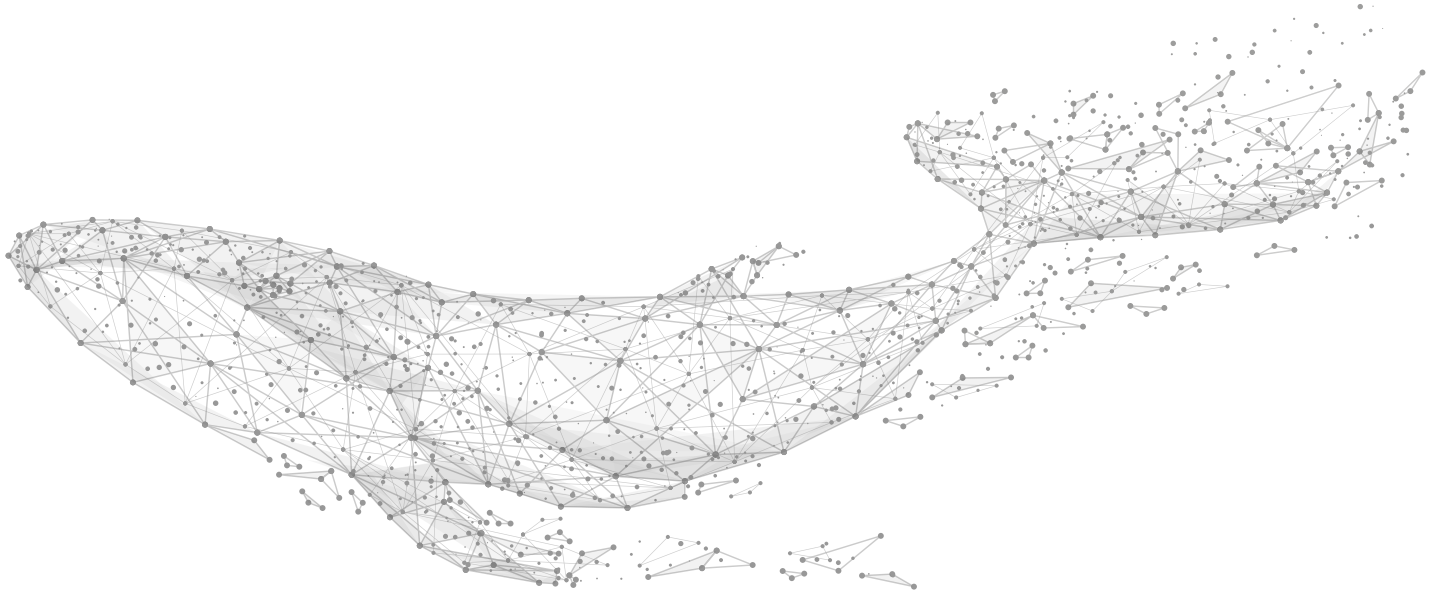

NETWORK FACILITATION

The manager's work in a New Era

August 2021

"Outstanding piece of work. It is an excellent adumbration of new tools and methodologies to address the current changes in the technology, and in the community"

Dr Iftekhar Ahmed Chowdhury

Minister of Foreign Affairs of Bangladesh (2007-2008), Bangladesh's Permanent Representative to the United Nations in New York (2001–2007) and Geneva (1996–2001), Ambassador to Qatar (1994–1996) accredited to Chile, Peru and the Vatican.

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August 2021

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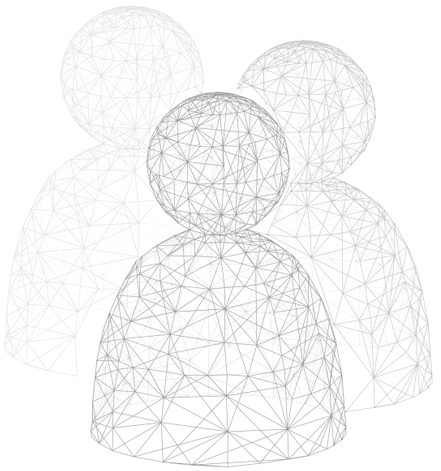
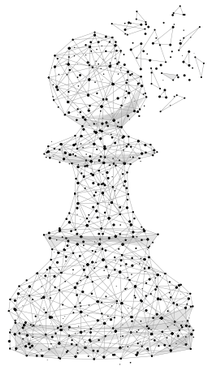


“No man is an island entire of itself; every man is a piece of the continent, a part of the main”

MEDITATION XVII
Devotions upon Emergent Occasions
John Donne

CONTENTS

THE SOCIAL NATURE OF WORK



Human beings are born social and in order to survive and thrive, must build relationships and connections. Such is the fundamental nature of how profitable work gets done within all organizations. However, the ability to communicate, coordinate and get work done across a network of relationships isn't without challenges. The "machine" paradigm of organizations of the industrial age created large organizations with structures that both facilitated and inhibited networking.

Managers are trained to control whom their staff network with and whom their staff do not network with. There are both explicit and unspoken rules such as:

- This is your team, this is your function, interact with them on matters pertain ing to your function
- Mind your own business
- The production floor does not directly talk to sales and strategy
- Respect the chain of command
- Etc

In short, just as there are formal structures that facilitate networking, there are also
powerful formal & informal structures that actively discourages and prevents networking. This may be ok in a world of companies organized in functional silos that relies on a hierarchical chain of command approach to management. But that world is changing and COVID-19 has accelerated that change and that will eventually change the nature of the manager's role.

We would make a case in this paper that one of the manager's new work is to identify, encourage and facilitate useful networking across an increasingly remote, diverse and virtual workspace. We will also explore what new tools and technologies managers will require to perform this new work effectively.

The changing nature of work in a post COVID-19 world

The global pandemic has changed the nature of work and with it, the nature of effective management. What has changed?

- **Increasing the "invisible" in the workplace:** Working remotely may become the norm rather than the exception. This will increase what is invisible to management. Managers can no longer see who is friends with whom, who socializes with whom, who is quarrelling with whom, who is working across silos and teams, who is helping to support their colleagues' well-being etc. They can no longer identify cliques, ingroups and outgroups, territorial markers and visible power markers like large personal offices or dedicated meeting rooms.

- **Contingent Workforce:** With greater uncertainty, there will be less reliance on full time employees and more reliance on contingent flexible workforce. The gig may replace the job as the way people view employment. The side effect of this is managers will know less and less about the people they are asked to manage as the workforce becomes more transient.

- **Virtual Relationships:** colleagues of all levels will no longer have as many opportunities to network face to face. Increasingly, colleagues working in the same teams within the same cities may have never met one another physically. This includes the entire recruitment and onboarding process, which has gone virtual in many organizations.

- **Cross Border Management is changing:** The regional or global manager in the pre COVID-19 world had an enviable job. She is part of the jet set, Monday in Beijing, Friday in San Jose, CA, the following week back to London HQ. But as Bill Gates predicts, some 50% of business travel will disappear even in a post pandemic world. The nature of cross border relationship building and network will have to change along with that new reality.

- **Employee monitoring using technology:** There is an increasing use of technology to monitor employees across all dimensions of management including task completion, use of time, health and well-being.

- **Support from formal structure vs. network:** the employee's own workplace network will have to play an increasing role in supporting the workforce's emotional, developmental, health and wellbeing needs that used to be provided by more formal structures such as HR.

- **Growing importance of virtual networking as a skill:** in the pre COVID-19 world, the only people that needed this skill are people who work within regional and global teams. In the post COVID-19 world, everybody needs this skill.

- **Move toward self-organization:** the pre COVID-19 world created organizations that

are rigid, siloed, with well-defined roles and responsibility and optimized for efficiency. The post COVID-19 world may need a more resilient organization model, that is more organic, that is more adaptable to change. One possible model is the self-organizing company in which managers facilitate an operating environment where employees tackle problems on their own initiative, with little or no top-down direction, and this even applies to economic partners elsewhere in a company's ecosystem.

Making the invisible visible

If the manager at all levels in the post COVID-19 world does not understand the social networks that are forming or not forming within her team and her team with other teams, how can that manager coordinate and facilitate work effectively? The manager will need new tools to make the invisible visible, both things that were previously invisible in the pre COVID-19 world and those things that have been made less visible as a result of COVID-19 and the post COVID-19 realities.

A promising discipline that isn't yet widely employed within formal organizations is Organization Network Analysis. Organizational Network Analysis is a multi-disciplinary practice to analyse how people and groups interact within organizations to communicate with both internal and external actors so as to achieve various ends such as:

- Organization goals (jobs, tasks, projects, purchasing supplies, selling, marketing, innovate, reporting progress)
- Personal or group level political goals (alliances, in group / out group etc)
- Disseminate information for various reasons (gossip, ingratiate, exchange etc)
- Socialization (make friends, form cliques, develop social network etc)
- Controlling others (orders, intelligence gathering, threats, influence etc)

ONA is like a brain scan; it is a way of making invisible patterns of information flow and collaboration in groups visible. It takes as input any relational data such as:

Passive Data Collection Methods

- **Calendar metadata:** Who is having a meeting with whom on what topic and when did this happen and for how long etc
- Meeting Room Booking metadata: Who is having a meeting with whom on what topic and when did this happen and for how long etc
- **Email metadata:** Who emailed whom on what topic and when did this happen etc
- Messaging metadata: Who messaged whom and when OR who participated in a group chat and who else is in that group chat and when did this happen etc
- **Employee location metadata:** Badge-in, Badge-out metadata can help us understand how employees move around the organization
- **In house surveillance camera network's metadata:** with advances in Machine Learning, the surveillance network is a rich source of data on organization networks.

