, he wanted to invent a fast-drying T-shirt. That is how he started his company. He was such a visionary that when he began to work with us, he said he wanted a system that was so flexible that it should enable his company to change business models twice a year. At that time nobody had an idea how that could be done. Anyway, Under Armour today is a digital hub for healthy life. It helps you live healthy but it also collects all sorts of information from you. This is an interesting example of changing a business model during a growth phase.

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Joe Peppard

I would like to pick up on two points that you raised. There is a concept of a digital workplace and a lot of companies are trying to implement it. It is a nice label for what leading companies have been trying to do with technology for many decades. But a digital workplace is more than just automating work processes in the office. If you have people working from home, what does that mean for management?

I also have a comment on business models. Imagine that we were at this Forum 12 years ago and somebody said, "In 12 years, the biggest retailer of music in the world will be Apple". People would have been startled. Apple made only computers at that time. But they launched the iPod, which is a platform for music, and now Apple is the biggest retailer. We also see that the key protagonists in the smartphone industry are not traditional players. Also, energy companies that have a privileged position on the value chain are suddenly becoming disruptive. The goal now is to help customers manage their energy consumption more efficiently. This is no longer simply energy supply.

Robert Serec

It is no secret that we were on a brink of bankruptcy. There was blood everywhere but a sense of urgency was missing. Members of the

supervisory board felt powerless with no solution. Management and the workers did not feel that way, though. They thought that they could continue doing business as usual till the bitter end. The day that I came in, I said, "We are going to change it all and we are going digital". As a result, everybody got scared, but I communicated steps, procedures and activities, and more importantly a vision. So, we started the change at different fronts. First with the owners and then with banks, managers, and everybody else. In a month, 95 percent of the managers were fired. We promoted younger people, present in the company, gave them a chance, but they did not know what to do. I provided training, guidance, mentoring and sponsorship of activities and then we took our heavy loaded airplane off the ground. We needed to create a sense of urgency and get everybody onboard. As a first step, we brought in new information technologies. Then, we trained people and had them understand what our common purpose was. As a result, our profitability increased by 8 million euros in comparison to 2014.

The lesson is that software is not only what Microsoft produces. It is everything that we do. I call it business culture.

Joe Peppard

Thomas, you have a lot of experience with both analogue and digital companies. You have also been involved in some turnarounds. We often hear about failures but I would like to ask you what the success factors are.

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Thomas Marschall

I think that everybody is looking for a magical bullet. The problem is that all companies are different. They are at different stages of development and they do things differently. We have been listening to explanations of why Nokia's management failed and what Kodak did wrong. Their executives were not stupid people. They were simply forced into a corner by their strategies and had no choice. With hindsight, they now look like idiots.

Startups know that they can fail and in that case they will start doing something else. But established companies see things differently. Failure is not a popular thing.

A startup was once looking into analytics without knowing anything about it. Yet, the chief executive officer decided to hire a very expensive analytics expert, more expensive than himself. He did not even know what this guy was going to do. He just knew that he was good. The outcome of this was that the company obtained incredibly valuable data the existence of which it had not suspected. This allowed them to optimize their business model in a way that they had not expected.

I think that our corporate culture is part of what stops us from taking full advantage of what is available. There is also another tendency. Chief executive officers think that they know what there is to know. We are not as curious as we used to be. But we need to maintain our curiosity. How many people in this audience have used Uber? How many have paid with bitcoins? You have to use these tools and get inspiration. Then, you can use something similar in your organizations.

It is essential, as a first step, to look for a better solution. It does not have to be the right solution. That may come at a later stage.

Joe Peppard

Last week, I worked with a German hidden champion, a company that has annual revenues of 9 billion euros. I worked with the senior management team and I did a session with the chief executive officer. He asked his team, "On a scale from from one to ten, where do you think we are in terms of digitalization? I think we are at eight. What do you think?" One guy said that they were at one. Most people said "three". The chief executive officer was shocked. He asked them why and they explained that their competitors did various things that they were not doing. It was a real eye-opener to him.

I have a comment on risk. You have to excuse my language but in the startup community it is well-known that they have what they call "fuck-up nights". Entrepreneurs meet and talk about their failures. People in the startup community are not afraid to get together and say, "We tried this but it did not work out". They share their failures. They are not a badge of honor but they are OK. At large corporations however, people do not take risks. Risk is avoided to the extent that nothing happens and the status quo remains.

