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# Croatian Public Health Governance Model Improvement

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## Abstract

The goal of this paper is to present a management model that is able to restructure and govern the public health system in Croatia. Furthermore, the goal of this model is to stabilise its financial losses and ideally, turn it into a competitive business opportunity.

Amoeba Management methodology, developed in Japan from 1959-1964 by Dr. Kazuo Inamori, is a representative of enterprise agile management methodology for disruptive environment improved further up today. The methodology is based on organisational unit independency and the encouragement to take financial responsibility for overall results using a "Management by All" philosophy as well as a unified product catalogue. Each unit is treated as a "profit centre" which faces internal quality and financial competition against equivalent nation-wide units. The central enterprise function in Amoeba Management is to unify the environment, as well as to supervise and govern units to the highest degree of success in terms of outcome and competitive financial cost.

The health industry in Croatia lacks proper analysis about medical product capability delivery, as well as quality and utilisation per geographical area. Therefore, any future employed health industry governance models must be able to identify these values, unify the medical product catalogue quality within a given financial budget for equivalent organisational units, and ensure their mobility. Agility, diversification and mobility should be the main governance drivers to success, which are all addressed in Amoeba Management.

**Keywords:** restructure, governance, Public Health, Amoeba Management, disruptive, agile, equivalent unit, Medical Product Catalogue, mobility

**JEL classification:** I130, G340, L330, H510

## Introduction

Public health refers to all organized measures (whether public or private) to prevent disease, promote health, and prolong life among the population as a whole [WHO - World Health Organisation definition of Public Health]. Any given public health system requires complex organisation and synchronized governance models to respond to all of these challenges. The WHO published an excellent document entitled "Governance for Health in 21<sup>st</sup> Century et al. (2012)" which gives drivers and high-level directions for future governance models of public health systems. There are several points in the document, which deserve emphasis. First, the document notes that "The governance challenges faced by the health sector are not unique: all sectors are experiencing major shifts." Second, the document emphasizes "interdependence", "co-production", and "shared value" which lead into "dynamic of diffusion" and as such are used as a "competitive advantage". These keywords encourage us to re-evaluate and transform currently accepted governance models and strategies according to new global and dynamic environments. The last

mentioned keyword, "competitive advantage" directly exposes the National Public Health System on the global market, saying that those who first adopt new directions might have some degree of competitive advantage.

Bearing this in mind, the Croatian Public Health System (referred to further in this text as CPHS) requires major shifts due to: (1) uneven geographical availability and quality of medical service to everyone (Ostojić et al., 2012), (2) a continuous budget gap of 8% which causes financial unsustainability of the system (Kovac et al, 2012) and (3) insufficiently motivated medical staff.

The objective of the Paper is to prove that the Kyocera Amoeba Enterprise Management model applied to the Croatian public health system is an excellent option, which fulfils all WHO expectations for 21st Century, while at the same time eliminating current problems CPHS faces.

Within Introduction part, subheading Current Situation and Swat Analysis brings known facts, issues, claims and opportunities, which describes CPHS current enterprise management environment. The second chapter (Methodology) describes approach, standards and governance principles being used in simulation. Within Results, we will apply governance principles into concrete CPHS enterprise environment and evaluate expected achievements. Discussion part emphasizes main transformation assumptions and measures being applied to the CPHS. In Conclusion, we identify limitations of the evaluation and propose further steps to prove the concept.

## Current Situation

To date, the health system in Croatia is in a transitional phase from sole public services towards a mixed public and private medical service structure. The same is true for health insurance structures where private insurance companies are now taking a part of the market share. The Croatian public health care system uses a variation of the Bismarck financing model where each person with income is paying a percentage of that income into a solidary account. The other incomes come from voluntary payment off additional health insurance fees and other minor sources. Total amount in 2014 is approximately 3.1 billion Euros. The gap between the budget and expenditures is 320 million Euros, or roughly 8%. This means that fiscal stability of the system depends primarily on the strength of the national economy and labour market.

Quality of medical service depends on the geographical area of living, such as rural or urban area, and the closure of "point of excellence" hospitals. The patients have some financial and geographical limitations in consummation of medical service within the national public health system. Currently, the Ministry of Health is proposing limitation of free of charge medical services in order to cover the financial gap. Primary medical care is mainly focused in urban and suburban areas. Rural areas and islands are purely covered with primary medical care and not covered with secondary care (i.e., hospitals) at all. Third level medical care is focused on clinical hospital centres located in four main cities, which house the larger universities in the country. Public health care institutions are being paid according to DTP (Diagnostic and Therapeutic Procedures) and DBL (Days of Hospitalisation) standards from the Croatian Health Insurance Fund (HZZO). In the case of the unavailability of a particular procedure within the solidary public health system the patient may be directed to a private clinic, which is then paid on a commercial basis.

