

A Heterarchic Model of Good Governance: A Unifying Hub for Adaptability, Differences, Similarities, Democracy and Accountability

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This paper presents the basic elements of a heterarchic model of good governance and predicts its future trends. This model is already present in the military and in some companies, and can – without rejecting the hierarchic forms – enhance the range of communications without reducing supervision and accountability. On the contrary, they are strengthened as a path is introduced to more transparent and democratic public institutions. The model also relates to the classic, hierarchic, big and legally-oriented public administration, so changes will not be evident in a short period of time. Countries can enable public deliberation by transforming their public institutions into

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heterarchic ones. A heterarchic administration can bring public decisions closer to the people who can – as their (in) formal contributors – provide more relevant information and more predictable outcomes.

Keywords: governance, heterarchy, Lego style of public administration, visible public participation

1. Introduction

The constant search to improve public sector efficiency, from *Scientific Management* onwards, has raised ideas about the best organisational form that could achieve cohesion between the objectives and the most appropriate means without destroying the freedom of the people. Some of these forms have been: good bureaucracy, new public management, good administration, administrative justice, governance, good governance, sound governance, e-governance, smart governance, meta-governance, the postmodern, post-welfare state, reinventing government, neo-Weberian, post-neoliberal government, etc. While these ideas strive to give the best recipe for the maximisation of public goals,¹ they should all start from the same point: when dealing with a problem of a *reciprocal* nature (and power is always reciprocal), it has to be viewed by all who are involved and/or in its totality of relations. So long as public problems are not actively co-identified and/or co-defined by the people, government solutions will represent only an “anaesthetic” for the people, and normative processes will still take place mainly within the executive branch.² Why can a citizen (as a client) – in some more developed countries – look up the shortest

¹ The term from the title of this paper “good governance” includes a variety of generally “good” things, while they do not necessarily fit together in any meaningful way; governance is “the process of decision-making and the process by which decisions are implemented (or not implemented) [while] good governance has 8 major characteristics. It is participatory, consensus-oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law” (UNESCAP, 2009). How these or some other elements will fit together does not depend on them, but on a system that could establish their relations, recursions and connections.

² E.g. in Slovenia, in the period 1992 – 2011 the Government of Slovenia submitted 2783 draft laws, 2575 of which were later adopted as laws (92.52%), MPs submitted 807 draft laws, 229 of which were later adopted as laws; voters (a minimum of 5000 citizens is needed for a legal initiative) submitted only six draft laws, only one of which was later adopted as law (Državni zbor 1992-2007; Poročilo o delu Državnega zbora 2008 – 2011).

service time to obtain a building permit or a driver's license online, but cannot express her/his voice as a citizen? The higher educational levels achieved by the population in the EU-27,³ the higher UN education index worldwide,⁴ the decline of public trust in the government in 2012, the crisis of leadership and NGOs as the still most trusted institutions in 2013 (Edelman Trust Barometer, 2013), indicate the need for change in the administration of public affairs. People have better knowledge and more information than ever before, and they trust the (usually less hierarchic) NGOs more than government institutions. As the UN notes, "progress has extended to expansions in people's power to select leaders, influence public decisions and share knowledge" (UN, 2011: 23). It is time to give people not only a right to vote, but also to their *voice*. We need a *new systematic oversight* that can compare the activities of different public agencies, private organisations and people; we need to put these activities into public decision-making.

This paper advocates *active* public participation – which is formally already present in democratic governments, but is mostly still not used on a daily basis. The classic form of representative democracy with elections every few years is by itself an inadequate way of managing state power and holding it to account (especially where decisions have far-reaching implications). A modern form of democracy must be available to its users rather than to authorities: "Hitler and Stalin, Pinochet and Marcos—all held plebiscites when it suited them. The test of a new application of direct democracy will be its automaticity, the extent to which it takes place not at the caprice of leaders, but of the people" (Fossedal, 2002: 265). If "the cure for the evils of democracy is more democracy" (Mencken, 2009: 29), the cure for democratic deficit is also more democracy. We must

There is no doubt that in other parliamentary democracies the prevalence of the executive is also present.

³ For the EU-27 as a whole, in 2010 just over one third (33.6 %) of 30- to 34-year-olds had completed tertiary education. These figures support the premise that the proportion of the population in the EU that has studied to a higher level has increased. This trend is in keeping with one of the Europe 2020 targets, namely, that by 2020 at least 40 % of persons aged 30 to 34 have attained a tertiary level education (Eurostat, 2012).

⁴ Most people today live longer, are better educated and have better access to goods and services than ever before. Even in economically distressed countries, people's health and education have improved greatly (UN, 2011: 23). Our analysis of national trends in education inequality (measured by average years of schooling) since 1970 shows improvements in most countries. In contrast with trends in income inequality, education inequality has declined most in Europe and Central Asia (almost 76 percent), followed by East Asia and the Pacific (52 percent) and Latin America and the Caribbean (48 percent) (ibid: 29).

repeat it again and again because *de facto* it does not work, even though we have all the (e-)means we need. In doing so we could use a different approach: not by the goal of the idea but by its *structure*. Only a changed structure of participation can yield different content. Stafford said that “the tool for handling [the new world’s] complexity is organisation” (Stafford, 1975: 15), but we have retained basically the same hierarchic form of government since the ancient times and hope to catch up with the rapidly changing environment with new elections, *i.e.* when “our” politicians will “certainly” change “everything”.