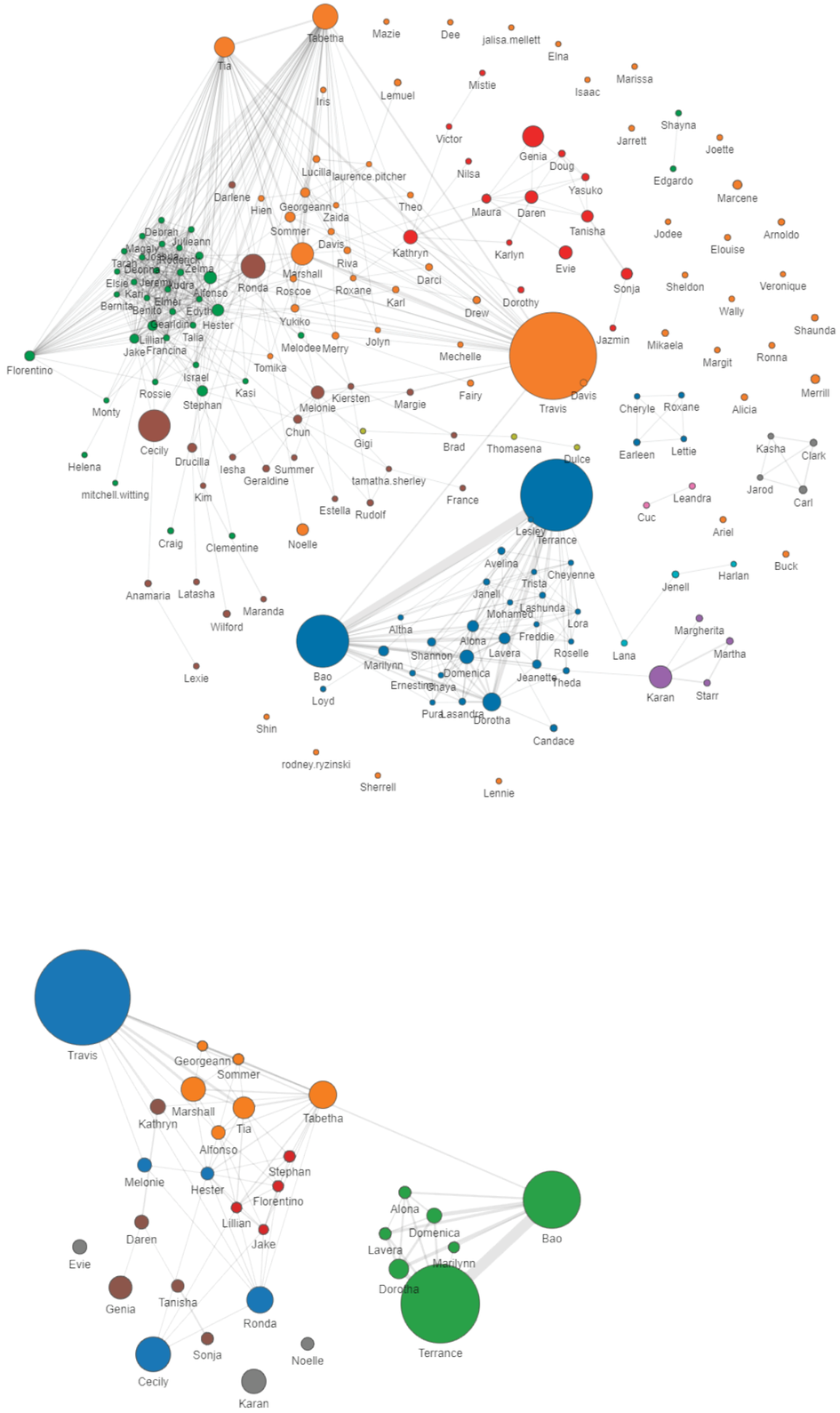
Active Data Collection Methods

- **Network Surveys:** surveys asking a series of questions about an employee's network such as who she reports to, who reports to her, who are the top 10 people she works with the most in the organization etc

And using such data to make the network visible. Below is an example of an ONA taken from Immersion network visualization: (https://immersion.media.mit.edu/).

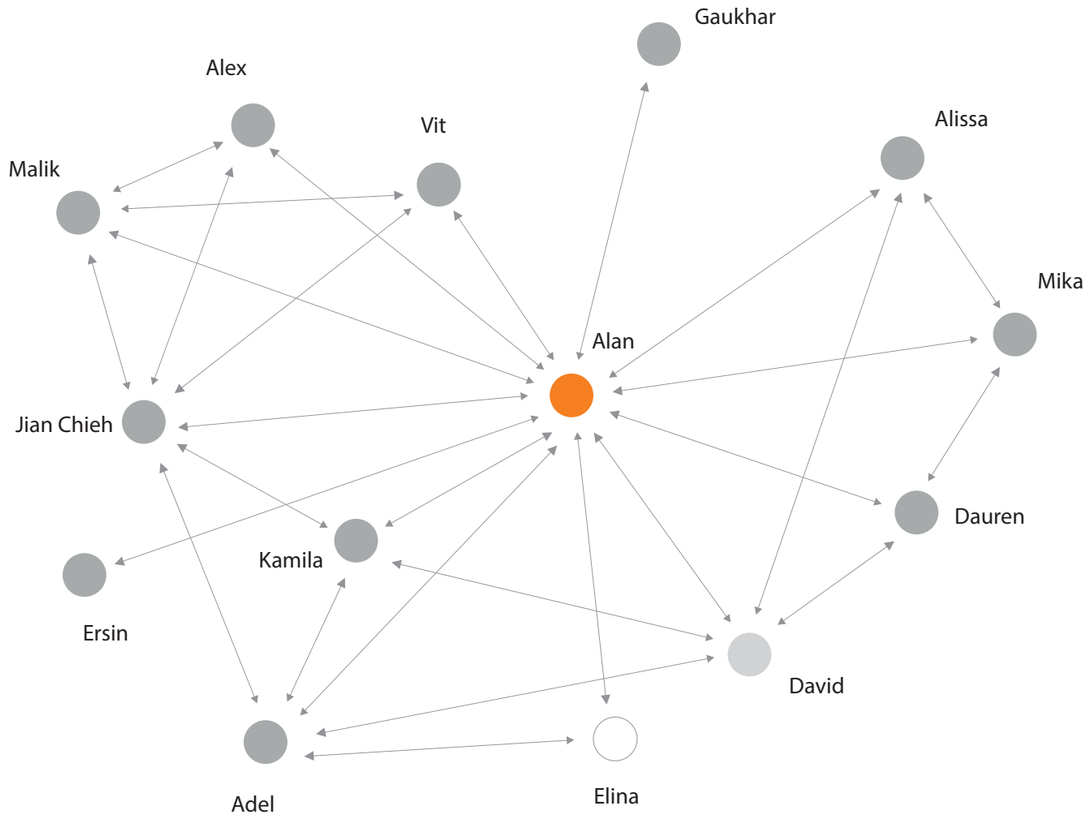
With this changing nature of work, the effective manager's work will change as well, probably in more ways than one. A trend that we can see from the analysis in the previous section is more "things" are becoming invisible especially in the social and communication dimension of the organization.

immersion.media.mit.edu



It shows the user's inner circle, who they communicate the most with etc.

With this data, we can find out who they trust, who gets work done for them, who help them to connect with whom etc. A very senior manager such as the CIO or CEO can potentially obtain such data for everyone in his or her organization and much can be learnt from analyzing such data.



Let's assume getting such data is not a problem. What can a manager learn from and do with such data?

Identify the super connectors

Pareto principle tells us that 80% of the effective work is done by less than 20% of employees. It only tells us that probably only 20% of your employees are effective connectors with strong effective networks that can get things done. Who are these people? Can we look at a traditional organization chart and identify who they are? We cannot. In the pre COVID-19 world, we can get a glimpse of this thru observation alone. But in the post COVID-19 world, we cannot see the social dimension of organizational life easily. We need ONA to help us identify these people.

After we identify these people so what? A shrewd manager will try to understand what these "super connectors" are doing. It would be naive to assume that all "super connectors" create only positive outcomes for the organization. Some of them may be doing the opposite, with great effect.

What could these "super connectors" be doing? What is Alan doing for instance in this network diagram? There is no easy way to tell just from basic network analysis. The manager will have to do some further investigations, which may involve a richer network dataset or via other means.

These super connectors could be:

- **Information Brokers:** They could be people who are very good at collecting and disseminating information. This could be their formal or informal role. Someone whose job is to generate performance dashboards for a large organization will have to play such a role to be effective.
- **Central Connectors:** These are the people who know everyone within a particular group or function. They are the social butterflies. They are the people others go to when they want to be introduced or connected to others.

Some subtype of central connectors are:
- Upwards networker: Someone who is very good at networking with people more senior in hierarchy
- Downwards networker: Someone who is very good at networking with people junior in the hierarchy
- Peer networker: Someone who is very good at networking with peers
- Diversity brokers: Someone who has a network that is very different from what is expected. For instance, a male employee that is strongly networked with the feminist groups in the organization. These people can help drive diversity and inclusion.

- **Gate Keepers:** These are the people that control access into a group. Secretaries of powerful people typically this role.
- **Silo Spanners:** These people who connect across silos. They are the people who can effectively work with people from other departments and functions.
- **External Broker:** These are people who have deep links into other organizations that partner with the organization (suppliers, partners, customers)

Many of these super connectors are the organization's most valuable employees. They are likely to be overworked, overloaded, some underappreciated and some may benefit from help that the manager can easily supply. Others may be actively doing harm effectively and must be stopped. Yet others are so overworked, they may be flight risk. Understanding the nature of the network helps the manager facilitate it, influence it and manage it towards organizational goals. Knowing who to deploy for what, who to ask with team building, who to send to that difficult customer, who to ask to represent the team in a cross functional meeting, who needs help due to overwork, who should be rewarded and promoted etc, would make the manager much more effective than if she did not have this insight.

Identify the isolated "islands"

These are the people at the periphery of the network. They have few connections and mostly within a very well-defined workgroup. Some of them are only connecting and communicating with the person they report to. Why are these people behaving like isolated islands?

- Unmotivated
- Poor job fit
- Personality driven - Introverts who want to be alone
- Role driven - Job does not require any interaction with many other people (e.g., data entry, researchers, experts within a very narrow specific discipline)
- Bullied - isolated due to bullying within the work group
- New Hires

Depending on the real reason, the manager can choose to intervene appropriately. For instance, the experts can be more widely socialized to make their unique skill sets known to a wider group. People with poor job fit can be redeployed. The unmotivated can be performance managed. The introverts can be deployed to roles that do not require as much people interactions, if that is their desire.