In addition to DTP and DBL income, medical institutions and medical employees have extra incomes from contracts with private clinics, private insurance companies, and other hospitals. This source of income is often not represented in public balance

sheets by HZZO "(HZZO et al. (2015)."The other income which is often not reflected in published balance sheets is that which is acquired during tourist season, which can account for as much as 8 million foreigners asking for medical help.

Notably, medical staff wages in Croatia are more than 40% lower than those of their counterparts in western Europe. For the last several years, medical doctors employed in secondary and tertiary public medical organisations have been working legally for private institutions and clinics in conjunction with their work in national hospitals, which are funded by private accounts. If one is to assume that the average medical doctor sees a typical case load of 6 patients per day, while working approximately 200 days of the year, then the utilisation of medical doctors is, on average, approximately 60% and thus the utilisation of accommodation is 56% "(HZZO et al. (2013, 2014, 2015)." At the same time, the Croatian Chamber of Medical Doctors claimed that 2500 medical doctors were unaccounted for (thus, 41% of the current number of physicians, 5697) in the solidary medical system. Utilisation of medical doctors varies between 43%-102% and accommodation varies between 16%-90%. These numbers indicate an uneven distribution of workload and capacity per hospital. At first glance, the difference between 2500 unaccounted medical doctors and 60% utilisation might look contradictory and certainly requires further analysis. Therefore, any superficial conclusion or partial action without clear, strategic, and comprehensive objectives is not reform, but rather a quick financial gain which may lead ultimately into bigger problems.

### SWOT Analysis

In analysing only two aspects of the CPHS, we have already identified major weaknesses of the system such as missing "Medical Product" standardization, as well as uneven geographical and medical expertise demand and workload distribution. Additionally, pure financial transparency and improper motivation of excellence in healthcare services is evident. On the other hand, major strengths of the system include a "point of excellence" indicating world-class medical services in the system and low cost of medical activities (EHCI - European Health Consumer Index et al.(2015).

This same data also indicates that the CPHS has the opportunity for additional revenue from tourism-driven medical needs, or from offering specialty surgeries (e.g., transplant) on an international level. However, it should be noted that these should not be at the expense of Croatian taxpayers, health insurance payers, or a socially vulnerable population. Pure financial and operational transparency, inflexibility and a missing excellence reward system opens the space for fraud and further degradation of medical service quality. The Croatian health system has sufficient opportunities and strengths for additional financing from commercial medical services. It needs a more flexible, agile, diversify and co-partnering enterprise governance model supported by proper IT support which will bring competitive advantages.

### Methodology

In the Paper, two main agile principles are applied to the current CPHS model using simulation methodology. The principles are: (1) Standardization by Medical Product Catalogue and (2) Governance model based on Kyocera Amoeba Management principles.

### *Standardization by Medical Product Catalogue*

The main assumption of a new model is to create and differentiate Solidary Medical Standard (SQS) and Advanced Medical Care Quality Standard (AQS). SQS combines the most commonly applied medical treatments (DTP and DBL items) used for a comprehensive and successfully finalised medical result – Medical Product. A successfully finalised medical result (Medical Product) means that within a defined period of time (warranty period) no further treatment is required for acute diseases. In the case of the same or chronic disease, this would mean a period of time between two visits for specialised medical treatment. In the case of preventive medical care, a successfully finalised medical result is measured statistically as the reduction of unsuccessful medical treatments and other EHCI indicators.

Medical Product has a reference price calculated as a sum of DTP (activities), DBL (accommodation), consumables and medicines (material) and medical asset depreciation used in comprehensive medical treatment. This sum is increased by a fixed margin in standard working conditions and a variable margin (weight factor) in the case of extra working conditions (i.e., daytime, urgency, location...), as well as other specific conditions related to the patient (i.e., age, mobility, etc.).

For each Medical Product, SQS defines the waiting time and total duration of comprehensive treatment a patient may expect. Waiting time depends on urgency and life risk after setting the first diagnosis. Advanced Quality Standard (AQS) should not have an impact on quality and quantity of DTP activities. It primarily extends the quality of supporting services or medical services not included into SQS standards by patient request.