I can go back to my example of the law firm. Lawyers are trained to be risk averse, which explains why they have struggled with this culture for the last 11 years. One of the great challenges was to get lawyers to accept that risk-taking and failure are acceptable. Now, as part of their induction process when they hire somebody new, they talk about innovation, risk-taking, the acceptability of failure, and the learning opportunity that it provides. They are on this journey and they are still struggling.

Simon Kaluža

One of the differences between corporations and startups is that the latter usually think exponentially. They do not want to add another five percent to their growth next year or next quarter. They want to grow manifold. This generates risk acceptance and aggressive investment. Corporations, on the other hand, have linear thinking.

Dejan Ljuština

Which large companies have succeeded in their digital transformation? I think it is mostly digital startups that are dominating. They are doing better than large companies that are trying to transform. Some of the reasons are in the business culture and customer value orientation. Large companies cannot have the same culture and a mindset as a startup. The classic example is that if Facebook had a traditional chief financial officer a few years ago, he would have closed it down because it was all investment and no return. Instead, startups focus on customer value primarily and once they create something new and compelling for the customers, the monetization comes instantly. The issue that large retailers, telecoms, banks, and utilities have is that they want to digitalize but they want to have a huge return on their investment and get a high percentage from this new activity from the beginning. Yet, this cannot happen overnight.

Now, all these corporations are competing against startups. No matter what sector you are in, there is a startup where people are working 24 hours a day trying to disrupt your market by coming up with a better business model. If you are in a large and well-established system, it is hard to fight against this. You have a legacy and people that do not want to change. Your culture is hierarchical, predictable, and process-oriented. On the other hand, the startup's culture is innovative, collaborative, and focused on the customer experience.

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For example, only 35 percent of large manufacturing companies collect data to optimize their processes. They realize that they are not advanced and yet most of them are not moving as fast as they should.

This morning CNN reported that Alibaba generated 5 billion dollars in sales in just one hour on singles day. Last year, their total turnover on singles day was 14 billion dollars. To put this in a perspective, it is 2.5 times more than what the Agrokor, the largest company in our region, generates in a year. That is the true power of the disruptive business model.

Thomas Marschall

I think that companies need to realize the huge opportunities. The valuations of some startups exceed by far those of companies that have been around for decades. Yet, you have an opportunity for tremendous growth in your field if you are the company that has done something new. This should be a compelling reason to try. Instead of struggling to increase your annual revenues by five percent in a traditional way, you can find much better opportunities.

Last year, the most widely used word in Danish business was "disruption". Some of the large companies admitted recently in public

that unless they could tackle the digital challenge, they would not have a bright future. They have always been praised for their conservatism: doing things the right way and not too hastily. Suddenly, they came out in the open and said, "We need to do something different because we see that things are changing".

Danske Bank, the largest bank in Denmark, decided to set up an app. Many companies fail in this endeavor because they do not do it right. Today, Danske Bank has a mobile payment app used by 2.9 million people in Denmark, which is over half of the population. That phenomenal success convinced the rest of the organization that there is potential when you try to do something completely different. Although Danske Bank's troubles are not over, at least it has a success to build on.

I think that every organization needs to identify a success. You do not need to be successful at everything at the same time. If you try that, you will most likely fail. But try to be successful at something so that the rest of the organization is inspired by it.

Robert Serec

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Last year, I told my people that we needed to survive 2015 and stabilize in 2016, return to growth in 2017 and reshape the whole business. In this process, it is essential that you walk the talk and do not delegate leadership or responsibility for the turn-around process. You can create and appoint new leaders to help you steer the process, but you do not delegate leadership. If you, as a leader, are serious about change, you have to carry it on your shoulders. You cannot let somebody else be responsible and then fire him if things go wrong. It's your responsibility.

Simon Kaluža

It is very important to have the right people with the right skills. Typically, companies miss people that can drive the digital transformation. Young talents do not go to large corporations anymore. Most often they go to startups. This creates tough competition for talent. For example, US telecoms are trying to hire Google employees, offering enormous salaries.

This is a problem for society at large. Half of the currently existing jobs will be gone in the foreseeable future. Our universities are producing graduates that will never be employed. I think that executive education for the digital age is becoming very important. We need people to manage this process. There is nothing that we can do without people.

Joe Peppard

Let me pick up on the education topic. I wonder if the MBA graduates in this audience have taken an information technology management

module. I know that many business schools do not do that. That is really a pity. When MBA graduates look back at what they studied, they realize that subjects such as finance, marketing, and strategy were very important. But then they remember that they did not study information technology. And because it was not part of the MBA program, they think that it was not that important, or they believe that they can get a chief digital officer to manage that.