Break down Silos

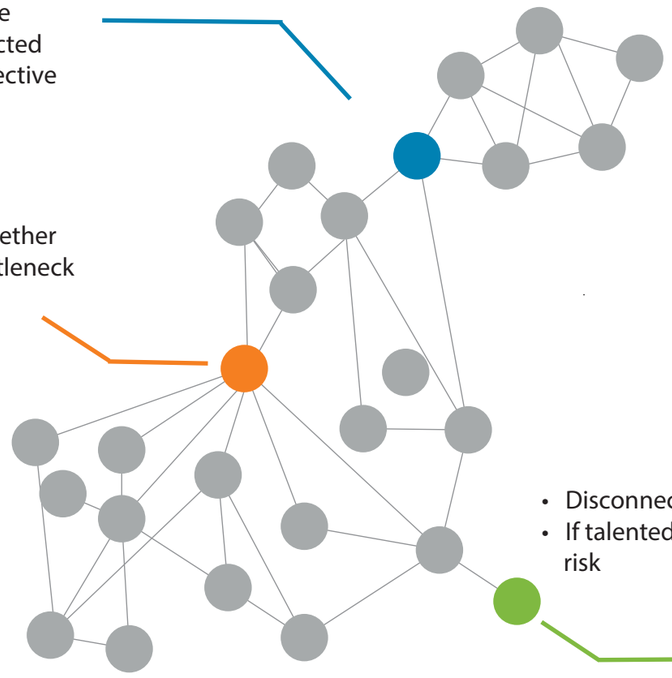
Managers higher in the hierarchy that oversee more than one organization may have expectations of cross collaborations between the teams within their charge. ONA can reveal the realities of these cross collaborations, whether they are happening or not and whether it is in fact improving over time. If silos are in fact forming, managers can intervene to break them down. Interventions can include team building, creating a shared vision, having joint shared goals, creating cross functional teams etc. All these can be facilitated by the manager with the identified silo spanners.

Analysis Central:

- Holds network together
- Can become a bottleneck
  Knowledge- broker
- Critical connection to external knowledge
- Needs to be connected internally to be effective

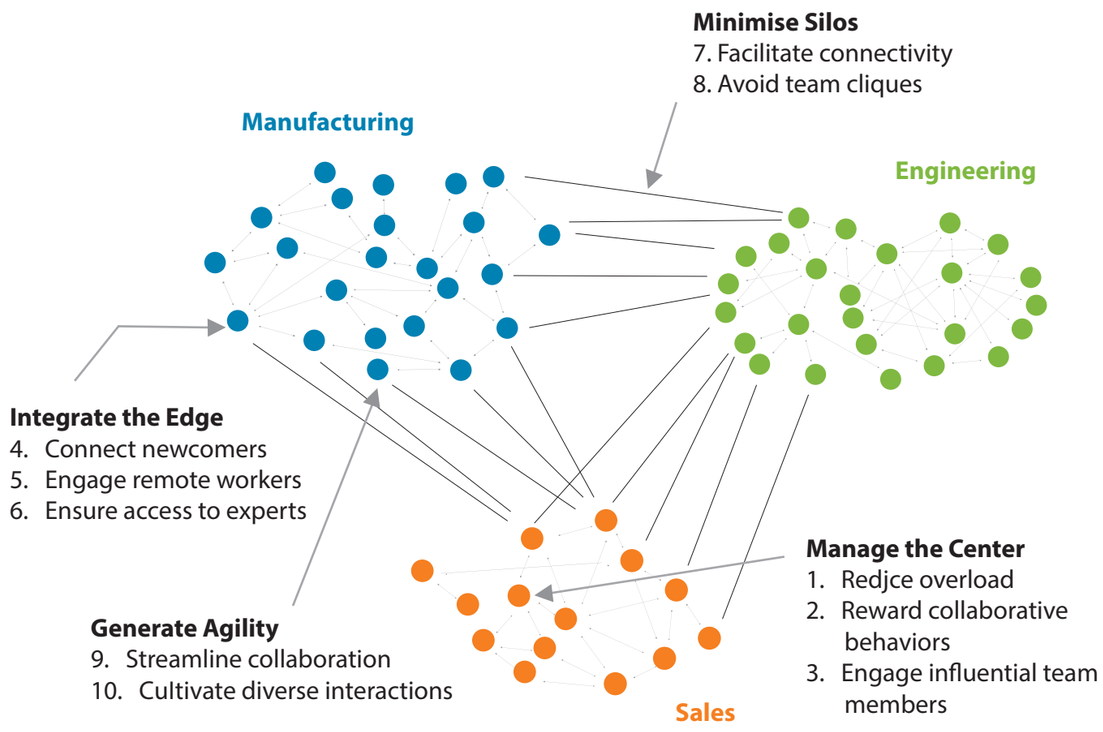
Central:

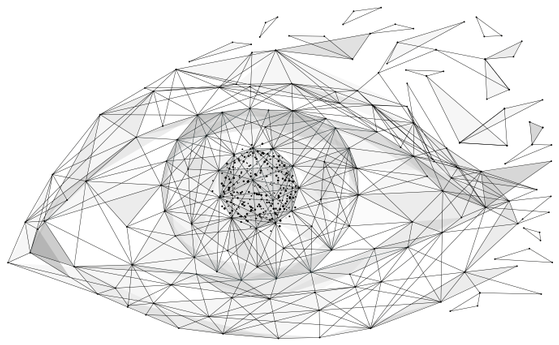
- Holds network together
- Can become a bottleneck



Peripheral:

- Disconnected, at risk of exit
- If talented, this presents a risk





THE CHALLENGES OF OBTAINING NETWORK

Who is doing this?

A number of companies are already looking at email for valuable content. One of the first email datasets considered for use by data scientists is a corpus of emails from Enron corporation, leaked onto the internet after it was obtained by the Federal Energy Regulatory Commission during its investigation, and now a rich training dataset for data scientists looking to understand the schema and value of email data.

A widely published case study from Genpact (a subsidiary of GE) working in collaboration with researchers from MIT analysed their own corpus of emails for data which could correlate with corporate performance. The results claim that they can statistically prove that certain types of communication directly correlate to overall business performance. Further, Genpact claims that they can predict "Rockstar" performers within their business with 74% accuracy.

In addition to companies looking into their own email, a number of start-ups have entered the market of messaging analytics. KeenCorp has developed a business model specifically to analyse emails which runs both on-premise and on the cloud. Vibe has a product which directly integrates with Slack to give a meter on team morale. Even Microsoft's MyAnalytics (included with Office 365) gives employees recommendations on ways to improve their productivity.

The companies best placed to operationalise this type of technology are those with embedded data science teams, or existing service providers, such as Microsoft.

The reality is network metadata that is collected passively (emails, messaging apps, security cameras, calendar meeting invites etc) are not available for analysis to most managers. The main reason is privacy.

• **Employee Sentiment:** Most people don't want management to have access to information about their network interactions. They feel this is a violation of their privacy

• **Privacy Laws like GDPR:** Most privacy laws such as GDPR require explicit permission from employees to be included in most types of ONA analysis. In most organizations, there are policies that disallow Database Managers from supplying low clearance managers from accessing such data and metadata.

It is much easier to obtain relational data via active means i,e., using an employee ONA survey. The survey may ask basic questions like who do you report to, who reports to you, who are the people inside the organization you work with the most and who are the people outside the organization that you work with the most and so on. Once again, participation is generally voluntary in most organizations and the take up rate is generally low as people are worried about their privacy loss.

For these reasons, ONA isn't a common practice within most large formal organizations. But the post COVID-19 19 world needs ONA.

How to overcome the GDPR type concerns

We do not have the solution but we can suggest some pieces of the solution.

a. Pre GDPR type ONA will not work in the Post GDPR world. We need privacy preserving ONA (PPONA).

b. PPONA must create a theory, methodology and practice that ingests only pseudonymised data and metadata. This means the data and metadata that is ingested into PPONA must be devoid of direct identifiers so that linkage to an identity is not possible without additional information that is held separately.

c. Governments can create policy guidance on how PPONA can be ethically deployed within organizations and general usage.

PPONA can be implemented using the following approaches:

a. Data provided is masked for Personal Identifier Information or PII. For instance, instead of employee names, the data has employee numbers. Instead of job titles, they are masked using some other naming system such as JT 1.1.2, JT 2.1.3 etc.

b. Only aggregated results are shown to managers: much like the types of reporting done on organization sentiment surveys where only aggregated info is given i.e., X% are super connector, Y% are islands etc.

c. Embedding PII Data: PII data separated from users using multiple layers of security controls, making it hard or impossible to reach PII information.

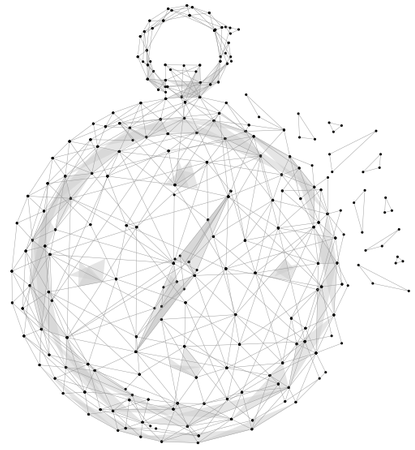
There is no gold standard for Privacy Preserving analysis today. This remains an ongoing challenge for organizations seeking to harness the power of ONA whilst staying on the right side of privacy laws such as GDPR. Governments have a huge role to play in breaking this stalemate.