The organisation of public administration (PA) should therefore not only be more open to active public participation, but primarily more democratically assembled and/or structured; it should be more network-oriented, because network-centric “operations...are characterised by information-sharing across multiple levels of traditional echelons of command and control” (Wesensten et al., 2005: 194). This is the main idea of heterarchy (and of this paper), which we will try to put into the context of public participation that is already taking place mainly at informal levels (civil society, NGOs, political parties, economic groups, workshops, open houses, surveys). This kind of organisation can be moved from the informal sphere to real communication and cooperation – these words already contain the basic premise of “co” – between public officials and citizens. This organisational change and its advantage lies in its democratic and transparent element and in its introduction of simplicity into any kind of national apparatus without significant costs or major formal legal changes. *You* might say that this is nothing new, that concepts of e-government and participation in PA and the vast body of literature on these concepts offer good insights, but again – why then do these good insights still and/or mostly not work? The problem is surely not in technology – it is in our minds. It is the problem of the discrepancy between the theory (we know everything, but nothing really works) and practice (some things work, but we do not know why) of democratic decision-making. The problem of democratic public administration will be approached from the cybernetic point of view (Ashby, 2012; Beer, 1994; Beer, Eno, 2009), because it is mainly oriented towards an adaptive, sensitive, responsive and viable institutional model of social organisation.

2. In Search of a Different, but still Unifying Model

Bureaucracy existed as early as in Ancient Egypt, but the term was coined by De Gournay at the end of the 18th century. It was based on the militaristic elements of hierarchy, division of organisation and of labour. Specialisation enabled the creation of large complex units, as well as the expansion of production after the industrial revolution. These past bureaucratic strengths can be today's weaknesses: the big united bureaucracy hinders the coordination of more complicated problems in the environment (global warming and consequential rising of the sea level, tornadoes, scarcity of natural resources...) and in society (incurable or mass disease, population ageing, global epidemics, higher inequality between citizens, unemployment, increasing poverty, migrations...). As a massive apparatus bureaucracy is resistant to change, but it is less flexible in the changing environment. Because of its specialisation it could also represent a bigger threat to the freedoms of the people. Hierarchy is a less absolute cure with the rise of complexity in the environment. While the bureaucratic need for the implementation of decisions will always exist, this cannot mean that there can be no changes to the way it is organised: changes can focus on the basic elements of bureaucracy, that is, a solid and permanent *type of organisation* and clear *lines of command*. These elements change when they are placed in the wider networks of other organisations (the UN, EU, OECD, WTO, federal states, etc.): they are therefore not as important as *relations* between these organisations are. Relations – and not organisations *per se* – maintain international peace and security, develop friendly contacts between nations and promote social progress, better living standards and human rights, achieve economic and political union, promote policies that will improve the economic and social well-being of people worldwide, ensure trade flows, guarantee the many intermediate governments etc. In states where hierarchy (the executive) became the major element of authoritarian government, this was accompanied by public upheavals, as Tunisia, Egypt and Libya can demonstrate. These upheavals show another very important fact: the African-Arab wave of protest was largely supported by digital communications that transferred information – almost or very close to real time – around the world.⁵

⁵ Digital platforms have also helped in the other parts of the world: “it took four months for the Chinese government to acknowledge the SARS outbreak and for the WHO to respond with a global alert, despite much earlier reporting by ordinary citizens in mil-

Every successful integration can be achieved mainly by human minds, *i.e.* public values that are “more than a summation of individual preferences of the users or producers of public services collectively built through deliberation involving elected and appointed government officials and key stakeholders” (Stoker, 2006: 42). This summation can be different in each case, *i.e. non-hierarchical*: with regard to public values, in 1945 McCulloch – based on situation where A is preferred to B, B to C, but C is preferred to A – established that value hierarchies do not exist.⁶ The mapping of values can exist only by crossing over one (neural) circuit (over a synapse) to another non-adjacent one, and thereby as its effect, leaving the map of values in prior situations, *i.e.* their position/value of values is not changed. This can be seen in every case when new preferences are given to different or even to the same values (in different contexts of time and place). The *zigzag* processes of determination of public values and public interest within as well as outside of rigid PA structures essentially create knowledge and information: there can be no decentralisation without centralisation, no autonomy without hierarchy, no hierarchy without heterarchy, while they all are based on communication and coordination. We are still mainly the successors of Aristotle’s laws of thought, but (de)centralisation is neither a thing nor a notion: it can be both at the same time and in the same place. Power and knowledge can be present in hierarchy as in people. They can be sharable, du- and/or multiplied. The Lego style of PA may be contrary to the present formal legal order, but as long people participate and see public benefits from this, they will also tolerate

lions of cell phone and Internet messages and by the private ProMED-mail system” (Fung et al., 2007: 143). According to the Networked Readiness Index 2012 (Dutta and Bilbao-Osorio, 2012: 12) the last ranking state with an advanced economy is the Slovak Republic, in the 64th place. It is also preceded by some of the states within CEE (Central and Eastern Europe: Lithuania, Latvia, Hungary, Croatia, Montenegro, Poland and Turkey), CIS (Commonwealth of Independent States and Mongolia: Kazakhstan, Russian Federation, Azerbaijan and Mongolia), DEVASIA (developing Asia: Malaysia, China and Brunei Darussalam), LATAM (Latin America and the Caribbean: Barbados, Chile, Uruguay, Panama and Trinidad and Tobago) and MENA area (Middle East and North Africa: Bahrain, Qatar, United Arab Emirates, Saudi Arabia, Oman, Jordan, Tunisia and Kuwait).

⁶ For him this value anomaly corresponds to circularity, which is “sufficient basis for categorical denial of the subsumption that values were magnitudes of any kind. Thus, for values there can be no common scale ... Circularities in preference instead of indicating inconsistencies actually demonstrate consistency of a higher order ... An organism possessed of this nervous system – is sufficiently endowed to be unpredictable from any theory founded on a scale of values. It has a heterarchy of values and is thus interjectively too rich to submit to a *summum bonum*” (McCulloch, 1945: 92). Also, at voting, collective preferences can be cyclic (*i.e.* not transitive), even if the preferences of individual voters are not. McCulloch’s values are therefore similar to the voting paradox, also known as Condorcet’s paradox.

the more flexible, less concretised legal basis for this kind of organisation (see Locke's argument for the people's consent to prerogative).⁷ This kind of basis could still embrace the structure, function and process of decision-making and balance all particularities in one whole; it could unite them under (a) general, inclusive idea(s) without which – given contemporary complexity – there can be no uniform, common path.