When I went to the Cranfield School of Management, there was no information technology course for a long time. But then the chief executive officer of GlaxoSmithKline, who is a Cranfield graduate, approached the dean at a public event and said, "I understand that you have dropped the information technology course. Why? It is central to business today". The dean said, "But information technology is just a service. We outsource it".

I ran a program for the president of a large German company and his top 25 executives. There was not a single person from information technology. And yet, the conversation soon touched on issues that were related to information technology. When I asked why there was nobody from information technology, they gave me the same answer. They told me that they outsourced it.
I think that this is a problem for education providers.

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Dejan Ljuština

Do you really think that a school like IEDC needs to teach information technology? That has become a commodity. Can we imagine that in 1960 managers would discuss how to plug an electrical device into a socket?

Joe Peppard

I did not mean information technology literally. I meant information systems.

Dejan Ljuština

I see. The thing is that information technology has been split into a commodity and another part: what chief digital officers do. If your information technology person tells you that something that adds value to the customer is not possible in the IT, you can fire him right away because everything should be possible from a technical viewpoint if it adds to the company's benefit. The challenge is to develop a new mindset and be able to run your business in the new digital environment.

Simon Kaluža

I agree. It is more about business strategy and business models. It is about the management profession. And that profession is going to be

disrupted. You will be competing against machines with artificial intelligence. They never make mistakes and they never get tired. Artificial intelligence is going to be used massively in any industry. All sorts of professions, such as marketing, sales, operations management, and more, will get disrupted. This is an issue that needs to be addressed at the societal level. A lot of jobs will disappear and what are we going to do about that? How do we invent new ones? For a business model to succeed, we need to provide employment. Otherwise, we cannot sell products and services. This is the key challenge to address through the education system. Governments need to be aware of this. I think that they are aware but we need action.

Robert Serec

I was lucky during my time at IMD Lausanne. They took us on a field – discovery trip to Silicon Valley and Dublin. We visited the headquarters of Google, Yahoo!, SAP, and other similar companies. I learned that those companies were not only huge software companies, but more and more like countries. They have millions of members and they all have a say. This was a remarkable experience for me. I realized that digitalization was going to change the world. I firmly believe that whoever stays away from this process will simply disappear. It is a new way of life that we have to accept, no matter if we like it or not. We have to change the way we think, our mindset.

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Cristian Gheorghe, *Managing Partner, Nexus Consulting International, Romania*

I am a human resource management consultant. I have been doing leadership training for the past 10 years. Dejan said that artificial intelligence is going to disrupt management. I would like to comment on that.

If you base your decisions on artificial intelligence that means that we are all supposed to be rational. However, only about 16 percent of all decisions are made that way. Everything else is driven by emotion. I think we need both.

Dejan Ljuština

This is a valid point. Companies will continue to be run by humans, not machines. But let me give you a recent example of change or reduction in scope of manager's activity. Suppose you are in FMCG business and your biggest expense is marketing. These days, nobody precisely knows what the true return on the investment in marketing is. Now big data analytics can give you a solution. You plug in a lot of data. Assuming that you have the right kind of data and algorithms, you press a button and you get your best options. You know that instead

of wasting your money on a particular activity, you should do something more sensible. As a result, the role of the manager in determining the marketing mix is becoming obsolete. That is what I am talking about.

Simon Kaluža

Management has already been disrupted, not only by digitalization but also by the Millennials. They do not respect hierarchy. They do not see themselves as working for a boss. They are looking for mentors and coaches. They also decide what community they want to interact with. This means that management skills and techniques have already been disrupted in a big way.

Aleksey Minyaylo, *Director, NGO Games of the Future, Russia*

You are saying that management is in a crisis. That is an opportunity for it to come out of the crisis healthier. According to surveys by the World Economic Forum and the World Bank, the most important skills for the future are curiosity and initiative. That is what distinguishes a human from a computer. In order to adapt to the new situation, we have to become more humane.

My second comment is on young people. Mankind has gone through [41] *some periods of development. For a long time literacy, the ability to read and write, distinguished the elites from the rest. In the 20th century, that distinguisher was management. Today, management has become universal literacy. Organizations are evolving toward self-management. That is an additional reason for management to change and adapt to new circumstances.*

Dejan Ljuština

I agree fully. Disruption does not necessarily mean a crisis. It means an opportunity. I think that all leaders who are aware of this are changing. You do not need to manage people. You need to inspire them.