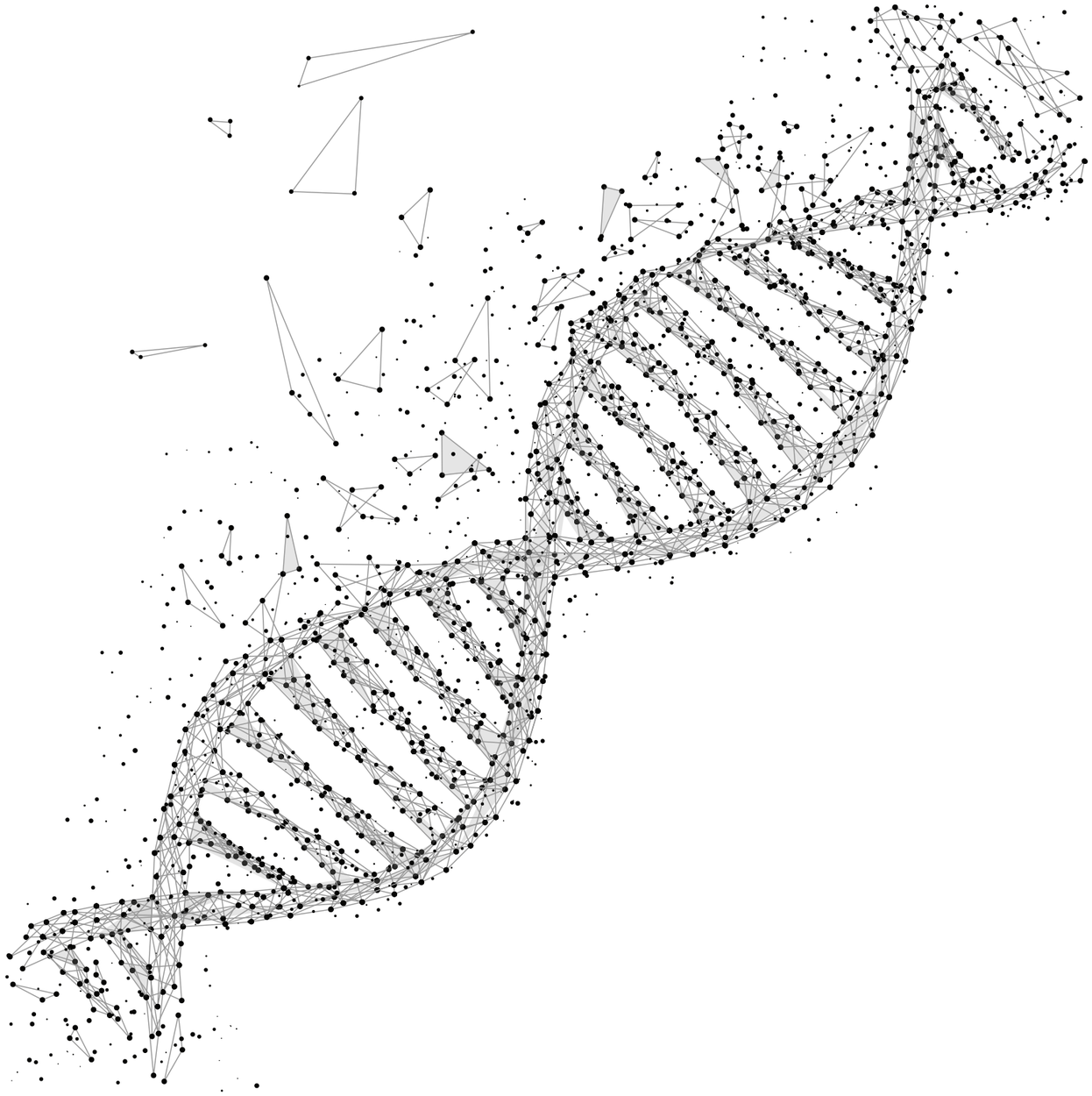
The role of Governments in facilitating PPONA

Governments can update their data privacy laws to facilitate the measured use of ONA. This is especially urgent within the post Covid 19 world and we would argue that the governments that are first to figure this out will have a strategic advantage in powering their industries.

Governments can do the following:

a. Clearly define what permissions are required from employees and what permissions are not required for PPONA
b. Set up Capability Maturity Standards for PPONA that can be audited by external auditors. Only capable organizations that have implemented management systems and controls that are PPONA capable would be allowed to perform ONA.
c. Set up an audit organization that performs random audits to ensure compliance to data privacy laws with respect to ONA.





THE PIONEERING WORK BEING DONE IN KAZAKHSTAN

In the general set of various technologies and start-up projects working with big data in socially organized networks, the work of one of Kazakhstan's pioneers can be distinguished.

They decided to change the very principle of management in large organizations.

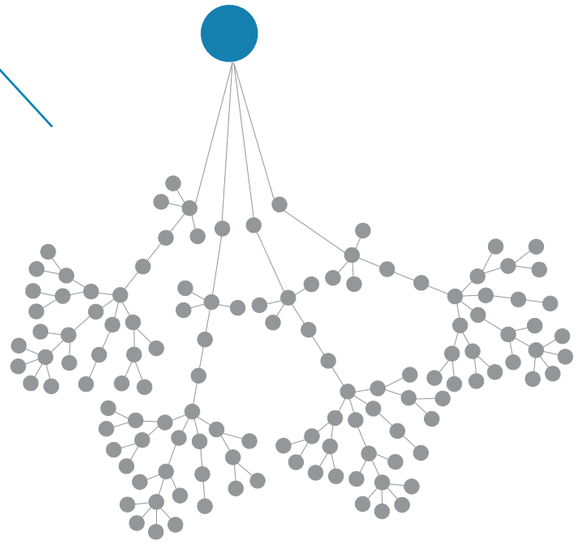
Do you know how to whom they came to the conclusion - all or almost all decisions made by the first leaders are based on incorrect data.

How many strategic decisions of first leaders are based on incorrect data? Almost all.

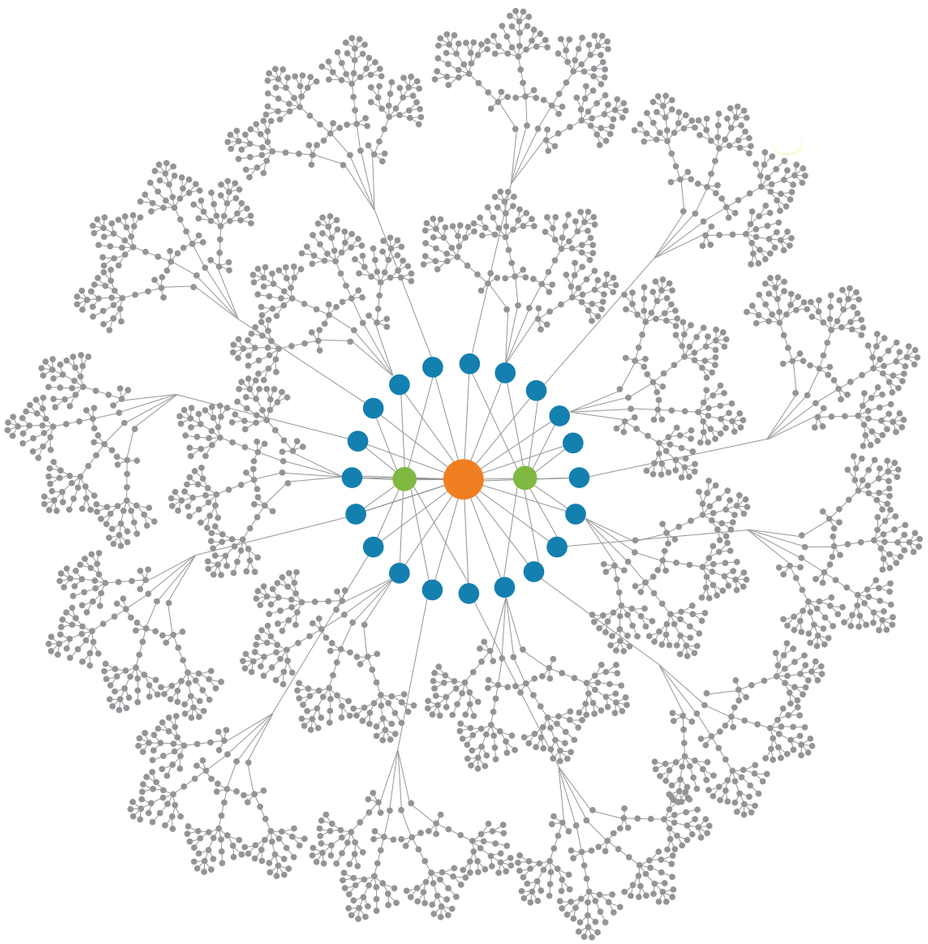
Over the past 10 years, team in Kazakhstan have monitored how data flows circulate within large government structures, what are the roles of different links and levels of government, how data is modified as it passes from one unit in the system to another, how long this process takes, as well as the collection process and analysis of information.

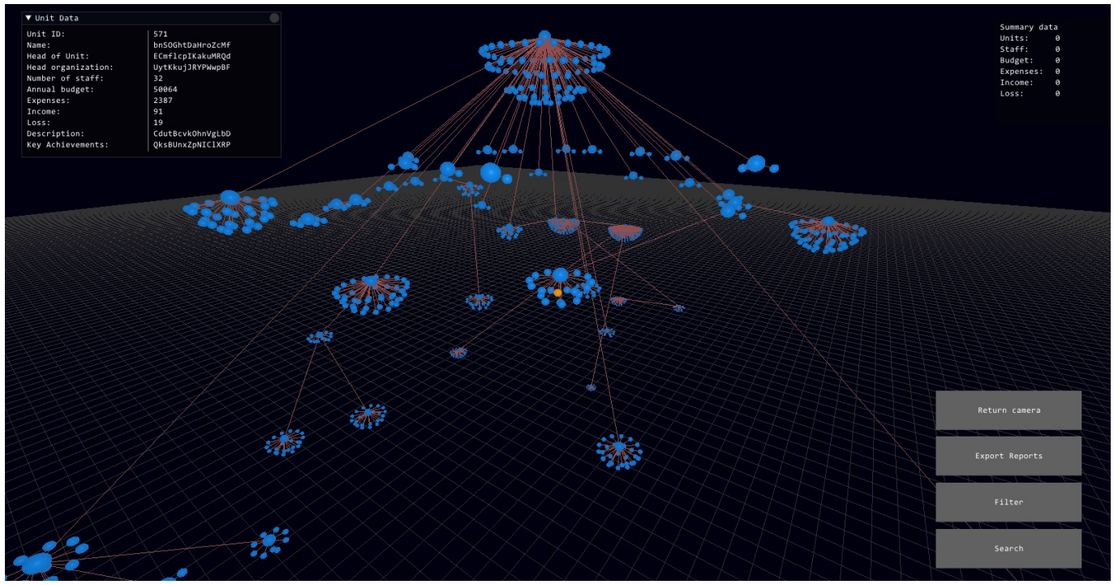
The result of this work was the creation of a methodology and software of the same name called Bastau. This is a new technology that allows you to create hyperbolic big data analytics of the complete structure of any of the largest organizations in the project and manage it in 3D mode. A technology to accommodate spatial data visualization for the top management of transnational companies and holdings, heads of states, governments, and international organizations.