### *Governance model - Kyocera Amoeba Management*

In the Paper, we use Amoeba enterprise management methodology to restructure the existing CPHS organisation and evaluate the expected impact on targeted objectives.

Amoeba management methodology is based on splitting existing hierarchically managed institutions into smaller and flexible **specialised** profitable units (amoebas). The name "Amoeba" can be credited to Dr. Kazuo Inamori who was astonished by the equally structured celled organism who can survive independently. To survive, they change shape and they vary in size (i.e., adapt to certain environments). Notably, some of these organisms are parasites, eating healthy substance of the host. However, if the host dies, all amoebas, good and bad also die. The methodology has 3 major **objectives** (Inamori, K. et al.(2013):

- Objective No. 1: Establish a Market-Oriented Divisional Accounting System  
Divide organisation into many small and accounting units that can promptly respond to market changes – also known as profit centres.
- Objective No. 2: Foster Personnel with a Sense of Management  
Each small unit becomes a discrete enterprise working on market principles, supported and governed by the Central Enterprise and reward to these smaller units are based on result.
- Objective No. 3: Realize Management by All  
The Central Enterprise supports and stimulates dynamic diffusion, co-partnering, shared resources and other management actions proposed by discrete units, which in turn, support overall enterprise objectives.

Applying these objectives into enterprise management means diversification of rigid hierarchical organisation into horizontal, diversified, flexible specialised amoeba units

networked by commercial principles. The enterprise governance role is to supervise and guide the process by managing demand and delivery of products in order to achieve the common enterprise goal. The same methodology should be used for the core (i.e. medical) and support (i.e. facility management) functions. This approach is indeed very similar to a stock market model, in which the enterprise management acts like stock exchange, balancing demand and offers.

Transferring Amoeba management principles into concrete actions, each amoeba should have defined its *Product Catalogue*, and size itself according to market demands to be fiscally self-supported (profitable). Furthermore, it should source itself with its own resources and external supply contracts to function as self-contained small enterprise. Lastly, it should organize and manage itself in such a way as to meet the enterprise objectives as a whole.

Central enterprise transfers the majority of its operational responsibility to the discrete units (amoebas). It also supervises their results and supports them in non-central enterprise functions.

## Results

Applying Amoeba Management methodology to the (CPHS) will split current medical institutions (like hospitals) into two separate businesses: Healthcare and Facility management. Each business is additionally divided into discrete, specialised and profitable units – referred to as amoebas, where central enterprise management for healthcare business is on a national level and facility management is on a county level. Each discrete healthcare unit (i.e., ophthalmology, radiology, etc.) or facility management unit (i.e., food delivery, cleaning, etc.) is free to establish co-partnering on a national and global level, thus allowing them to share experience, knowledge, assets and services with others. They establish dynamic partnerships with other amoebas in order to offer shared value to the customer.

With the assumption of a defined Medical Product Catalogue and Facility Management Product Catalogue within SQS and AQS, simulating full implementation of amoeba enterprise management as described, the results measured against identified issues and SWOT analysis are as follows:

### **Expected results in healthcare business govern by central national agency:**

- i. Improvement of fiscal responsibility. Profitability requirement on every discrete unit (amoeba) will improve efficiency and optimise capacity on a national level. Unprofitable units at one geographical location will be motivated to move to the other in order to achieve profitability. This will encourage flexibility and mobility of the units.
- ii. Healthcare availability improvement (shared service). Mobility of discrete medical units will improve availability of healthcare services on a national level and reduce waiting lists where needed.
- iii. Optimisation of resources within SQS (co-partnering). Implementation of i. and ii. will produce direct consequences on optimisation of total number of required national healthcare units within SQS (Solidary Quality Standard).
- iv. Opportunity for additional income (competitive advantage). Once SQS is within its desired objectives, excess healthcare resource capacity may be directed to create additional revenue through tourism-driven healthcare, or by selling services on the global market (within EU). This measure improves medical staff motivation and prevents medical staff to leave the country.
- v. Overall enterprise objectives improvement. Using a Medical Product Catalogue with SQS (Solidary Quality Standard) will unify the cost per successfully finalised



medical result that may bring a savings between 20- 60% per medical product, without accommodation savings. Productivity improvement measured in utilisation of healthcare amoeba units on a national level from 43-102% to 80-95%; (average 60- 85%) will have two points of impact: (1) Improvement of healthcare SQS quality measured by EHCl and (2) additional income from health tourism and from AQS (Advanced Quality Standard) services.