Simon Kaluža

One of the problems is that failure is considered unacceptable. Here in Slovenia, Steve Jobs would have been considered a big loser after he failed for the second time.

Branko Greganovič, *President of the Executive Board, NLB banka Beograd, Serbia*

Since we are in a business school, let me pick up on the topic of business school curricula and take it a bit further. There is one curriculum item

that is most influenced by digitalization. It is the one that is most hated: accounting. Book-keeping is just an old way of data management. It is really surprising that I have not seen a business school that has changed its accounting curriculum.

Joe Peppard

Can I challenge you on that? We have had calculators for many decades. There are now students who do not know how to do simple sums because all that they know is how to press a button on a calculator. Teaching accounting with a pencil and paper may be a good idea because it teaches people to think. Millennials have lost a key ability: the ability to think in terms of systems. Everything now is behind an app.

Business schools should teach systems. Graduates should understand how things fit together and how they work.

Branko Greganovič

This is true. But the problem is that students know how to put data on paper but they do not know how to collect, keep, and process data, and how to make quick decisions. There are data warehouses now and data lakes. There are unstructured data and there is machine learning. Yet, schools are still teaching students paper-based mental models.

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Maja Hranilović, *Managing Director, Ecorys Hrvatska, Croatia*

I would like to know how we can at the same time have a sense of urgency and give people a sense of stability, which they need in order to perform well. If they feel insecure, they will be very risk-averse or just leave. This is an issue that we are struggling with on a daily basis.

Dejan Ljuština

A lot of transformations fail if a company does not deal with this. You can try to copy Google's culture. But it will not work because you are not Google. Each company must start with its own culture and recognize its own strengths. Then, you have to identify what you need to change and what levers you are going to use. You also need change agents – or pride builders that are going to set the role model for the change.

Robert Serec

This is the 13th company that I have turned around. I do that for a living. My nickname is "Change". When I walked into the company, I was accused of declaring the company bankrupt. I said, "Yes, I did that in the past, indeed, to put the company and workers out of misery" and

stop the pain of everybody involved, because there was no future. You just cannot continue doing something that is not acceptable. If you cannot save it, then kill it.

The reason that we change so fast and so successfully is that I respect people, unlike those who fail in similar attempts to turn around their companies. I gathered everybody in a room like this one and I said, "It is going to be tough, painful, we will have to fire people, but we have to stand together and then we are going to make it. I may not be the smartest guy in the room, but I am in charge. When I say 'hop', you do not ask 'why' but 'how far up'? And we must hop together. I am going to go through all the pain with you". You have to treat people with dignity even when you are making them leave. I told those that I fired that I had nothing against them on a personal level, but what they contributed was unfortunately not enough to save the company.

Simon Kaluža

My advice is for you to put the customer in the center of the universe. Everybody in your organization should know how you serve your clients. Set up a strategy around your clients and then inform everybody about it. Then everybody will understand how a little bit of work done by an individual contributes to a common goal. If a particular unit does not add value, just delete that box from your organizational chart.

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I think that there are enough high-quality young people around. The problem is that they change companies every two or three years. You need to have a good offer to attract these people.

Dejan Ljuština

Each year, some 2,000 IT experts leave Croatia. Now we have had a tax reform that is supposed to keep them. Interestingly, the surveys show that for most people in our region, the favorite employer is the public sector. What we are lacking is the environment of start-ups. In Israel, which invests 4.3% of its GDP into R&D, if a startup fails, the government picks up the bill. In that way, they are creating an environment in which a failure is not a failure anymore. By failing you learn something new. If we do not do something similar in our countries, all smart young people will emigrate. Those who will be left will be people whose dream jobs are positions at a state institution. This is a task for governments.

Joe Peppard

It is time to draw this to a close. We have covered a lot of ground over the last couple of hours. We have all agreed that digitalization is happening and things are changing. We cannot get around that. Some

industries are faster than others but change is there for all. ***But digitalization requires a mindset.***

When I worked with old companies and I started talking about being agile, the first question I was asked was "What is the process for being agile?" But it has nothing to do with processes. It is a mindset. Startups just have a different mindset. They do not even see failure as a problem. They just pivot. If something is not working, they try something else. Understanding their customers is their core competence. Traditional large industrial companies are not like that.

There are a few things that do not change. Leadership has always been an issue. Who is going to lead the digitalization? Do we delegate it to an information technology expert? Do we change the chief information officer's label, make him a chief digital officer, and have him lead the process? Or do we recognize that the whole team must embrace digitalization? It is not going to be driven by the technology. It will succeed if our organization can successfully manage change.