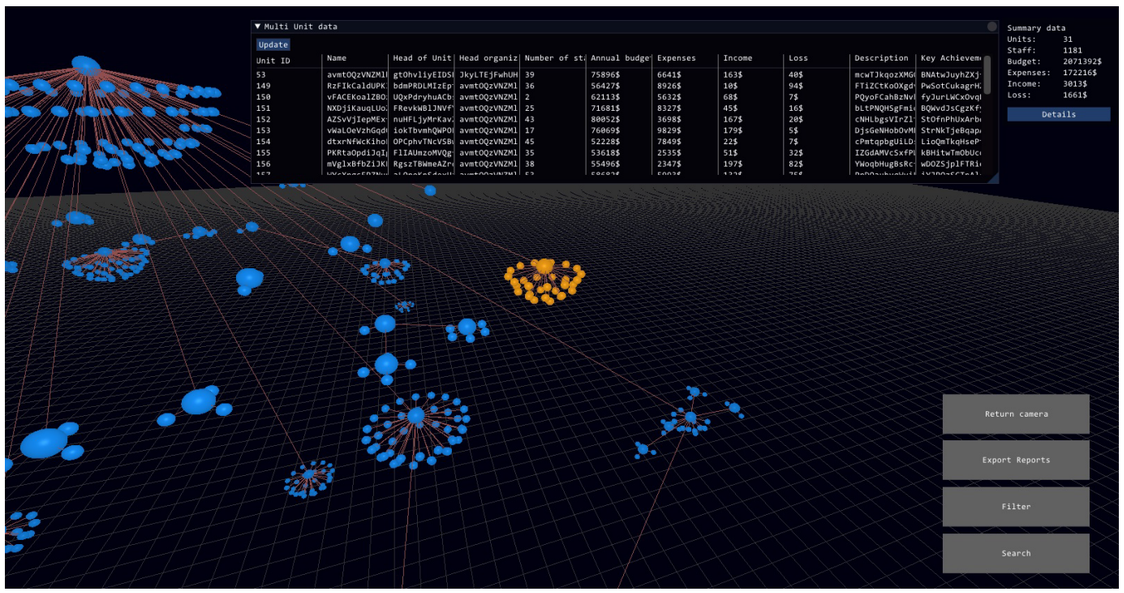
The classical structure of an organization



Structure of a Government







The authors claim that a technology has been created that will determine the next evolutionary stage in the development of the management sphere of large companies and organizations.

The presented drawings describe the approach to displaying the complete structure of an arbitrarily large and complex organization in a spatial visualization mode. The technology can be used by corporations, for example, or even the government of an entire country.

It is important to note that spatial visualization technologies have been successfully applied in various fields for many years, including physics, chemistry, astronomy, architecture, and engineering. In the film industry, computer games and 3D entertainment, as well as 4D, 5D, 6D, etc., these technologies are common—you could even say that they are the standard.

But what is the use of the spatial visualization of data in the field of management? Well, that's where things get interesting.

The authors claim that any information systems that leave the user in two- dimensional space are now outdated. Perhaps for this reason, the modern management systems in large organizations can be attributed to being artifacts from the Stone Age. Literally all existing CRM-systems of the largest industry players are now outdated. You can simply throw them away.

The understanding of three-dimensional space is believed to develop even in infancy, and is closely related to the coordination of human movements. The visual ability to perceive the world around us through the five senses in three dimensions is called depth perception.

The depths of understanding of these various processes are just not enough for top managers in today's world. The traditional ways of retrieving data from a nearby employee in a hierarchical chain are now outdated.

The Bastau methodological approach runs counter to the established hierarchy of how information is reported. The problem here is not only the technological structure—rather, the problem is nothing but the laws of society.

From today's challenges to a journey into the Future of Government

Here is a concrete example. Imagine that a senior manager, whether the President or the Prime Minister, must make a decision on any particular issue. He contacts the relevant minister and gives instructions to study the situation and then give suggestions. This minister, in turn, further sends a request to his own deputy. The deputy delegates to the director of the department, and this passing along of instructions continues down several levels, sometimes up to fifteen different levels.

In a horizontal format, colleagues from other departments and units whose opinion may be important are also involved. As a result, the question "flows" down the system to the performers, who are the real sources of information located in the lower echelons. The first methodological problem, then, is a total loss of time.

Subsequently, the following problems occur: The answer also flows in the original pattern, but in the opposite direction. With the passage of each new level, the degree of adequacy is lost. Nobody likes to send bad news upstairs. Actually, they often don't go upstairs at all. Data is "smoothed out," and the sharper and problematic parts are removed. Someone on the way back will consider the fact that it does not correspond to the level of senior management to know about the presence of such insignificant details, and will cut out some of the data. Someone has their own opinion, and the data is transformed along the way beyond recognition. Someone is hiding in the various arrays of departments, and as a result, the leaders are in an information vacuum. They often know exactly what they allow others to know in downstream units, and the quality of strategic decisions is reduced many times. The speed of access to information is also too low. As a result, many vital decisions are made based on incomplete, outdated, or simply erroneous data.

In general, the higher the position in the hierarchy, the less true the information actually is. Communication channels are clogged, and this can be seen by the voluminous folders with documents accumulating in reception rooms, and also in organizations that have completely switched to electronic document management. This can be demonstrated by the number of unexamined documents in the "for consideration" list.

Often, in the "middle units," performers do not introduce anything fundamentally new. They are only intermediaries, and they spend their time coordinating the flow of documents. Losing their time is both a waste of public/company funds and an inefficient use of human resources.

Therefore, the decision-making process at the level of the entire state/corporate system is significantly delayed. Mid-level managers are similar to postmen who pass along information in accordance with the principles of hierarchy. Most of the data does not reach the top. Responsibility is blurred, and the role of the lower links is underestimated.

The new technology can speed up the decision-making process significantly, ensuring at the implementation stage the creation of a single database in the areas of responsibility and the performance of each unit/employee at the country/corporation level. This can save huge amounts of financial resources simply by optimizing human resources, and can reveal the personal effectiveness of each link.
herefore, the highest-level leader will be able to see everything in one place, spacing out all of the links and all departments, divisions, or each employee of his organization in their actual interconnectedness throughout the organization. The leader can also reach out to any of them in seconds, "knocking" with questions about who they are, what they should do, for what purpose they were hired, and what they see as the results of their work.

No more need to knock through dozens of doors. Just imagine the idea that the President can call an expert in possession of real data and ask directly about any relevant information in order to solve a problem. The authors argue that the introduction of new technology can significantly reduce the overall workflow— by 90% according to their estimates—and help to identify "dusty areas," which are often excellent environments for making opaque, corrupt decisions. Imagine that 9 out of 10 documents that pass through the system will no longer be needed.

Information Exchange made efficient and easy

Each state organization, each ministry and department, national company, or development institute has its own press service or press secretary. There is also a single center in which the work of these disparate PR units is coordinated and controlled, and in which a single ideological line is formed, as well as relevant topics and socially important issues that need to be addressed.

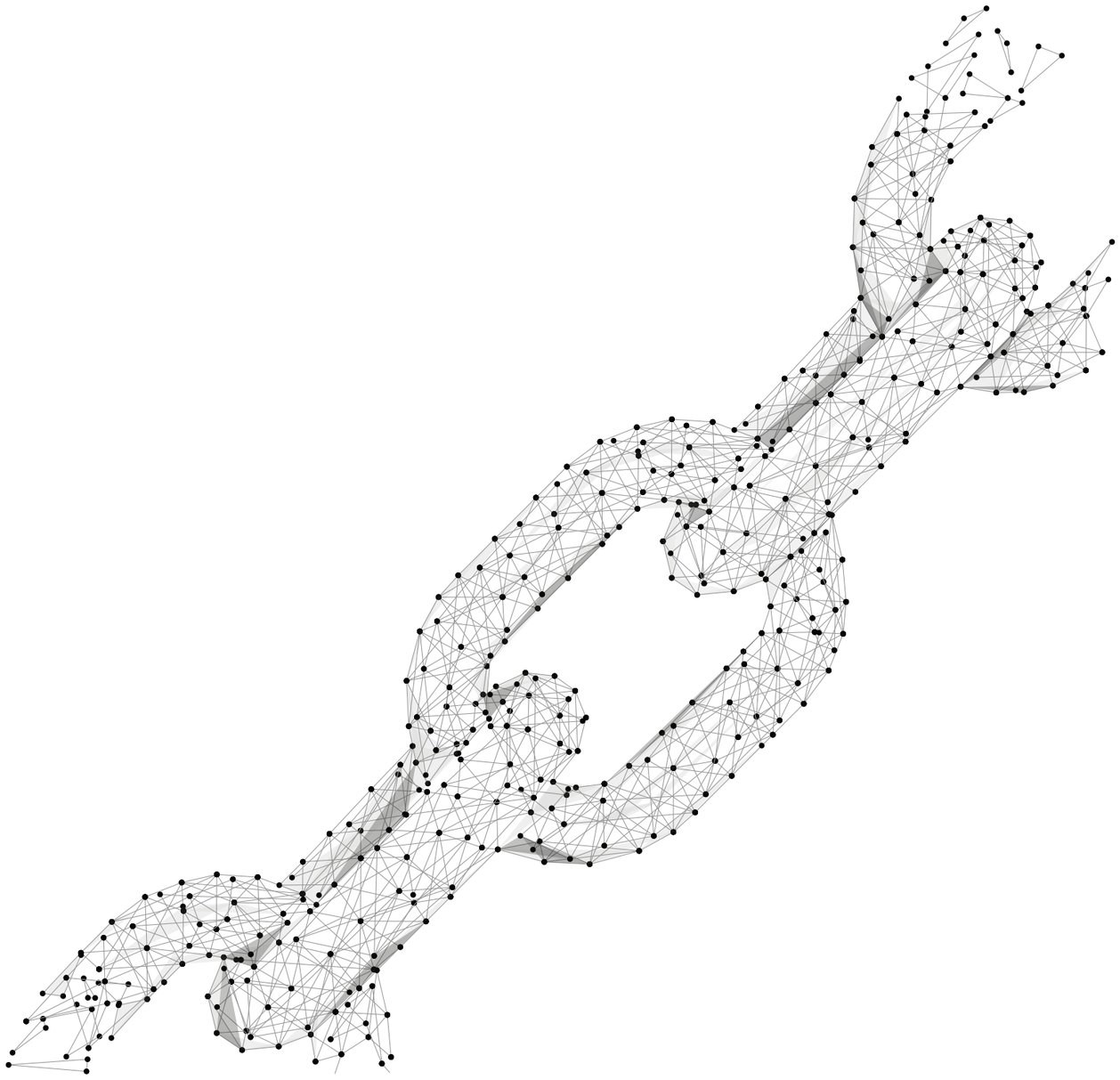
There are countries in which copies of such articles and publications flock to a special department in the government. Monthly reports, digests, and media plans are sent from this department. The Bastau innovation is an excellent tool for quickly collecting such digests and reporting data. On request, or on a regular basis, the software will provide a single file of the entire data array. In order to estimate the savings of time and human resources, just imagine what you need in traditional methods, by e-mail and often through official accounting and document management systems, to collect several hundred reports, each of which is a separate file, and then to put them into one complete document. Typically, such work takes up to two weeks by one responsible executor. However, Bastau's module is able to generate a summary report in a mere few seconds.