### **Expected results in facility and building management business governed by local county authority:**

- i. Improvement of fiscal responsibility. Profitability requirements on every discrete facility management unit (amoeba) will improve productivity of facility staff and enforce cost optimisation. Unprofitable facility management services currently used only for healthcare purposes might be shared with tourist facilities, schools, parks and other local facilities which require the same service.
- ii. Accommodation and special healthcare space quality improvement. Mobility of discrete medical units (amoebas) will encourage local authorities to continually improve attractiveness of healthcare facilities within SQ and AQ standards. In addition, by renting or leasing specific equipment used in healthcare (i.e., CT, MRI, etc.), this may bring additional competitive advantages for local community attractiveness.
- iii. Optimisation of accommodation space within SQS. Healthcare amoebas are renting space and accommodation from local facility management amoeba units. Due to profitability requirements, healthcare amoebas will do it in a fiscally optimal way. Current space utilization is between 16-90% (average 43%) and it may be expected that an additional utilization drops by 10% occurs due to SQ standard implementation. The remaining free space might be used for other purposes.
- iv. Opportunity for additional income (competitive advantage). Due to AQ standard implementation it is reasonable to expect additional demand for AQ standard space. In such a situation, local authorities may split the current space according to expected demands into SQ, AQ and hotel standard space and offer it to public and private healthcare units as well as for tourist-driven purposes (i.e., hostels, hotel space, etc.).
- v. Overall enterprise objectives improvement. Currently, unprofitable facility and building management business gets the opportunity to optimise SQ standard space and service, improve its quality, and offer market oriented AQ standard and hotel standard space. The local government, as a funder, may turn losses into profitability by the additional appeal of inviting the best healthcare teams in their local community independently of national public healthcare, thus creating a dynamic, floating "point of excellence."

## **Discussion**

This paper's objective is to identify main governance principles of a new Croatian Public Health System enterprise management model able to remove long term financial and quality issues and transform system into a profitable business. The main points of transformation area healthcare system standardization using a Product Catalogue in combination with Solidary (SQS) and Advanced (AQS) Quality Standard, the separation of healthcare business from facility (building) management business, and finally dividing the current institution into smaller, profitable and self-sustainable discrete units (amoebas).

Amoebas have mandatory responsibility to fulfil SQS standards on a national level and are financed by a current solidary budget. In addition to SQS, amoebas are financed from advanced insurance budgets voluntarily paid by citizens who desire higher levels of service defined and limited by AQS standards. Amoebas are also financed from other sources not limited or defined by SQS or AQS standards on a commercial basis. The entire system is self-sustainable secondary to eliminating unproductivity by competitiveness among amoebas and profitability requirements. On the other hand, the system is supervised by the Central National Healthcare Enterprise in order to ensure system stability across the country and the National Healthcare Accreditation Agency which ensures compliance with SQ and AQ standards.

Medical Product Catalogue assumptions used in this paper are based on high level data taken from HZZO publications. Due to missing SQS and AQS standards, the assumption used in the paper is that no significant difference exists between SQS and AQS standards among first, second and tertiary level of medical treatment centres. This general difference refers to accommodation quality, used medications (list covered by insurance company) and number of specific diagnostic treatments within a period of time denoted in the standard.

## Conclusion

Due to the above mentioned assumption limitation; it is difficult to prove the concept using exact values. A proposal for future investigation might be the analysis of a equivalent specialised healthcare units on a national level resulting with the associated medical product catalogue and SQS and AQS standard. The next step would be to acquire pilot data regarding the governance model based on defined standards. The investigation and pilot data would require full financial support from a state institution, especially Ministry of Health.

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Nino Sipina received his degree in 1988 from the Department of Electronics and Computing, at the University of Zagreb, Croatia. Since then, he has been working in healthcare, manufacturing, oil and gas, information technology and the telecommunication industry. While working in the telecom industry, he has managed a number of successful transformational, outsourcing, in-sourcing, and process improvement projects. For the last 5 years, he has been working intensively on the promotion and implementation of agile management principles based on the Toyota Production System and Kyocera Amoeba Management. He maintains Lean Six Sigma and ITIL certificates. The author may be contacted at [nino.sipina@outlook.com](mailto:nino.sipina@outlook.com).