

Closing Session

FUTURE TECHNOLOGIES OF THE FOURTH DIMENSION

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When we, the futurists, study future trends, we used to divide them into two categories:

- trends which exist (have been born) and
- those not yet in existence (which have not yet been born).

Today, I wish to introduce you to a tool with which I will try to demonstrate how we can research trends, which do not yet exist. And I will provide you with some tips in your field of occupation regarding technological developments which most experts claim are not logical and not likely to occur – which we think, against all odds, will occur. In this lecture I will illustrate to you how we come to predict trends which are still in the stage of pregnancy or conception.

The Universal Force Theory

What is the driving force of trends which causes the dynamics of change? If we succeed in identifying it, we will be able to use our imagination, and then make implications about technologies, services and future governments which have not yet been born. It is important to first identify the dynamic on which the changes are based. This dynamic is basically the hidden assumption which causes the changes.

For example, you already know one of the theories which identified the dynamic of changes upon which the information revolution is based –The Alvin Toffler's

“Waves” theory: According to Toffler’s theory, human cultures went through three waves of change that influenced the concept of time, space and values. The first wave of change took place when human production moved from mostly hunting and seed collection, into dealing mostly with agriculture. This transition took thousands of years. The second wave took place when human production moved from dealing mostly with agriculture, into dealing mostly with mechanical industry. This transition stretched through 3-4 generations or a few hundred years. The third wave of change started according to Toffler in the forties of this century, and is characterized as a time of transition from dealing mostly with mechanical industries into dealing mostly with information industries. The current wave is usually called the Information Age. It is characterized by converting cerebral activities into automatic and semi-automatic activities. This transition stretched through one generation only. Today, I wish to present to you another theory, no less interesting, which is beginning to gain acclaim in futuristic literature. I have adapted the dimensions theory so that it will be relevant to your communications infrastructure industry.

The human race has developed, until today, in a number of cognitive dimensions. If the principle occupation of the human race, according to Toffler, influences all aspects of its life, then the theory of four dimensions speaks of the development of human consciousness, the development of the awareness of physical freedom.

One of the principles in the process of researching future trends is to detect the driving force responsible for generating the transformation prior to pointing to the trends. These dynamics are the hidden assumptions behind these changes.

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The Theory of Four Dimensions

If there is truly a driving force, if we really succeed today in locating even the merest tip of the driving force of the development of the new communications industries, then we can claim it is possible to identify which technologies will be in demand in the future market. Not only that, but also which technologies have a high likelihood of being developed, even if experts will tell you, today, with great confidence, that they are not technically feasible.

Dimension 0 - The Dot Cultures

Dimension zero – life in this dimension is referred to as “the dot culture.” Thirty thousand years ago, the average life expectancy was 15 years. How many people could a person meet in his life? Perhaps one hundred or two hundred people. People lived in tiny communities, with a minimum of social ties. Contact with other groups could incur physical danger. Each community was efficient unto itself. Voluntary isolation made it difficult for men to learn from each other. When an idea was developed, it was transmitted accidentally from one group to another. Each society invented its own means of survival from scratch. Human knowledge hardly accumulated. The consciousness of physical freedom came to nil – there was no freedom at all. The sense of impending physical danger on the individual and the community was paralyzing. A group which developed something, kept it to itself.

The transmission of ideas was quite accidental, each group had to re-invent its knowledge.

The First Dimension – The Beginning of the Major Trade Routes

Later on, the world began to warm up, and the ice began to melt. Man began to live in bigger groups. The most ancient group, which worked in agriculture, familiar to us from archaeological digs located somewhere in southern Turkey, worked in agriculture some 6,000 years ago. But when the human race began to live in larger groups, it began to develop tools to produce larger amounts of food so that the whole group could feed itself. Sometimes when there was a surplus, it was necessary to engage in commerce. Thus began the need for contact between groups. Later on, this led to the establishment of the first commercial trade routes. The dot communities began to connect by means of trade routes which continued to expand and develop. Here are examples of technologies, which succeeded in surviving the hardships of the commercial trade routes in the first dimension and shaped the history of the human race: Decimal numbers and primary immunization methods from India; the wheel from Iran; ink, geometry, glass, papyrus from Egypt; astronomy & initial libraries from Babylon and initial commercial agreement and gold as a form of trade from Somalia.

It is important to note that many technologies and other sciences were lost due to the hardships of the routes of the first dimension. We know today of the existence of some of them, but know almost nothing about how they worked – for example, the science of mummification. There are those of whose existence we do not know – the library of Alexandria is just an example of what was lost and we cannot even guess what exactly was there – what engineering wisdom, what technologies, etc, etc, etc.

The Second Dimension— The Awareness of Length and Width

The Awareness of physical freedom and communal life has increased. Empires emerged and traded among themselves through a vast network of roads that connected villages and central towns.

Only in the 15th Century, the human race cut off its umbilical cord from the land and sailed away to new seas. Within about 35 years, European seamen circled Africa, discovered North & South America, & sailed around the world. The period of the second dimension is known in history as the period of discoveries and great adventures. Those that succeeded in cutting the umbilical cord from mother earth and knew the science of navigation became the powers of the second dimension. Within 500 years, navigation technologies of the second dimension gave Europeans wide control over the globe. At the end of the 19th Century, Europeans constituted 25 powerful countries that controlled about 85% of the world's continents. The second Dimension reflected human's ability to communicate freely around the globe.