A higher, metadimension (denominator) is always needed if we want to understand a sub-system's content more fully. What is preferable cannot be determined once and for all by any kind of formal organisation. The emergence of a decision depends on the concentration of relevant information that changes from moment to moment, and not by any kind of pre-established rigid structure, but by a time-and-place dependent purpose. There is a big difference between content and process; a step from "is" to "ought" should be enabled, while its content cannot be determined by any kind of science: "[l]iberalism is a doctrine about what the law ought to be, democracy a doctrine about the manner of determining what will be the law ... while liberalism is one of those doctrines concerning the scope and purpose of government from which democracy has to choose, the latter, being a method, indicates nothing about the aims of government" (Hayek, 2011: 167–168).

Based on the discussion so far, we can already state some arguments: 1) the clear *lines of command* are and will still be needed in any new model; their clarity can be achieved if they focus on the five basic parts of any organisation (implementation, coordination, control, research and policy), with an emphasis on the *recursive* connections between these parts. Unity of command at the top (policy) is always needed to keep systems together, while specialisation with the division of labour can be introduced at lower levels. Every organisation should consist of these five parts and can be simultaneously superior and/or subordinate to other organisations;⁸ 2) a permanent *type of organisation* as one of the basic elements of bureaucracy should be changed into a more vivid "Lego style" of PA, where parts

⁷ The people therefore, finding reason to be satisfied with these princes, whenever they acted without, or contrary to the letter of the law, acquiesced in what they did, and, without the least complaint, let them enlarge their prerogative as they pleased, judging rightly, that they did nothing herein to the prejudice of their laws, since they acted conformable to the foundation and end of all laws, the public good (Locke, 2010: 231).

⁸ Thus Simon's proverbs of administration (1946) can also be set aside (administrative efficiency is not reduced by a specialization of the task among the group, by arranging the members of the group in a determinate hierarchy of authority, or by limiting the span of control at any point in the hierarchy to a small number or by grouping the workers).

can be appropriately connected in many ways for different tasks. This Lego style of PA will be achievable only if there is more real-time information between the parts; 3) information essentially depends on relations and therefore on the network style of hub organisation that can connect the centre of the organisation with its parts and integrate these parts with the centre.

We are talking about a step or a process in structuring PA, while regarding the content of “ought” (people’s wishes, interests, morality, ethics) nothing can be said scientifically (in a way that “something specific, good or bad, will happen in a specific place and time in the world”). Only democratic partnerships can establish a higher legitimacy and they should be given an appropriate democratic structure. We should not forget that: “before and after markets there was and will be life thanks to social institutions that pre-date market systems by thousands of years and have demonstrated far greater resilience during times of scarcity” (Community Action Partnership, 2011: 9). Public participation can be enhanced without any kind of *ex ante* formalisms; it only has to be *visible*. This is its “beauty”, its advantage over more formal and/or hierarchic solutions.

3. Management of Complexity by the Heterarchic Model of Public Administration

While we have so far made the foundation for the establishment of effective participation with some basic rules (arguments), we will try to show a way how the management of complexity and of PA can be put in a new frame that would still consist of a set of interrelated parts. Because there are many known and still unknown parts and/or connections that (can) influence the operations of PA, we can talk about complexity and about PA as a system. Information emerges on different levels and does not depend only on PA – it is “independent”. We must therefore look for relevant information where this information is – not for an organisation to make our decisions resistant or flexible to change. Similar “information retrieval” processes operate constantly in our brains (if we want some information on when we were 10 years old, we just have to retrieve it from our memory), so we will again go to McCulloch (one of the founders of cybernetics), who in 1945, while studying an apparent inconsistency of preference of values, came to the conclusion that the brain must have a “heterarchic organisation as a neuron network which is specifically equipped for par-

allel processing of information” (1945: 90).⁹ A network is a concept of coordination; it is determined by organic or informal social systems in contrast with bureaucratic structures and their formal interrelations. They all can be built by wider public cooperation and participation. Complexity cannot be managed within the existing bureaucracy alone – there are many forms of state activities and market failures, which cannot be addressed by existing solutions.¹⁰ “In order to compensate for the limitations and failures of both state regulation and market regulation, new forms of negotiated governance through the formation of public–private partnerships, strategic alliances, dialogue groups, consultative committees and inter-organisational networks have mushroomed” (Sørensen, Torfing, 2007: 2), but if we want for these networks to be successful, we should focus more explicitly on the *structures* of discourse, power and their *visible* interactions.

3.1. The Basic Elements of the Heterarchic System

If self-organisation and selection are the main laws of complexity (Kaufmann, 1996: 6) it means that the world around us is constantly self-organised, whether we like it or not.¹¹ PAs should do the same with a combination of competences, data and processes giving people a better voice. Administration can be less hierarchic and it can acquire its authority from knowledge, more from *lex artis* than from *lex Caesaris*. This heterarchic system, known as the Network-Centric System (NCS), operates in the army under the name of “Network Centric Warfare”,¹² which means

⁹ And some information which has been stored in the minds of readers since the age of 10 is the result of the heterarchic organisation of our brains.

¹⁰ Complexity can be shown on a very simple case of a statute that would have only four measures of achieving a goal. The number of their states $n(n-1)n(n-1)$ is 12, and the number of connections between means $\frac{n(n-1)n(n-1)}{2}$ is 6; the input variety ($2^n 2^n$) would already enable 16 possibilities ($4^2=16$), while the output variety ($2^n \times 2^n \times 2^n \times 2^n$) would enable 2^{64} or exactly 18446744073709551616 possibilities. We cannot avoid this, but we can put more variety (more transparency, data, mutual connections and control) into a more balanced implementation of the law.

