



Planning and Implementing Change in Cyber Security Network Organisations

Georgi Penchev^{1,2} 

- ¹ Department "National and Regional Security," University of National and World Economy, Sofia, Bulgaria, <http://blogs.unwe.bg/gpenchev/en/>
- ² Institute of Information and Communication Technologies, Bulgarian Academy of Sciences, <https://www.iict.bas.bg/EN/>

ABSTRACT:

This article presents an important aspect of the governance and management of network organisations – planning and implementing organisational change. The research is based on the experience gained during the planning of the transformation from ECHO Project Consortium to a future collaborative networked organisation. The process of selecting requirements for change is described in its methodological and procedural aspects, as well as in terms of its environment – the EU cybersecurity domain. The ADKAR approach is presented in brief as the main framework for change management, and its application features for collaborative organisations are identified. Finally, the article presents a tentative transition plan with its main phases and activities.

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Introduction

The organisational change and organisations' adaptation to the external environment is a complex issue with many aspects closely related (and also included) with overall governance and management. Organisational change and change management is a well-known and developed field in management as a

science.¹ Nevertheless, the design, establishment, improvement and change in networked organisations is a topic, which needs more study and clarification.²

The paper aims to present research conducted within the framework of project activities of the European Network of Cybersecurity Centres and Competence Hub for Innovation and Operations (ECHO) Project.³ ECHO is one of the four pilot projects funded by the European Commission (EC) in order to revitalise and strengthen the cybersecurity in the European Union (EU) and its member states through innovation and cooperation. The establishment of a future EU network targeted on cybersecurity competencies, as well as to the network governance and management.⁴ The related regulation was also issued by the EC.⁵

The research presented here falls within the activities planned in ECHO's Work Package 3 (WP3) "Governance Model." Within the WP3 overall methodology framework for design, implementation and improvement of the ECHO Governance and Management Model (GMM) was developed. The framework is structured around the several interconnected steps of environment, goals and processes analyses. The last one, change management, is presented through the Implementation Plan. The main parts of the framework are described in general as methodology, as well as inputs and outputs in the first two sections. The GMM implementation plan and transition phases to the Collaborative Networked Organisation (CNO) are presented in the last two sections.

The structure of the research and results achieved can be used in future analyses dedicated to the establishment and improvement of network organisation based on collaborative efforts of autonomous partners gathered by common goals.

Methods

The Framework

The Implementation Plan is a part of the overall methodological framework for development and implementation of the Governance and Management Model (GMM) within the ECHO Project.

The structure of the methodological framework is presented in general in Figure 1. The methodological framework is based on several steps. The process starts with the analysis of goals and requirements for the set-up of the future ECHO Collaborative Networked Organisation (CNO). The next step is the selection of the most suitable alternative and description of the core processes towards its development. Finally, the Implementation Plan consisting of activities and responsibilities for establishing a new organisation is developed.

The framework starts with the analysis and classification of existing cybersecurity networks.

The input of Governance needs and objectives (D3.1)¹ is based on analysis of more than 90 existing cybersecurity and ICT networked organisation. It identifies main types and activities of those networks.⁶

On the basis of the D3.1 analysis, four alternatives were developed and suggested to the expert group for evaluation within the Analytic Hierarchy Process (AHP) approach.⁷ The expert group consisting of internal and external to ECHO experts evaluated alternatives against the criteria framework. The criteria, alternatives and results of AHP application were widely discussed in three workshops providing awareness and agreement within the Consortium. Finally, a combined Alternative (designated A0) was developed and selected as most suitable for the ECHO Network. The A0 adopts a GMM of a collaborative networked organisation (CNO) consisting of a Central Hub, National Hubs and Service Groups. The core processes were identified and were described as main characteristics.

The Governance Alternatives (D3.2) provided a solid ground for further detailed development of ECHO GMM on the basis of rational selection of the most suitable alternative, as well as a common understanding of the goals, processes and structure of the future ECHO CNO.