It is important to note here that there is a way in which modules can be created in advance to the central information system through which the data is collected. The most advanced areas are accounting or financial accounting.

Another thing to mention is a case in which the reporting form is not foreseen in advance. For example, try collecting data by email from 10,000 people if the whole team is suddenly asked, "Ho w is the mood this morning?" How much time do you think it will take you? Bastaus method is able to collect this data into a single array in a matter of minutes.

Higher-ups know better

See what other problems arise as you strive for speed of decision-making, and managers create mini-teams around themselves in which each employee assumes functions with various agencies—for example, an adviser on national security, education, or transport. Formally, the manager oversees the activities of the relevant specialized organizations. However, he does not



have time to knock every time within large and clumsy departments. As a result, his decisions are made only based on his own understanding. Subordinate departments become some kind of analytical centers providing the substantiation of necessary political decisions. Often, such a team surrounding the first head of a company or country goes into a completely autonomous existence, regularly issuing instructions, orders, and decisions. Agencies and ministries live their own lives, trying not to annoy the higher authorities with their creative and philosophical impulses.

Philosophers in power

Here is also another very interesting point. You noticed the degree of concreteness and detail of the instructions of the primary leaders. But look carefully at the content and topics of speeches from these high tribunes, which often offer no specifics, having only a generally consolidated understanding of the processes of the head of state, and thus they begin to proclaim common truths.

Here are some familiar phrases: the solution to the main problem, improving the standard of living of the population, depends on the quality implementation of strategic programs; it is necessary to develop a set of measures to preserve the country's macroeconomic, financial, and social stability under various scenarios within the development of the broader situation in the world at large; when making government decisions, the analytical component should be radically strengthened; emphasis should be placed on the growth of labour productivity; for the economic modernization of the country, raising investment is also an extremely important issue; the identified priorities and decisions made with the proper approach will increase the pace and quality of economic growth, as well as lead to an increase in the standard of living of the population; we need new thinking and new approaches to economic development; and so on.

Do you understand what the head of state is talking about, as well as to whom, and what specifically needs to be done? Frankly, we are not.

Hostages

As we stated above, the highest-level leaders are in an information vacuum. They often know exactly what they allow downstream units to know. And to be precise, this is not just the lower-level units, but rather a narrow circle of people through whom the entire data stream flows. This cohort of people, the super- elite of a country or a corporation, forms the vision of the first leader. Not a single extra document, nor a single uncomfortable question, will slip by.

As a result, leaders of entire countries become hostages of their environment, which in turn manipulates the boss's mood, and also directs his thoughts in the "right" direction.

Preoccupied with themselves

Actually, in theory and by design, the state apparatus exists as a system that serves the interests of the people. The only source of power is the people. Well, this turns out an amazing picture. With all the good intentions, there is simply not enough time to engage in the direct interests of specific representatives of the people as civil servants. The most difficult internal bureaucratic load leads to an overwhelming amount of time spent on the coordination of internal procedures, rather than the actual provision of services to the people. It seems that they think day and night about the interests of the people, but the officials do not burn with a special desire to actually see and interact with the representatives of the people. It is worth bringing up here a quote by Kazakhstan's famous analyst, Mr. Olzhas Khudaibergenov, the example of which can be applicable to the government of any country.

"In conversations, officials admit that the bureaucracy has practically 'killed' the chain of command—every small issue becomes political, requiring a solution at the top, and at the very least collegial, requiring the approval of at least 50, or even 100 people at different levels. And surely someone will 'put their two cents worth,' having no authority for that, but just to be safe from imaginary risks. And that's all, the assignment has died—the idea embodied in the instructions has no administrative power to

change circumstances for itself. On the contrary, the idea is to adjust to existing circumstances, guaranteeing its emasculation."

In accordance with the Bastau methodology, developers see one part of solution to the problem being reducing paper workflow, primarily by reducing the levels of the passage of each document along the entire chain from the head to the final executor, and vice versa, as well as an increased responsibility for the decision-making of each unit that is involved.

Who is my neighbour? Towards an open and transparent model

Another challenge arises in the form of the low awareness of some links about what exactly their colleagues in other units are doing. In fact, large modern companies and governments can be called single systems. Rather, they are a collection of closed communities that live under the roof of one brand, more often competing with each other, and less often complementing each other. It should be exactly the opposite. There is often no time and desire or opportunity to find out who these kind people/colleagues are on the floor below, not to mention units in other cities and countries. Modern management specialists recommend holding frequent team buildings, conventions, conferences and meetings. All of this is with good intention, but it still does not solve the problem of universal segregation.

In an open hyperbolic 3D spatial visualisation system, everyone can literally see everyone. You can see your place in the general system, and you can reach any unit and see who it is, how many of these people there are, what they are doing there, what the initial tasks are, and what the progress and result of their work are. Maybe there is something to advise them about, or there is a question to be asked of them. All of this is available in seconds, openly and transparently.

The technique implements one of the fundamental principles of working with big data: access on behalf of any part of the system to any necessary data.

Enabling visibility and transparency to the highest-level leader to look at his own universe from above, which he fully controls alone, would be enough to calibrate the perceptions of any top manager.

System paralysis

Imagine that in order to move your leg, you need to take one hand with your other hand, so that in turn, it grabs the leg and moves it. This is obviously highly illogical, and it is this situation that describes the current control system, in which the "brain" is unable to "send a signal" to the desired link in the system. And if there are those who simply do not agree with the command that comes from above existing somewhere in the middle of the chain? Not with bad intention or sabotage but just due to a different vision. This results that the current state of large teams, be it government or an individual company, can be looked as a system that does not have stable connections with those who think from above.

Where are the bosses now going to?

The creators of Bastau and their peers argue that the implementation of the technology will be revolutionary for any system. The technology is able to carry out its goal of modernization and a restructuring of the hierarchy and mutual subordination will occur. The number of "management levels" will decrease many times and the structure will flatten as well. One leader will be able to coordinate the work of a larger number of employees, and the positions of a number of the previously mentioned "postmen" in the system will cease to exist. The role and responsibility of local implementers and facilitators will be strengthened. The speed of reporting data will increase many times and all duplicate links will be corrected.

What are the possible resource savings?

How is it possible to optimize and save financial resources and human resources at the government level, for example? We believe that it is very, very possible. How much specifically remains to be seen when any of the governments dares to introduce a new method? Why "dare"? Well, we will return to this question a little later.

Meanwhile, the results of our simple calculations are as follows. Methodologically, between 50 and 80 percent of working time in government structures is spent documenting the workflow - technical description and recording of the progress of functional tasks, forwarding up and down requests from higher levels and responses to them, technical consolidation of data, and participation in various types of meetings aimed at clarifying the issues of who is doing what (by the way, in many positions, the processes described above take up to 100 percent of the time). The average country in terms of population has about 100,000 employees engaged in such work. Different countries have different levels of wages and, accordingly, different aggregate annual salary budgets for civil servants. We compared different countries. The smallest amount of ineffectively spent (frankly, wasted) funds was US $ 1 billion annually. And that's just the salary. The multiplicative effect of delaying the development of the economy real sector and the resolution of vital issues for the population (lost profit in terms of the market) is ten times higher, in our opinion.

Information jungle

We would like to speak about the first leaders once again. This category of managers has one thing in common - the desire to find such universal indicators and parameters that would show the current state of industries and spheres of management.

Modern statistics have progressed so far in trying to describe everything with numbers that there are hundreds of indicators at the country level. It all seems to be clear - the unemployment rate, inflation, simple GDP, budget deficit / surplus, and then: material footprint, material footprint per capita, and material footprint per GDP; domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP; proportion of medium and high-tech industry value added in total value added; proportion of informal employment by industries and by gender; money or interbank market rates and range of deposit and lending rates, etc.