¹¹ The United States Prohibition of Alcohol (1920–1933) and other laws that have caused unintended consequences (the so-called Peltzman effect and perverse effects of regulation) are such examples. Self-regulation can be seen in every car accident where traffic is self-regulated in one way or another.

¹² “The NCW is an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision-makers, and shooters to

“computer network-based provision of an integrated picture of the battle-field, available in detail to all levels of command and control down to the individual soldier” (Wesensten et al., 2005: 94) and “translates information superiority into combat power by effectively linking knowledgeable entities in the battle space” (Alberts et al., 2000: 2). It is the technologically enhanced vision that was present in the ancient generals who watched troops on a battlefield from a nearby hill. This system balances between the bottom-up initiatives and top-down directives; it seeks solutions within different levels and combines them differently for different tasks. The heterarchic model (HM) is a *process* in which different competences and levels, more data, widespread communication, cooperation and coordination are arranged in such a way as to extract optimal memory (data storage) and information-processing capacity from them, without sacrificing the centrality of command. It means a better *awareness* of all possibilities because we pay attention to all the stakeholders’ (groups, people, civil organisations, public institutions) opinions and initiatives. It is not about the formal competences and/or organisations *per se*, but about the processes that should be organised around data that could give crucial information. The HM preserves hierarchy (in the name of integration and unity), while connections are closer, more tightly intertwined and goal-oriented. It is not important who has information, but *what* kind of information s/he has. Politics and administration retain the competences to make key decisions, while information, good practices and suggestions should not be judged by their source, but by *content* and according to criteria. The HM can be a different name for Provan and Kenis’s “Network Administrative organization” (NAO). This is “a separate administrative entity set up specifically to govern the network and its activities” (2007: 236) for which they –comparing participant-governed networks (with no separate and unique governance entity) and lead-organisation-governed networks (a single powerful buyer/supplier/contractor and smaller buyer/supplier/subcontractor firms, as well as the corporate governance model of Japanese *Keiretsu*) – concluded that “an NAO mode of governance is likely to provide a greater balance ... regarding the tension between the need for efficient operation and inclusive decision-making ... evolution is much more likely to move from a lead organization form to an NAO, than

achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronisation. In essence, the NCW translates information superiority into combat power by effectively linking knowledgeable entities in the battlespace.” (Wesensten et al., 2005: 94)

from lead organization to shared governance” (Ibid: 242, 247). The HM can also allow less specific rules without higher costs by a different kind of organisation: if there is wider deliberation, better (more easily agreed on and more efficient) decisions – closer to Coase’s theorem (1960)¹³ – can occur. If parties cooperate, they will usually – if there are minor transaction costs – achieve a more efficient result regardless of the formal law. Although “[l]aws that are less specific, impose greater implementation and decision-making costs by judicial and administrative bodies” (Parisi, Fon, 2010: 11), the NCS can gain faster and more accurate information from different places and persons, so decisions can be made more easily and accurately.

What prevents governments from placing relevant questions online and based on the citizens’ answers *really*¹⁴ adjust their operations? The HM can accommodate more quickly to new conditions, with less strain on legal processes (of course and again – if we really want this to happen). It also enables networks at lower levels; this kind of example is found in the co- and self- regulation of industry, local self-government, universities, civil society organisations etc. The forms and rules can, due to the HM’s wider overall overview of operations by every actor and decision-making organisation, be based on more general and/or simpler¹⁵ rules and standards where the field is new, is developing new forms and elements or where the field should be more stable, because of the HM’s overall non-interference (e.g. university autonomy). The HM has a lot of potential that also works in its rudimentary form in the PA (in the independent agencies). The HM can combine the benefits of the state officials’ expertise with the creativity of the people; with the development of information technology all stakeholders can give a faster and more accurate result. The

¹³ The theorem states that if trade in an externality is possible and there are no transaction costs, bargaining will lead to an efficient outcome regardless of the initial allocation of property rights.

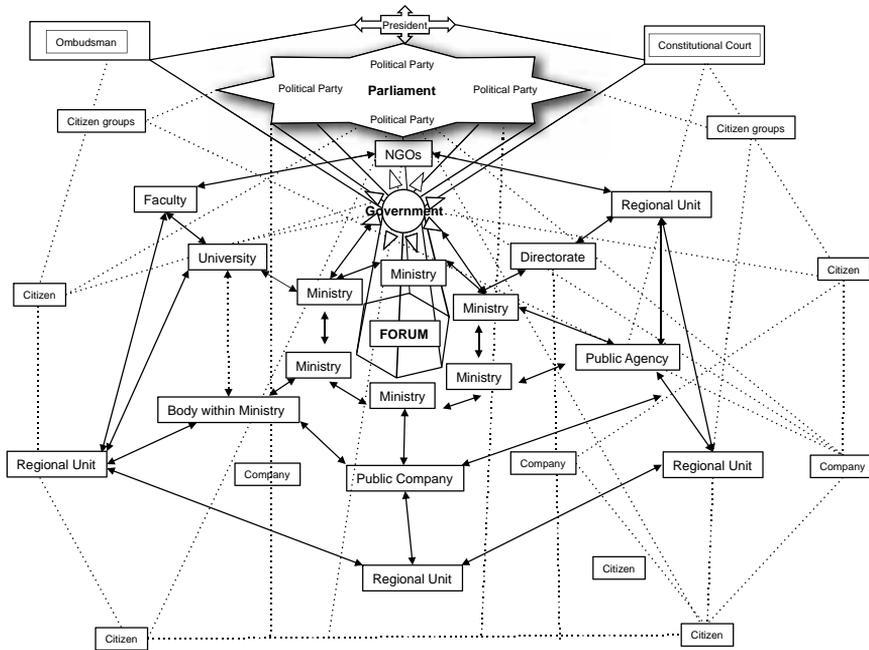
¹⁴ Governments have in recent years (decades) increasingly opened up their work to the public and have offered citizens more opportunities to express their opinions; also public consultations are a legal obligation in many European countries. However, it is not about talking the talk, but walking the walk: countries must also really act in a way that reflects the things they say.

