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Digital Intelligence in the Complex System- The Data Vector Network

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Abstract— *Based on the understandings of data exchange in the artificial complex system, digital intelligence describes how the new information form combined with the network science create a potential innovation in the edge of value and action. This potential born from determined and no determined space which is defined by the network connectivity. This one encourages or limits every movements for those knowing the technical key information from the natural and artificial environment by data way. This way provide by a combination where the space should be connected by the full networks from a device position linked at the right others. Into this space, two factors determine the data quality : signals and the science of networks. The most important in choosing the forms of network is to understand the angles and the vectorial power on the social and political field. This mechanism is not linked by the duality, cause and effect, it adopts a data reality which will be defined by a measure and an observation.*

Keywords— *Data, network, velocity, mobility, vector*

I. Introduction

The network mobility change the action for the area in which sensors are deployed. It speaks about unified communication, it means that the network science is one of the most important factor in power action for solving a problem. Indeed, today, the western and oriental society are hyper-specialization in their regulations. So, it become necessary to understand process in the fine way for improving the effects of social, political and military action.

Data is the heart of this, particularly, the extraction, the coordination, and the comprehension of its structure. That's why a method can help manager to build the good structure of the data from the human behavior with the information technology and to catch the data limits. Above all, with the data and the interaction in process with it, human society approach the characteristics of how the nature works with the vegetals and animals worlds, except the sensors are already present in nature whereas human discovered them, with the danger provoked on life.

II. Research methods

The data path adopts a dynamic behavior into two factors : tools extracting data and database requests from physical connection. The digitalisation of human process changes information in to data. It means the need to speak data quantum in a vectorail space with limit of what it can be observable at (t) moments. If the moment change, the reality change, or not, with different forms: physical, picture, represented in a context and a position: formula can be (m) for measure, (v) for the speed, (t) for times, (A) for the space with ϕ for the quantum status. All of this is conditioned by vectors which represent the network structure.

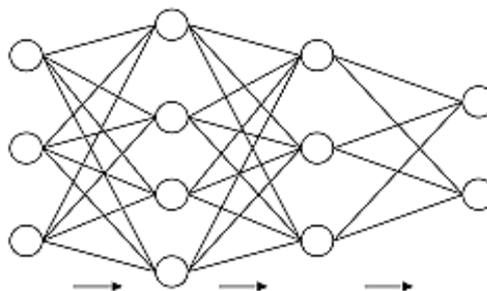


Figure 1. Diagram classical network

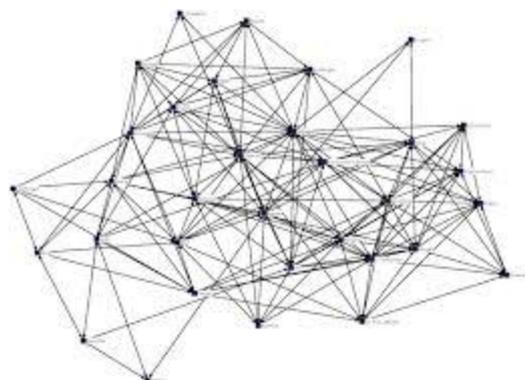


Figure 2. Diagram vector network

The differences between the classical and vector network are :

- the capacity for anyone to exploit from a sensor or something else the vector velocity
- the capacity to put at the right place the sensor for expecting
- the capacity to create a vector space from its environment
- the convergence of data-base from several sensor

The times is the path choosing by line commands and a same measure checks different values. It will be not the same experience because the latter is repeated several times with times references : hours/bits network and events time. Digital intelligence will be defined by an average of the times and repeated experience. The data vector network is the capacity to make knowledge from multi-dimension space where the potential action depends on GPS data linked at a moment.

This temporality is relative because time and date stamping can change proportional to the other network connection and data too. The capitation spare move in a infinity way and the frontier is only close at the meta-data existence. I call this « characteristic impulse » which changes the variability of parameter giving the reality. First, it need to understand the role of sensor in a context network the co-linerality show us the potential value of data in the same direction without connectivity. Indeed, (v) for vector represents a network link, (u) for vector represents another network link. Within each other, data move in a indeterminate sense but the two networks are not connected. So, If (k) is a data objet is co-linear. It could be difficult to exploit it. By using the analytic condition of vectors, above all, those from the eigenvalues and eigenvectors, the data vector network is allowed to be simulated.

The eigenvalues means that the study of privileged axe demonstrate a dilatation in rising the vectors by a constance. As Google use this mechanism for its web pages, data follows the same move.

And data takes a multi-dimensional form because of the vector variability which represents a connection point, both physical and virtual. If we add the velocity factor, we obtain a dynamic form. So, for understanding the link between the arbitrary and constant in the dynamic structure, it's necessary to think in a linear and non-linear mode to describe situation.

III. Application

To solve a tactical problem in a data velocity network, digital intelligence use several steps : understand the problem, understand available data, use the unexpected case, prove the results at the question with data, simplified and exploited data, reach the tactics goal, discover the new opportunity.

The application exists in the hyper-specialized society where people and services are concentrated in small area. The nature uses already the functions in a complexity more important by from a algorithmic gathering wave, matter and energy which is invisible for human. Except, human begin to understand the potential action of natural condition applicable at its own interests. Three examples illustrate the velocity of digital intelligence coming the data vector network.

First of all, economic innovation consists to solve a need ou provoke another one. The data vector network is going to respond to a desire by stimulating the gift mechanism in the human brain. Moreover, as the network reduce time by the paths available, there is more speed for movements in multi-direct style. With 30 million drivers the chinese compagny Didi get database for which it give key information for his government in advicing the line bus construction.

Secondly, policy innovation uses the velocity variability of networks to reach a goal or social effect. In France, 47% of benalla affair tweets was produced by only 1% actors.

Third, these applications demonstrate the link between "data vector network" and "realities war". The dynamic structure of the networks for those connected to the society produce information. Now, anyone is confronted with the algorithmic thought through two axioms : I know what you know, I know you know. Nevertheless, this thought depends on initial conditions of the networks and data connection within. There are four levels which define the social intelligence artificial from the initial conditions of networks and data connection :

level 1: smartphone / sensor:

- digital link is created between two points for something with a goal determined

level 2 : smartphone / n sensor:

- multiple links are created with several connection points

level 3: smartphone / sensors / système:

- multiple links are created with system which manage an social environment

level 4: smartphone / sensor / système/ worflow :

- multiple links are created with system which manage an social environment. Within there is data treatment.

These levels are the criterias based on the social environment for which digitalisation are going to create a reality and a potential action.

IV. Conclusion

The form and the vectorial aspect create a reality where data wears a meaning sense for Nations, Enterprises, people by engineering. After that, all combination are possible in a multi-direct style for the application on politics, economy, and social progress.

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