Most of the science at our disposal today is the science which was gained during the transition to the second dimension. Here as well, many things disappeared as a result of the constraints of space due to interlocking lines.

The Third Dimension—The 20th century

The awareness of "height" and "depth" became part of the human culture. At the end of World War II it became apparent that one plane carrying one nuclear bomb is more powerful than 1000 battle ships (2nd dimension) and more than 100,000 infantry

soldiers (1st dimension). The enemy could attack cultural centers without ever setting foot in the country.

Most of the experts at the beginning of the century claimed that it was impossible to develop the technology of aviation. However, one can assume that if they had been presented with this theory, they would have understood that the awareness of height would enable us, of necessity, to find ways of flying in the sky. Perhaps someone could have predicted with assurance, that at the end of the century we would reach Mars and also would envision how this would change everything that happened to us, economically, politically and industrially.

Every entrance into a new dimension is accompanied by upheavals in the political structures: the crises are very difficult because there is opposition, and there are many conflicts of interest at play. Organizational structures of governments changed completely: heads of tribes became regional kings which became powers, and then super powers. The way in which we run wars, the way in which we trade, and the way in which we love – all of these derive from our awareness of physical freedom. Therefore many services which were appropriate to the third dimension will no longer suit us.

Each new dimension in human existence provides an advantage to those who use it. Any additional/new flexibility makes the difference between success and failure.

The wealthy of the First Dimension were merchants that exploited the major resource—trade routes.

The wealthy of the Second Dimension were those who knew how to establish empires and navigate the seas—the Greeks, Romans, Spaniards and English. Today, the wealthy of the third dimension are the multinational companies. Those companies who know how to ship merchandise, replacement parts and consumer goods overnight using air transport. And those wise enough to manufacture anywhere in the world, exploiting cheap labour, various skills, local science, natural resources and tax breaks in different parts of the world. Undoubtedly, globalisation is the peak of the third dimension.

It was not those who discovered the breakthroughs who became wealthy. Nor was it those who produced and supplied the tools, but those who used them first, especially those who found new and diverse uses for the tools which were developed, generally those who invented unexpected and nonconventional uses.

It is not the suppliers, but the users who will be the big earners. The Internet industries are a classical example: It is not the suppliers of hardware but the innovators of unusual uses who are the newly wealthy – amazon.com, eBay, etc. But...we are at the beginning of a new and different period. The human race is beginning to become aware of the existence of another dimension – the fourth dimension. And if this is correct, then everything familiar to you and me today will most probably be completely different.

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The Fourth Dimension - The Gate to Nowhere

Physical space is becoming compressed into smaller areas and disappearing. A large part of space as we know it, will be completely irrelevant. We will be able to transmit things, to live and trade by many means, beginning with satellite telephones, up to tele-presence – presence from a distance. This fact will cause the human race to create a new sort of knowledge and share it with others without dragging it through space. This will lead to the introduction of new “rules of the game” for an economics of new dimensions. Most of today’s economics – is dragging things through space. In order to lecture here today, I had to sit in a car, fly thousands of miles; I consumed a lot of energy and created a lot of waste material in order to arrive here. But, in life in the new dimension we will hardly need to drag things at all. We will transmit things in new ways. Today we possess cellular and satellite telephones. There is Tele-presence – I have the ability to put on a glove and glasses and my body is transported over distances and can deal, from afar, with problems under the sea or in space. It will be possible to transmit not only goods and materials but also ourselves – Tele-portation. You probably know that there exists a printer with which you can plan a real product, give an order to the printer, and the printer at the other end will issue a real product. These are industries, products and services of a completely new variety.

The awareness of social existence and physical freedom will begin to exist without the dimension of place. This awareness will enable people, resources, ideas and knowledge to be available anywhere, without the restraints of distance, time or place. In the fourth dimension, there will still be distances, but they will no longer dictate how the human society is organized. Each one will be compressed into a critical mass which will accelerate the confrontation and advance human knowledge to unmapped territories.

Knowledge Economy

Today’s economical theories hardly purify the old theories. These theories are still based on the “shortage” axiom that is irrelevant to information. When I sell you a phone it will no longer belong to me, when I sell you information I possess more information since I know you have that information. The shortage was always connected to “place” and that is slowly disappearing.

The weekly, “Newsweek” recently published an article in which the authors demonstrated how economic models which once worked have been completely overturned. Something is taking place in the global economy. It is not accidental chaos, but something deeper. The most fundamental concepts change their meaning, even the meaning of export and import. These models no longer work for us. But, we have no consolidated theories, as yet, to explain the principles of competition in the fourth dimension.

Note the regulation: once, the one who made the regulation had the power, and he was dependent on time and place. But, the wisdom of the regulation no longer applies. In Europe, politicians try to make regulations in order to control the number of unemployed – but this works in an opposite manner. How to intervene, when to

intervene, when to introduce legislation? Where to legislate? Everything depends on the physical context in which it began. We still lack the knowledge and understanding of how the economics of the fourth dimension works.