We should not see investments in digitalization as investments in technology. We do need technology as a great enabler but ultimately the success of any investment in technology depends on your ability to manage change.

[44]   *One of the challenges of digitalization is that it is an amorphous concept. We cannot touch it and see it. But we need to explain visually what the organization needs to do, so that the technology that it is going to roll out is successful.*

*****Culture has always been a big challenge.*** The success of digitalization often comes down to organizational culture. Some cultures are better at embracing change whereas others struggle. We have seen this over the decades in the public sector. I do not wish to criticize that sector but it has produced some massive investment failures in the United States, the United Kingdom, and elsewhere. The reason is that the public sector is very resistant to change.*

*****The next point is unity of purpose.*** It spans anything that we do in an organization. If there is no unity of purpose, the chances of success definitely become smaller.*

Digitalization requires change. Its success depends on the ability of an organization to recognize the necessary changes. This is going to be an ongoing journey as technology continues to advance and new capabilities come about.

Joe Peppard

Joe Peppard is a professor at the European School of Management and Technology (ESMT), in Germany, and adjunct faculty at University of South Australia, an expert on information systems, digitalization and digital strategies. Prof. Peppard works also as a consultant and has worked closely with senior executives and board members of large complex organizations in both public and private sectors, advising them on IT and strategy related matters, leveraging information and on how to unlock business value from their IT investments. He has lead courses for companies as ThyssenKrupp, Bosch, E.ON, and Munich-Re and has worked with a number of technology companies helping them with their strategy, market positioning, and growth. His research studies contemporary issues and challenges that mangers face in an environment of accelerating technological change. He is a Non-Executive Director of IT Alliance Group, an outsourcing and managed service provider, and previously served as Chairman of the Board of Fineos Corporation, a global provider of innovative software solutions for insurance, bank assurance, and social insurance. In addition, he mentors at a number of start-up accelerators in Berlin.

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Prof. Peppard is also an author of several books; his most recent books include *The Strategic Management of Information Systems: Building a Digital Strategy* (Wiley) and *Customer Relationship Management: Perspectives from the Marketplace* (Butterworth-Heinemann). With his research, he seeks to steer a pragmatic path, with a purpose to help the busy managers and executives to be successful. He recognizes that managers want frameworks and models to help them understand their own predicaments, insights to figure out options and consequences and clear actionable advice and guidance. In 2009, The Operational Research Society awarded him the prestigious Stafford Beer Medal for his research while he received the Best Paper Award at the 2012 American Marketing Association's International Service Research Conference.

IEDC Books of the Year

2016 Joe Peppard, *Digitalization as Investment in Change*

2015 William A. Fischer, *Are You a Digital or an Analogue Leader?*

2014 Roger Martin, *How Winning Strategy Works and What Is It Really? Why Strategic Planning Is not Strategy?*

2013 Pankaj Ghemawat, *How Global are We?*

2012 Henry Chesbrough, *With Open Innovation to Success*

2011 Creating the Future: *25th Anniversary of IEDC*

2010 Stéphane Garelli, *Business as Unusual; A Competitiveness Outlook for 2011, and Beyond*

2009 Hermann Simon, *Role Models of Leadership beyond the Crisis*

2008 William A. Fischer, *New Generation Innovation*

2007 Jean-François Manzoni, *How to Avoid the Set-Up-To-Fail Syndrome*

2006 Ichak Adizes, *What is a Leader?* (a video lecture)

2005 Peter Drucker, *Manage Yourself and Then Your Company: Set an Example*

2004 Manfred Kets de Vries, *The Bright and Dark Sides of Leadership*

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2003 Fons Trompenaars, *The Challenge of Leadership - Visions, Values, Cultures*

2002 Jean-Philippe Deschamps, William George, Milan Kučan, *Leadership for Innovation*

2001 Peter J. Rohleder, Peter Kraljič, Milan Kučan, *Competitiveness of Companies in Central and Eastern Europe*

2000 Paul Strebel, *Focusing on Breakthrough Options*

1999 John M. Stopford, *Harnessing Organizational Knowledge for Strategic Innovation*

1998 Pedro Nueno, *Maintaining Your Personal Value*

1997 Lecture by Peter F. Drucker on the occasion of the 10th IEDC Anniversary: *"Manage Yourself and Then Your Company: Set an Example"*