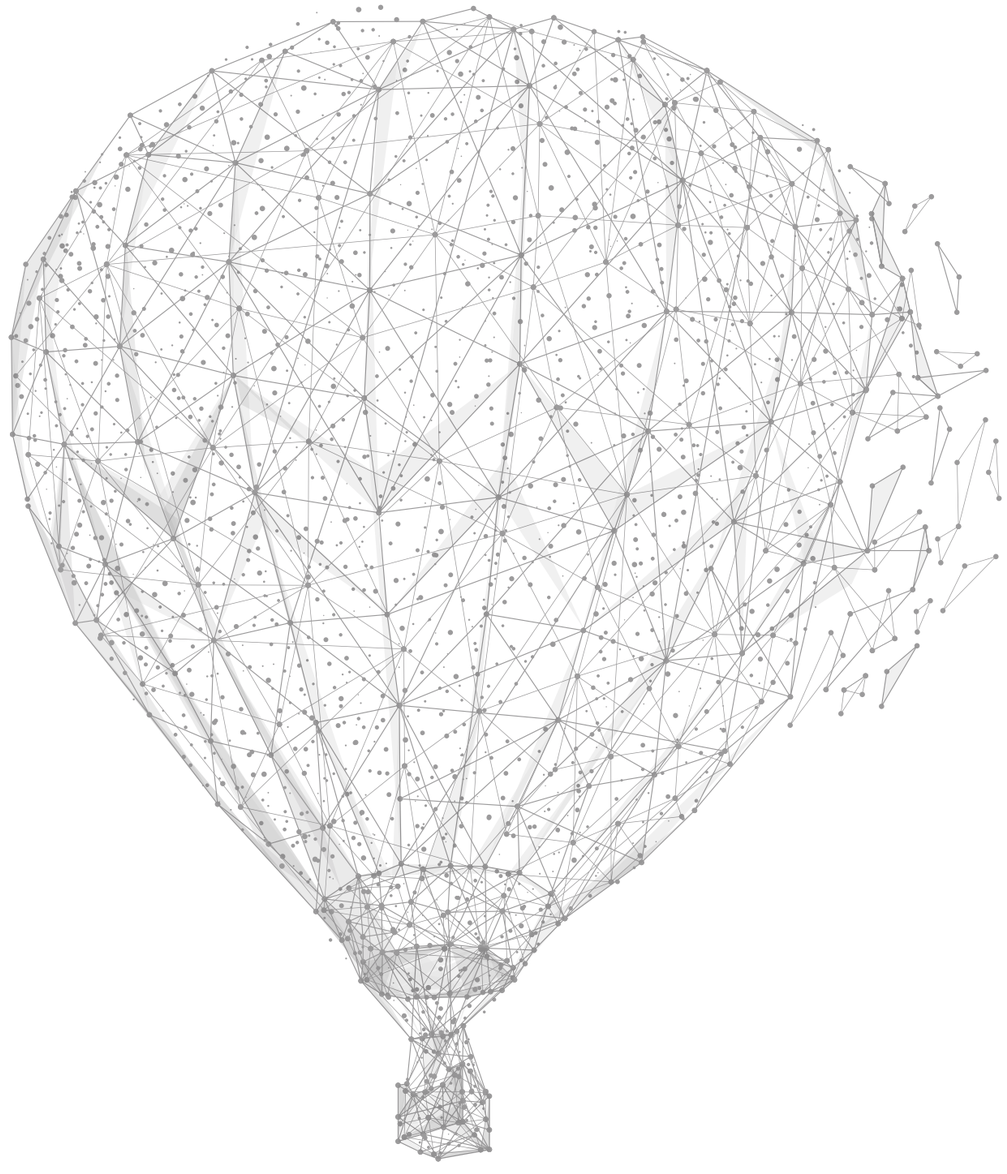
And more: proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically. Or: total expenditure per capita for the conservation and protection of the entire cultural and natural population, by source of funding (private, public), type of heritage (cultural, natural) and level of government jurisdiction (national, regional and local / municipal).

Here we have touched the very tip of the iceberg. Without undertaking to criticize modern statistics as an industry, we would like to draw your attention to the fact that a lot of economic theories and models of economic management of countries are based on juggling hundreds of intricately intertwined indicators.

In the wilds of these numbers and coefficients, the leaders of the countries are trying to find some understanding of the real processes. Often, the numbers seem to be all right, but society fundamentally disagrees with the fact that the country is developing in the right direction.

New technologies are also being put at the service of the utopian desire of the first leaders of countries to understand everything from the numbers. As a result, the model of an ideal manager's monitoring center is a kind of digital board with a bunch of diagrams and coefficients, the deviation of which will be highlighted in red even at the very moment when something goes wrong. And at that very moment, his attention and energy will be directed to finding a solution and correcting the situation.

One of the fundamental approaches of the Bastau developers is to return to the roots. The leader must lead people, understanding the responsibilities and the result of the personal work of each department and employee. The leader also needs reliable and lively feedback from those responsible for the implementation of tasks on the ground, and not a set of impersonal and, by the way, not always honest data.



INDUSTRY MANAGEMENT

There is another area of application of the Bastau technology - the creation of digital interactive polygons for managing individual sectors of the economy. This direction can be illustrated by the excellent work of Singaporean logistics experts. As you know, the Singapore transport hub is one of the largest and most modern in the world.

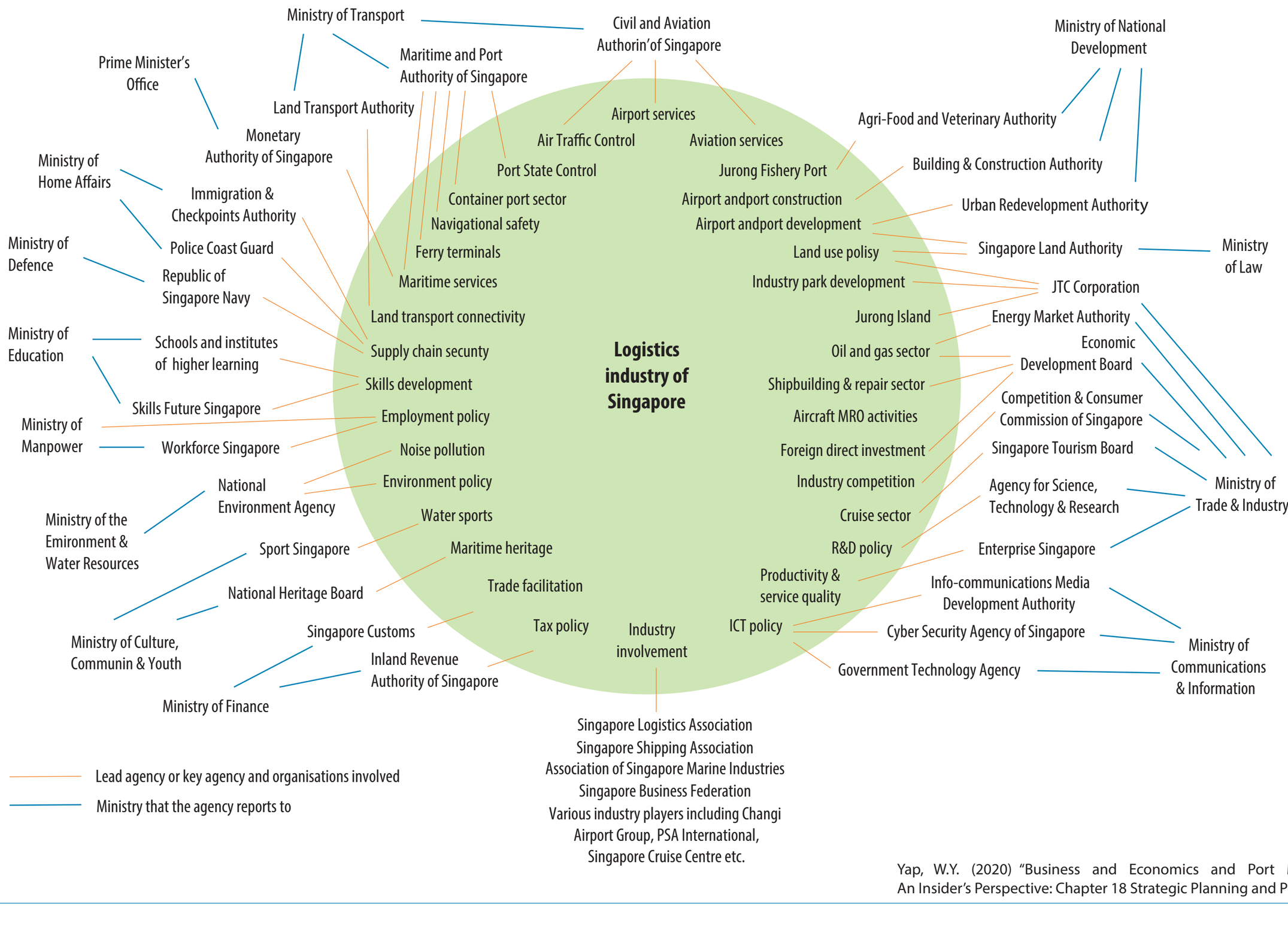
A slide is presented in the thematic publication of the Singapore Cooperation Enterprise Agency entitled "Singapore's Journey in Integrated Logistics Hub Development", which reflects all the ministries and departments involved in the country's logistics sector, their subordinate organizations, indicating their roles and areas of responsibility.

49 organizations, 34 different areas - finance; personnel issues, attracting foreign labor; environmental and industrial codes and standards; safety; development of new technologies; attraction of investments; aviation, sea transport; warehouses, re-export, etc.

Managing such a huge machine with tens of thousands of employees is a very complex and costly task. Due to its high degree of organization, discipline and huge financial investments, Singapore has been able to achieve significant success in the functioning of its logistics sector. The management system is permeated with dozens of information systems. We believe that spatial data visualization technologies could become the next evolutionary step for creating a new generation information system, reducing costs and efforts for managing the country's logistics sector. Not only in Singapore, and not only in the logistics sector.

The described example can be transferred to any industry, e.g., education - the management of thousands of schools, colleges and universities at the national level; economy - a unified network of industrial enterprises in the context of industries; or innovation - polygon datasets with the location of all scientific groups and teams working on the creation of new technologies throughout the country.

Singapore's Whole-of-Government Approach towards the Development of the Logistics Hub



Yap, W.Y. (2020) "Business and Economics and Port Management: An Insider's Perspective: Chapter 18 Strategic Planning and Port Policy".

Government program management

In the process of creating the methodology, we unexpectedly discovered a completely unique and very interesting feature of Bastau - the possibility of creating global neural networks based on new principles, the depth and scale of which have yet to be assessed. Let's open another case.

Governments traditionally develop government programs. As a rule, these are plans for the development of sectors of the economy for a certain period. For example, these include the so-called "five-year plans".

In the official terminology, the following definition has been adopted: a state program is a strategic planning document containing a set of planned measures, interrelated in terms of objectives, implementation timelines, executors and resources, and state policy instruments that ensure, within the framework of the implementation of key state functions, the achievement of priorities and goals of the sphere of socio-economic development and ensuring national security.

Complex definition in deed. In fact, we are talking about the development of plans for the modernization and development of large sectors - industrial, innovation, healthcare, education, defense, agriculture, etc. nationwide. There are at least 30-40 such large documents in each country. The cost of implementing each is tens or even hundreds of billions of dollars.

So, in science, each such document should include an exhaustive list of legislative and organizational measures, include subprograms, regional target programs, a list of implemented activities, executors, funding sources, regulatory agencies, etc.