At present there are nuances and new theories. One of the very new economic theories claims that until today, we wanted to connect the product, manufacturer and consumer – and all the economic theories at our disposal until today stemmed from this connecting point. But, all three factors were dependent on space. In order to sell an insurance policy, for example, it was necessary to plan, meet the customer at a specific place and connect him with a specific product. These are game rules and competition of one kind. But something else has been added to this formula – shrinking. Compressed space necessitates a new type of economics with new rules. We must think of new space and seek an interface with the customers in the new space, otherwise there lurks the danger of losing contact and becoming irrelevant to the customers.

The fourth dimension does not eliminate the need for human contact. On the contrary, it creates a greater and greater need for face-to-face contact., but in a different manner. Therein lies the challenge to all of us. We must find new types of human contact in the absence of space. This is no small challenge. It is reasonable to assume that whoever succeeds in becoming that “crazy” person will create a product which will easily make him wealthy.

The new economics requires new tools of assessment. Today, there is great deal of activity in the import and export of intelligence, which cannot be measured. When huge corporations purchase hi-tech companies, they export knowledge, and it is impossible to measure this export. Today’s indexes do not measure all that they should. The Central Bureau of Statistics of the United States recently admitted that for the last 15 years they have been making an error of one percent per year in calculating the local growth—GNP, because the indexes do not describe how we work and what we produce.

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We do not know how to measure the new economy since it’s more difficult to assess the productivity of a decision maker as opposed to the productivity of a foreman in a production line. We don’t know how to manage companies since we can’t dictate to decision makers what to do. And we don’t know how to compete in the new economy since the information easily slips through borders and time.

The Secret of Success in the Fourth Dimension

Successful corporations will be those that will remould the working patterns of organization while ignoring the existing structures still rooted in the Third Dimension. The most successful will be those that can imagine the most extreme form of future as an example of endless free powerful computation, free telecommunication services to and from anywhere, immediate and cheap transportation, etc.

Anti-gravity

Now I want to show you a technology which most world experts claim has no prospects of being realized, and I claim that it does, and that it will come into being, because our awareness is ripe for this type of technology.

Until today, we have acted according to the laws of gravity. Now we are beginning to discover things which will make it possible to control gravity, and will bring about a breakthrough difficult to imagine today: we will be able to move and drag things from place to place in ways we could not imagine up to now.

Let me brief you with the story behind this technology. Ten years ago, a Russian scientist named *Podklatnov* moved to Helsinki, worked in the university there and claimed that he had come upon a technology by which one could control gravity.

Everything that we have done in the last hundred years has been to understand how the electron works, and then how to harness it so that it will work for us, starting from electricity up to interplanetary communication. Therefore, It is easy to claim that the whole last century belongs to one principle thing – the electron.

This scientist claimed that he had succeeded in understanding how it was possible to harness gravity so that it will perform another kind of work for us. He encountered many difficulties in publishing his studies. One day, one article was accepted for publication by a respected professional journal of physics in England. While working on it at the publishing house it was leaked to the press, and the next day, the London Times displayed the headline: “Gravity can be eliminated”.

At that same morning a great outcry broke out immediately in the academic world. Many physicists of international fame urged the president of the university to fire the researcher because, they claimed, he would turn out to be a charlatan, and the reputation of the university would be damaged.

The University president became frightened, and asked the researcher to pack his things and leave. He also demanded that he retract the article and forbade him to use the name of the university in any connection.

Despite the beseeching of many, *Podklatnov* refused to say what he had done, unless NASA gave him a laboratory, budget and reputation he deserved. I don't need to point out that the criticism by the scientific establishment against NASA is devastating.

In the last few months an underground movement has sprung up on the Internet among scientists who claim that they have succeeded in doing what he described, and unofficial meetings on the subject begun to take place.

I am here to claim to you today that if the human race is motivated towards the existence in an awareness of the fourth dimension, and that if we are beginning to compress space; if that is indeed a motivating force, then this technology is the sort that will be developed eventually. We will, for example, be able to develop new technologies to transmit phone calls and information made from different materials

familiar to us today. If NASA will decide to go for it, we will probably see first applications in 20 years from now.

I am here to claim to you today that if the human race is motivated towards the existence in an awareness of the fourth dimension, and that if we are beginning to compress space; if that is indeed a motivating force, then the anti gravity technology is the sort that will be developed eventually.

Let me conclude with an Israeli Joke.

Three engineers met in one of those technical exhibitions: a German, Japanese and an Israeli.

The German says to his colleagues: “You know...German scientists have found lately deep 100 feet in the ground wires and cables made of copper. It is probably that German engineers were using copper cables already some 300 years ago! Amazing, isn't it!”

The Japanese looks at him with a serious face and says: “Our archaeologists have found deep 500 feet an optic cable, which means that Japanese probably used optic cables some 500 years ago”.

The Israeli looks at them with a cunning smile and says: “Our archaeologists have found a 1000 feet deep in the ground a cellular line!!”