1996 10 years of IEDC

1995 George Taucher, *How to Succeed with Strategic Alliances*

1994 William A. Fischer, *The New Faces of Manufacturing*

1993 The European Presidents' Challenge; Beyond Restructuring

1992 Developing Managers for Eastern and Central Europe

1991 Thomas J. Peters, *The American Way of Managing – A Model for the Whole World?*

1990 Arnoldo C. Hax, *Redesigning of Strategic Concepts and Processes*

1989 Derek F. Abell, *Management in the Organization of the Future*

1988 Peter Kraljič, *Ways to Industrial Success*

About IEDC–Bled School of Management

In 2016, the IEDC–Bled School of Management celebrates its 30th anniversary. Founded in 1986 as the first business school of its type in Central and Eastern Europe, it remains to this day one of the leading international management development institutions in Europe. It is a place where leaders come to learn and reflect, an international center of excellence in management development, a business meeting point, and a unique place where works of art complement a creative environment for creative leadership. Some of the world's most eminent professors and consultants teach here, and participants attend from all over the world. The total number since the establishment until today stands at more than 80,000 participants from 85 countries.

The IEDC–Bled School of Management is an award-winning school. In 2012, the Executive MBA Program of IEDC–Bled School of Management was recognized by the Association of MBAs (AMBA), international authority on postgraduate business education, as one of the four most innovative MBA programs in the world, among 700 MBA programs accredited by AMBA in business schools in over 75 different countries. In 2010, Prof. Purg was named International Educator of the Year by the Academy of International Business (AIB) for her outstanding achievements in international business education. In 2015, she was was conferred upon the Lifetime Achievement Award in the field of management by the Managers' Association of Slovenia.

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In 2016, the IEDC won the AMBA Milestone Award, which is given annually for recognizing the on-going success of accredited business schools worldwide.

The IEDC–Bled School of Management is also the headquarters of the International Association of Management Development in Dynamic Societies (CEEMAN), the International Management Teachers Academy (IMTA), the European Leadership Centre (ELC), and the UN Global Compact Slovenia.

Along with its international Executive MBA and PhD programs, the IEDC offers short executive seminars for top management, customized programs for corporate partners, and a wide range of general management programs including a five-week General Management Program and an International Summer School for Young Managers.
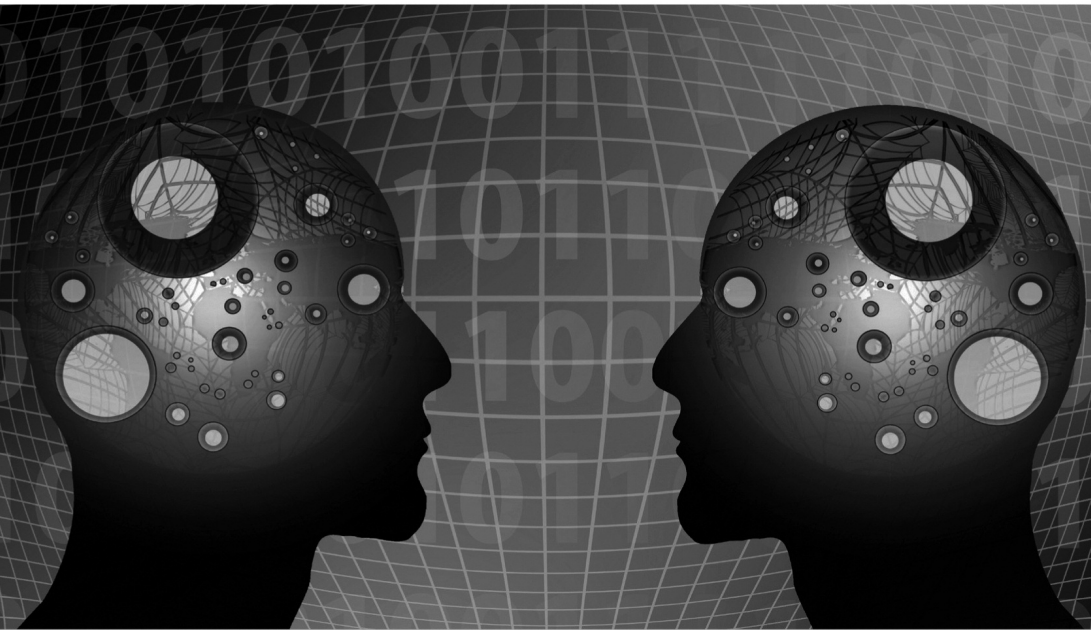
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