These are huge amounts of data. Such large documents are developed for months, and are coordinated by dozens of departments.

The problem of modern methods of creating and ensuring the implementation of such documents is that it is extremely difficult to consolidate projects, especially if the task is to include private initiatives, and it is difficult to control - huge teams at the very top of the management hierarchy spend titanic efforts, compile reports for the country's leadership based on disparate sources of information.

In attempts to aggregate the data, understanding of individual responsibility, as well as specific problems in each case, disappears. Successful metrics are mixed with failures, averaging the big picture. The documents are extremely clumsy, and a sharp change in market conditions can even make the document unviable.

The head of government, as the main signatory of the document, is technologically incapable of exercising control over its implementation. The manner of management over time acquires a grotesque character, when the first leader senses that everything is wrong inside, but behind the vague wording of reports and averaged figures, he cannot figure out what exactly has failed. A completely non-collegial line on the use of subordinate ministers as whipping boys, the search for the guilty from among those who do not know how to report correctly, and demonstrative lynching of individual cabinet representatives are becoming the norm.

As we mentioned earlier, one of the fundamental approaches of the creators of "Bastau" is to "return to the roots." The manager must understand the result of the personal work of each department and employee. Even if it is tens of thousands of people. Reliable feedback is needed with those responsible for the implementation of tasks on the ground, and not a set of impersonal and, by the way, not always honest data.

What can be done with the help of "Bastau"? One of the secrets in implementation technology.

Implementation

We'll have to go into a bit of detail here. Those interested can explore the project website to understand the general principles even more deeply.

The information platform consists of two modules.

The first module is a communicator. Through it, the initial key data is entered for each structural link of the organization, employee, or project / initiative in the case of government programs.

A light-sized file (several hundred kilobytes) is simultaneously sent by e-mail to representatives of all structural divisions or to local performers responsible for the implementation of the working area. In this small program, the corresponding sections have already been formed, in which you need to enter data.

As a rule, the proposed initial questionnaire includes about 15 standard sections related to data on the head, mission and mission of the unit, the number of employees, the annual budget, the size of fixed assets, income and expenses, profit or loss, the presence of its own subordinate units, the name of the parent organization etc. It is also possible to attach a report for a certain period in a file format to the table. The process of entering data should take no more than one hour if the department's management maintains adequate records of the above-described basic parameters of the managed department's work.

The communicator has a built-in function for sending information to a single base server with Bastau software.

Next comes the stage of drawing neural networks. This process is also a technological know-how, thanks to which the software "places" in space the real structure of the organization or the relationship of projects and initiatives with each other.

The working time for implementation is one day for sending the communicator and entering data, one day for drawing the spatial structure. So within 48 hours it is possible to get a unique tool for managing an organization or national program in 3D visualization mode throughout the country.

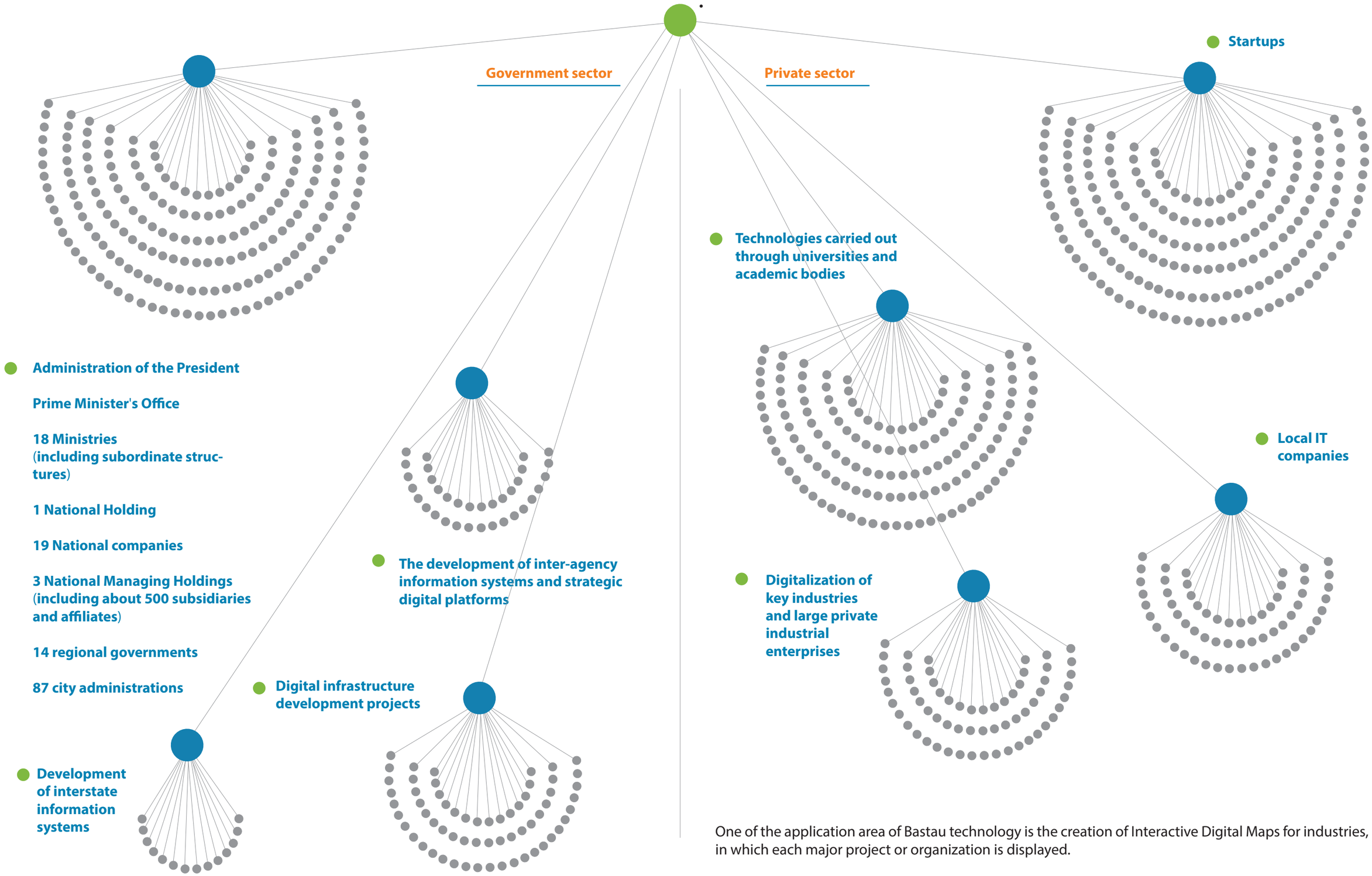
It is worth noting that the larger the organization itself, the higher the efficiency of using the platform. It does not matter how many subdivisions and how they are geographically located. Both five and ten thousand branches or projects are quite the base load for the platform.

By the way, this ability is very useful for another sector - the area of audit of large companies. It usually takes months of hard work to develop an understanding of what a company is that is assessed by highly paid auditors. The new technology will totally save human and time resources.

Moreover, this functionality will be of interest to only appointed top managers of holdings, corporations and government agencies. We are talking about new people in the system.

In a matter of hours, it is possible to assess the scale of the organization you are interested in, the specialization of work and the purpose of each link, see the key leaders, budgets and available resources, understand the area of your responsibility - the world that needs to be managed or assessed.

Digital Industry Development Program in Kazakhstan



One of the application area of Bastau technology is the creation of Interactive Digital Maps for industries, in which each major project or organization is displayed.

The functionality of "Bastau" as an aggregator of consolidated documents is also unique. Thousands of documents can be collated into single, standardized reports within seconds.

The developers of the system believe that this functionality will be very useful for collecting corporate reports, as well as for such specific areas of work as, for example, monitoring the activities of press services. This area is especially familiar to the Bastau team of authors from previously implemented projects. Each state organization, each ministry and department, national company, or development institute has its own press service or press secretary. There is also a single center in which the work of these disparate PR units is coordinated and controlled, and in which a single ideological line is formed, as well as relevant topics and socially important issues that need to be addressed.

There are countries in which copies of such articles and publications flock to a special department in the government. Monthly reports, digests, and media plans are sent.

The Bastau technology is an excellent tool for quickly collecting such digests and reporting data. On request, or on a regular basis, the software will provide a single file of the entire data array. In order to estimate the savings of time and human resources, just imagine what you need in traditional methods, by e-mail and often through official accounting and document management systems, to collect several hundred reports, each of which is a separate file, and then to put them into one complete document. Typically, such work takes up to two weeks by one responsible executor.

It is important to note here that there is a way in which modules can be created in advance to the central information system through which the data is collected. The most advanced areas are accounting or financial accounting.

Another thing is when the reporting form is not foreseen in advance. It's like asking all of a sudden the whole team, "How is the mood this morning?" Try to collect this data by email from 10,000 people. How long do you think it will take you?

Insights into an organization in no time

It takes months of hard work to form an understanding of what a company is, which is what highly paid auditors and the likes of Big 4 are called upon to evaluate. **The new technology will save total human and time resources. Also, these functionalities will be interesting for only the appointed top heads of holdings, corporations, and government structures. It's about getting new people in the system**. In a matter of hours, you will be able to assess the entire scale of the organization you are interested in, including the specialization of work and the mission of each department. One will also be able to see key managers, budgets, and available resources, as well as understand your area of responsibility—the world that you have to manage, or that needs to be assessed.

All from scratch

In general, we have come to the conclusion that management technologies must be understood, redesigned and built from scratch.

Right now, with digital transformation in full steam, the time is right to Build Back Better!

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Editorial

Vitaliy Alexandrov
Chew Jian Chieh
Ersin Dalkali

The new role of society in public administration

We absolutely understand the essence of journalism—you are the voice of the people and an avenue for opinions and ideas. While representing the interests of people, you have a right to ask for and request transparency from the government and social institutions.

We are creating software which will ensure transparency of your governments. The technology will provide an understanding of the usefulness of every agency within the government. If you want to have access to information and find out who is spending public funds, and for what purposes, find out about programs and experience and background of leaders and officials, as well what are the support tools for a certain group of citizens, businesses, scientific institutions and cultural organizations—then you can support the project through disseminating relevant information.

"Bastau" Team