¹⁵ Epstein suggests that in a complex world, simple rules should be used: “under the dominant constraint of scarcity, insist that every new legal wrinkle pay its way by some improvement in the allocation of social resources... The upshot is the simple rules: individual autonomy, first possession, voluntary exchange, control of aggression, limited privileges for cases of necessity, and just compensation for takings of private property, with a reluctant nod toward redistribution within the framework of flat taxes” (1995: 307).

HM is a mixed structure, although mutual relations are not strictly regulated; they are activated and independently regulated in individual situations. Main matters that raise and lower nodes are their own capabilities and mostly their knowledge. There are only a few superior/subordinate relations; everyone can be included with the same rights and obligations, towards common goals in the lower hierarchic structures. The HM model is not only an experiment to replace the formal structure with an informal one, but the means whereby (prior) informal relations can be (half)-formalised, and made part of an adaptive structure. Its goal is to re-establish order and cooperation without sacrificing corporate initiative, function and integration.

Organisations and citizens should still be connected to the centre if we want the relevant public goals. For Goodsell bureaucracy cannot be supported by some “mega-institution, but by thousands of separate organizations” (1994: 4), while for Hayek “an order involving an adjustment to circumstances, knowledge of which is dispersed among a great many people, cannot be established by central direction” (2011: 230). *Prima facie* it seems that Goodsell and Hayek are against bureaucracy, but this is not the case: for the former bureaucracy should be *supported* by thousands of separate organisations, while the latter is a) wrong regarding the possibility of the administration of knowledge (by making decisions on who gets what, how, in what way, for how long, etc.) and its distillation (by predictive analytics) from a central direction; and b) right regarding the fact that the central direction cannot establish knowledge *per se*, *i.e.* without collecting data from people. If we keep the centre (because of the much needed coordination and integration) and add citizens, we get e countless nodes and hubs within many fields, with a (formal) coordinator at the centre, and with many separate units that operate within a specific field. In the latter case, intertwined connections with others are established in dependence on assignments. If connections were made visible to everyone through the proposed solutions based on the criteria or formulae stated in advance, the basic cybernetic law of *redundancy of command* (Beer, Eno, 2009) is established: authority does not lie in the chains of command, but in the relevance of the information; if there is enough information there is no need for hierarchy to (rationally) tell the people what is right or wrong. It takes only one case of problem-solving to show many active connections that are presented in the form of a tower or a lighthouse:

Figure 1: The HM model of governance – enhancing variety of subordinate interactions



Source: author's own construction

A certain level of supervision of this “sea of connections” can be achieved by the mutual connections of participants at multiple levels, with communications going in both directions. Organisational diagrams with a hierarchic structure can never show the real processes that shape organisations and their environment. Before the use of computer technology, the nearest similar method for conveying employee suggestions to superiors was the Japanese system of *ringi-sho*.¹⁶ Hyperconnectivity in real time and

¹⁶ A *ringi-sho* is a written proposal that is submitted horizontally to one's peers within middle management levels, within one's department, and across divisional and departmental lines. The document is a proposal for action; it details the background of a problem, and describes how to solve the problem. The *ringisho* is shown to anyone whose work might be involved in the plan of action. Each relevant person studies the plan and accepts or rejects it to one degree or another ... A *ringisho* is amended and shown again and again until either agreement is reached, or too many managers “forget” to sign the proposal. If accepted, the *ringisho* is then presented to the originator's superior and the document travels up the chain of command until total agreement has been reached (Alston, Takei, 2005: 78).

place can improve not only the efficiency of PA, but also the freedom of the people, and the levels of democracy, transparency and accountability: “the same digital tools that make employee empowerment possible also provide the means to monitor those employees’ performance” (Goldsmith, Crawford, 2014: 109). PAs are still – and will internally remain – hierarchic organisations but external processes are *de facto* not only linear and hierarchic – they are also horizontal, contradictory, heterarchic and circular. And these external processes could be incorporated into the PA.

3.2. Self-Synchronisation in Practice of the Heterarchic System

Self-regulation and co-regulation are common forms in the heterarchic model; in this model people cannot be used only to pass information to the centre but also to each other. Self-synchronisation is consistent with the natural “flocking algorithm” in which a flock of birds in flight “is based on an autonomous programme to a) steer to avoid crowding, b) steer toward the average heading of local flock mates, and c) steer to move toward the average position of local flock mates. Thus, one’s movement makes use of information regarding the location, speed, and direction of the three or four local flock mates” (Wesensten et al., 2005: 96). Signalling behaviour can be seen in our daily lives, where we follow rules as long as other people follow them too. Self-synchronisation can also be spotted in the compliance of firms with the European Union energy label. This refers to the public evaluation by visible letter grades (A, B, C, D) that can be added to a government website in relation to public actions, public officials, economy and citizens.¹⁷ Self-synchronisation in response to the actions of others can establish rational decisions even if there are no personal experiences in the field in question. This system is present in “innovative companies like Wall-Mart, Dell, Amazon, EBay and UP... [where] firms partner in value networks [and supports] have an integrated collaboration of specialist companies, each providing complementary intermediate goods and services” (Gurnaxani, Pllice, 2004: 3).

¹⁷ In 1997, for example, the Los Angeles County Board of Supervisors adopted an ordinance that requires restaurants to post highly visible letter grades (A, B, C) on their front windows that are based on the results of County Department of Health Services inspections. [...] Studies estimate that hospitalizations from foodborne illnesses have decreased from 20% to 13% (Fung, Weil, 2010: 110).

Self-organisation in biology is to Kaufmann “the root source of order” (1995) and it is also known in chaos theory. The concept of amoeba organisation was first introduced in the W. L. Gore & Associates Company in 1958. The founder Wilbert L. (Bill) Gore founded a company based on strict decentralisation, self-organising groups, *shallow hierarchy*, and the concept of chaos in an organisation. The company is among just five workplaces to appear on every list of the *100 Best Companies to Work For* since the rankings debuted three decades ago (Google as one of the representatives of network organisation is in the first place).¹⁸

Practical approximations to the HM can also be seen in the combined powers of police, customs and immigration officers in coordination with the tax authorities and national prosecutors. Another existing model, close to the heterarchic one, is cloud computing, which we use for private purposes (e.g. Yahoo e-mail, Gmail, Hotmail, Dropbox, SkyDrive), or for voting as citizens, such as the Swiss Smartvote and the US VoteSmart. There are IT applications that group a wide range of local data to provide a picture of life and services in a particular area (e.g. AppsDC, DataGov, GovTrack, MAPLight, OpenSecrets, WashingtonWatch, FollowTheMoney, iLiveAt, FixMyStreet, MyBikelane).¹⁹ Some cities already have positive feedback by using ICT in the daily work of their public services (Challenge.gov, Citizens Connect, Grade.DC.gov, Smart Chicago, 596acres.org, CompStat system, etc.). There are many applications (more than 5,000) that allow citizens to replace some functions of government, in a self-service analogue to Craigslist, which can be found at e.g. ProgrammableWeb API. Noveck tells the story of Peer-to-Patent, where the Patent Office has integrated a volunteer network of self-selecting scientists and technologists into the formerly closed and secretive patent examination process. Other practical examples are in “the core idea of Wiki Government...connecting the power of many to the work of the few in government” (Noveck, 2009: 14). Tapscott and Williams (2008) explore how some companies in the early 21st century used mass collaboration and open-source technology to be successful. Their main idea, known as *wikinomics*, is that customers are also co-innovators (“prosumers”) rather than simply consuming the end product. Tapscott and Williams think that “[e]ven governments can get involved, by using the new digital collabora-

¹⁸ CNN Money, 100 Best Companies to Work For http://money.cnn.com/magazines/fortune/best-companies/2012/full_list/

¹⁹ These examples could be placed in Provan and Kenis's lead organization-governed networks.

tion tools to transform public service delivery and engage their citizens in policy making” (2008: 314).

Noveck’s idea can be spotted as early on as in the “democratic experimentalism” of Dorf and Sabel (1998), where they name a system of collaboration “learning by monitoring”²⁰, and is also found in Articles 37 and 72 of the French Constitution. A similar, practical, functional example of public deliberation with public authority is also the Swedish local federation; the County administrative board – the government agency that represents the *Riksdag* and Government in the county and seeks that the decisions taken at the central level have the best possible effects in that county and serve the best interests of the residents – can be grouped with a municipality. The local federation binds the central and the local level on county territory.²¹ Members and alternates of the decision-making assembly are elected, as indicated in the federation statutes by the assemblies of the federation members. The municipality and the Government agree by contract which central legislation will or will not be applied for a certain period of time. These “free commune experiments” (FCE) (Baldersheim, Stahlberg, 1994) are taking place in France (the Swedish County administrative board is similar to the institution of prefect in France), Sweden, Denmark, Norway and Finland. They want to devolve greater responsibility for policy-making and service provision to the local level, with the aim of securing more responsive and cost-effective local services with the prior consent of the central government.

²⁰ The model requires linked systems of local and inter-local or federal pooling of information, each applying in its sphere the principles of benchmarking, simultaneous engineering, and error correction, so that actors scrutinise their initial understandings of problems and feasible solutions. These principles enable the actors to learn from one another’s successes and failures while reducing the vulnerability created by the decentralised search for solutions. The system in which citizens in each locale participate directly in determining and assessing the utility of the services local governments provide, with the possibility of comparing the performance of their jurisdictions to the performance of similar settings, is called directly deliberative polyarchy (Dorf and Sabel, 1998: 287–288).

²¹ See Local Government Act (1991), Sections 20 to 29; municipalities and county councils may form local federations and transfer to such federations the management of local government concerns. A local federation is formed when the federation statutes have been adopted by the members of the federation or at a subsequent point in time indicated in the federation statutes.

3.3. Human Leadership and Judgment as sine qua non of the Heterarchic System

Systems that collect, analyse, predict and share information push public agencies to focus on results rather than bureaucratic compliance. Using data to improve the services they provide is a necessary step to measure agencies' performance and to hold them accountable for results. Although Goldsmith and Crawford see opportunity in digital technology (in the new ways of gathering, storing, and analysing data, in the new modes of communication and the new world of social networks that is established by this platform), they are aware that changes come from *leaders* who have forced changes by capitalising on the power of the new tools:

Cities can empower, engage, and enable both public employees and citizens. Enhanced by digital technology, these cities will change the way citizens view local government and civic life itself. But this revolution, like any other, needs to respect its inheritance and preserve the strengths of earlier forms of urban government: human leadership and judgment. After all, this digital revolution is not being fought for the sake of apps and tablets. It will succeed, and transform civic life for the better, by making it once again of the people, for the people, and by the people (Goldsmith, Crawford, 2014: 177).

There *are* positive results that can be the HM's reference point: if ICT contributed to the globalisation of markets (e.g. with eBay, Amazon, eBooks, Google, PayPal, Wall Street Stock Exchange), it could also contribute to the globalisation of democracy, but we should first build all the necessary steps. How can the heterarchic idea be achieved in reality, in the daily operations of PA? We think that we should start with the human leadership, our judgments and/or decisions. No positive change will work if there are no *positively*-oriented people; enlightening people with new possibilities of implementing old values is one of the tasks of the public sector. "Unless the people improve their understanding of complex public affairs, democracies will therefore either become more of a fiction, or democracies will increasingly fail in their more demanding tasks, including "weaving the future". Upgrading the understanding of complex public affairs by larger parts of populations is therefore essential for empowering them for the better rather than the worse" (Dror, 2002: 106). The HM is an all-encompassing model in which people and their information are of the highest importance, without sacrificing the need for central coordination and decision-making. New institutional arrangements should be preceded first by the changes in our *thinking*; the HM should first be only

an *informal* process in which we can change the perspective from a person to the information that s/he delivers.

3.4. Calculable Self-Synchronisation in Practice

The remodelling of PA operations by introducing the HM can be supported by ICT. PAs still use ICT more as a substitute for the typewriter than for real, intelligent data analysis. The HM based on computerised networks of gathering information can be a major improvement. Governments can start decision-making that would be closer to the people using a range of survey applications (e.g. SurveyMonkey, Floq, FreeOnlineSurveys, Kwik Surveys) that can provide statistically more unbiased answers to solve current problems. Information gained by the proposed model can give us better public decisions pre-based on prediction formulas, such as multiple regression, regression coefficients, discriminant analysis, actuarial tables, computer programs, algorithms and other similar schemes.

Order for free. Kauffman has demonstrated by the laws of complexity that “democracy has evolved as the optimal mechanism to achieve the best attainable compromises among conflicting practical, political, and moral interests” (1996: 4). He thinks that life is not to be found in the beauty of Watson-Crick pairing, but is based on some form of collective autocatalysis (1996, 2002, 2010) that is too complex to be discussed here (due to the space limitations), but we will nevertheless mention his *order for free*, or his idea for spontaneous (natural) order that exhibits itself in life as a consequence of autocatalytic reactions or the collective dynamics network. In 1965 he programmed the $N = 100$ gene network (now known as the Kauffman/Boolean network), with each gene receiving $K = 2$ randomly chosen inputs from among 100. Such a network has 2^{100} states. “It turned out from numerical evidence that the median number of states on a state cycle was *the square root of N* ... Self-organisation that confines patterns of model gene activities to tiny regions of the network’s state space arises spontaneously in these networks. There is order for free” (2010: 110).²²

²² Astonishingly, “order for free,” much like real biology, does exist in random-model genetic light-bulb networks. This is emergent self-organisation, not reducible to physics. The name for such a network is random Boolean network, because the rules governing the on/off behavior of any regulated gene as its regulatory inputs vary from off to on is given by a logical or Boolean function (Kauffman, 2010: 106).

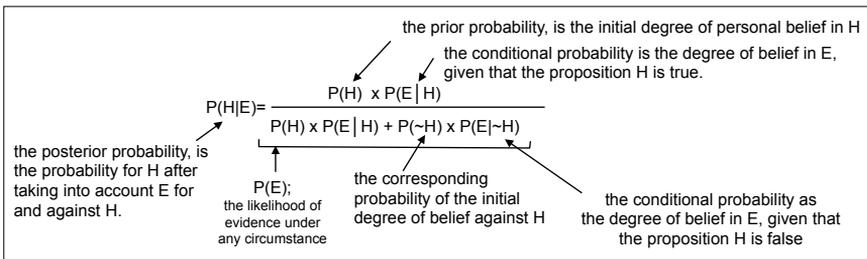
The order arises, sudden and stunning, in $K = 2$ networks. For these well-behaved networks, the length of state cycles is not the square root of the number of states, but, roughly, the square root of the number of binary variables... Think of a randomly constructed Boolean network with $N = 100,000$ lightbulbs, each receiving $K = 2$ inputs ... The system has $2^{100,000}$ megaparsecs of possibilities – and what happens? The massive network quickly and meekly settles down and cycles among the square root of 100,000 states, a mere 317. At a millionth of a second per state transition, a network, randomly assembled, unguided by any intelligence, would cycle through its attractor in 317-millionths of a second (Kauffman, 1996: 44).

Only two parameters suffice to govern whether random Boolean lightbulb networks are ordered or chaotic; this binary network could be paired with the binary nature of law (legal ν . illegal; enacted ν . non-enacted). If every sparsely connected network could exhibit internal order by the square root of N , this could also have enormous consequences for the law: public participation by survey could give very good answers to major topics at the national level simply by using the square root of the number of citizens (e.g. for a nation with 2 and/or 10 million voters, their opinions would be fully relevant with as few as 1414 and/or 3162 votes). The case could be similar with regulatory instruments: if a statute proposed 10 measures to achieve goals, merely 3 of them would be effective – this says something about the constant monitoring and evaluation of instruments. These are the ways valuable information could be provided to hierarchic institutions for further work in the sense of an e-consultative referendum. The idea of bringing the citizen-centric e-business model into government operations can be a creative approach, adjusted to the specifics of the public sector. Using a larger amount of data and predictive analytics we can predict better public decisions for the challenges of the future.

Bayes's Rule. After we get the relevant number of votes, we (or a state) could follow the majority opinion as in the case of a classic non-obligatory referendum or even – in uncertain cases – estimate the probability of events taking into account the votes and known evidence. Along with data mining, multiple regression analysis and other statistical techniques that operate using known data, there is also a technique which encompasses what we intuitively disregard most of the time in our decision-making. We are talking about the one of the most famous formulae in mathematics, but the least used in public administration, *i.e.* the Bayes rule (known also as the Bayes theorem and/or formula) which relates current probability

to prior probability. It is the fundamental principle of normative decision-making that clashes with human intuition and its mistakes.

People are mostly poor statisticians; one of the commonest errors is the neglect of the base rate (which leads to a focus only on new evidence in decision-making). This mistake can lead to large exaggerations of the probability of an event. If we want to express our decision even more rationally, we could use the Bayes rule as a method for decision-making based on the determination of a greater or lesser probability in cases of uncertainty; it tells us how our theories or hypotheses and logical premises can be more probable, not merely possible. Bayes's rule specifies how one ought to update one's beliefs based on evidence where available, and in the absence of such evidence how probabilities are changed between basic alternatives. The probability – in the case of two not independent events – of event B following event A, is the probability of A multiplied by the probability that A and B both occur: $P(A \text{ and } B) = P(A) \times P(B|A) = P(B) \times P(A|B)$. The latter, *i.e.* the probability that A will occur, given that B has occurred, as the probability of A multiplied by B given that A is true divided by the probability of B, is known as Bayes's rule: $P(A|B) = \frac{P(A) \times P(B|A)}{P(B)}$. Bayes's rule presented in diachronic (changed over a period of time) interpretation is:



P means probability, (H) hypothesis, the sign (|) means given, (E) evidence, and the sign (~) means false. Because P(E) indicates exclusive and exhaustive events it includes the probability of event H itself and its complement (~H). “Bayes's Theorem is a logical formula that deals with cases of empirical ambiguity, calculating how confident we can be in any particular conclusion, given what we know at the time” (Carrier, 2012: 80). Carrier also presented Bayes's rule descriptively (Carrier, 2012: 90):

The probability our explanation is true =	How typical our explanation is	x	How expected the evidence is if our explanation is true			
	{repeat the above}	+	{	How atypical our explanation is	x	How expected the evidence is if our explanation isn't true } }

Bayes's rule focuses on the logical *relations* between evidence and conclusions; it is not essential that these relations have a precise number, but rather to serve as a check *i.e.* to see if subjectively (intuitively) based hypotheses – based on particular bodies of evidence – are likely, almost certain, or impossible.

4. Conclusion

Despite numerous ideas about the “new” administration, most of the authoritative-exclusive tasks of the government (public policy process) are still in the hands of a bureaucratic (agency-centric) type of organisation; the latter should not be an obstacle to another style of organisation, but rather its essential part. Government transformation is a necessary step to create fertile conditions for incorporation – with necessary adjustments²³ – of existent e-business into e-government models. The management of complexity in an uncertain world within the HM and its assessment tools can be better because of the constant interaction between the different interests and/or desires with their environment. With its interaction, self-organisation, regulation, coordination and control the HM is similar to Beer's Viable System Model (Beer, 1972; Espejo, Reyes, 2011) and follows Ashby's law of requisite variety²⁴ more than the Weberian bureaucratic model.

In the end each model depends on politics. Along with the emerging practices and the given economic position, the answer about the future organ-

²³ Nguyen and Obi propose a value chain approach in which commercialisation (the involvement of the private sector in e-government initiative implementation) and specialisation (in a single or group of public services) are the first step to integration of e-business models into e-government applications (2009: 10–11).

²⁴ Ashby's law simply states that only “variety can destroy variety” (1956: 207). On this basis in Slovenia some initiatives have been taken to modernise local democracy (see Pečarič, 2013).

isational model in the PA should be obvious. The NCS model is an open communication forum with information interplay from several sides and at several levels. With a common purpose, participation, soft boundaries and crossings of information it can be a suitable model to enhance the levels of democracy in policy processes and public services. Experience favours simple solutions; we should try to encourage people to engage in spontaneous communication by simplifying a formal organisation, but with formal protection. As within systems theory or cybernetics, it is *all about the constant flux of information*. It is not enough if the higher level does not act in response to the given information; the same problem can occur within the HM, but it is at least publicly known in the actual time during which a process takes place. It is necessary to realise the importance of such information to the success and efficiency of our (team) work. The network organisation has been operating within us for millions of years. While our bodies consider information automatically, the formal form, content and, most of all, the willingness of the people will be much needed in our organisations. Ought-questions – what should we do? – are always hard to solve. It is better to have quick access to a lot of relevant public information than a mix of governmental guessing with the non-transparent influences of lobbies or other pressure groups.

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*A HETERARCHIC MODEL OF GOOD GOVERNANCE:
A UNIFYING HUB FOR ADAPTABILITY, DIFFERENCES,
SIMILARITIES, DEMOCRACY AND ACCOUNTABILITY*

Summary

The paper presents the basic elements of a heterarchic model of good governance and foresees its trends in the future. This model is already present in the army and in some companies and it can – without denying the hierarchic forms – enhance the range of communications without reducing supervision and accountability. However, contrary to their enlargement, it introduces a path to more transparent and democratic public institutions. The model also relates to the classic, hierarchic, big, and legally oriented public administration, so changes will not come to the fore in a short period. Countries can enable public deliberation with the institutional transformations of their public institutions into the heterarchic ones. The heterarchic administration can bring public decisions closer to the people who can, as their (in)formal contributor, give more relevant information and more predictable outcomes.

Keywords: governance, heterarchy, lego style of public administration, visible public participation

*HETERARHIČNI MODEL DOBROG UPRAVLJANJA:
STJECIŠTE PRILAGODLJIVOSTI, RAZLIKA, SLIČNOSTI,
DEMOKRACIJE I ODGOVORNOSTI*

Sažetak

Rad analizira osnovne elemente heterarhičnog modela dobrog upravljanja i predviđa trendove razvoja u budućnosti. Ovaj je model već prisutan u vojsci i u nekim tvrtkama te može – bez nijekanja hijerarhičnih oblika – povećati opseg komunikacija a da ne smanjuje obujam nadzora i odgovornosti. Njihovu povećanju unatoč, ovaj model utire put transparentnijim i demokratskijim javnim institucijama. Model je podoban i za klasičnu, hijerarhijsku, veliku i pravno orijentiranu javnu upravu, no tamo promjene neće doći do izražaja u kratkom roku. Države mogu omogućiti javno odlučivanje uz pomoć institucionalne transformacije svojih javnih institucija u heterarhične organizacije. Heterarhična uprava donosi javne odluke bliže građanima koji, kao (ne)formalni akteri, mogu dati relevantnije podatke i osigurati predvidljivije rezultate.

Ključne riječi: vladavina, heterarhija, lego stil jave uprave, vidljiva participacija javnosti