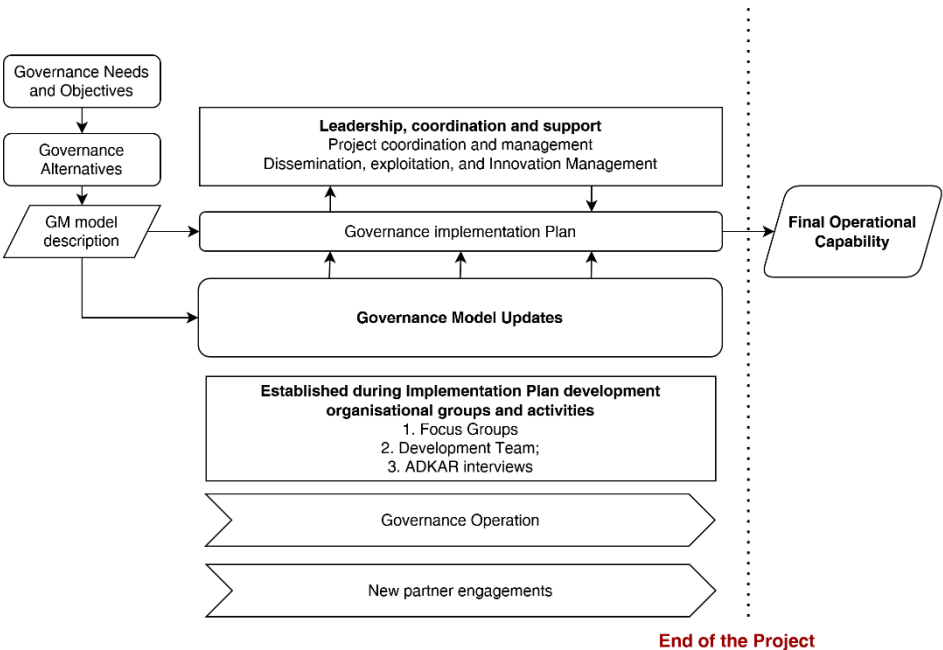


Figure 1: Implementation Plan development framework.

¹ Each of the input analyses are actually provided by an ECHO Project Deliverable related to execution of Projects’ Tasks. The deliverable number is given in parenthesis and is used as a reference into the text.

The Governance model description (D3.3) is the next step in designing the optimal Governance and Management model (GMM) for the ECHO CNO, based on the selected alternative A0. The document describes GMM in high-level design of five core processes executed in the collaborative networked organisation with central and national hubs and Service Groups. The main bodies of these hubs are also described, and organisational roles are assigned.

An important task of the D3.3 is to inform the transition planning process to deliver the Governance model implementation plan (D3.4) executed in order to communicate to ECHO Partners and external Stakeholders the main results and direction of development of the future ECHO CNO.

The Final Operating Capability of the CNO has to be achieved at the end of the Plan execution (end of the Project) with support of the leadership and execution of other tasks – operations' monitoring and reporting, expanding the network by engaging new partners, and partnership development.

Organisational Change Management Approach

At the core of developing the Implementation Plan is the application of the ADKAR (Awareness, Desire, Knowledge, Ability, Reinforcement) approach. The ADKAR change management model, developed by Jeffrey Hiatt,⁸ was selected for the following reasons:

- It covers all important aspects of the process of implementing change identified by most Change Management models and provides a methodology for diagnosis, required to assess the diverse autonomous partners;
- accommodates training as an instrument of change;
- it has been tested and proved useful for changes of different scales and scope at various organisations worldwide – especially important in a CNO environment.

The model offers a framework for change management activities that addresses major factors identified in change management literature, such as readiness assessment, sponsorship, communication, coaching, training, recognition and resistance management. ADKAR describes a sequence of five building blocks to manage the people side of change:

- *Awareness* of the need for change: it reflects a person's understanding of the nature and necessity of the change;
- *Desire* to support and participate in the change: it represents an individual's willingness to engage and support the change, and reflects the personal choices to be made based on an individual's personal situation, motivators, as well as the nature of change itself;
- *Knowledge* of how to change: it is associated with the training, education and access to the necessary information for individuals to know how to change;
- *Ability* to implement required skills and behaviours: it represents the execution of the change, the ability to turn knowledge into action;

- *Reinforcement* to sustain the change: it describes the external (such as recognition, rewards and celebrations) as well as internal (such as individual satisfaction with own achievements or other personal benefits obtained) reinforcements that help sustain the change after the project ends.

The model states that the five steps above follow a natural sequence and require achieving high scores on one step before moving to the next, i.e., if a person knows how to change (Knowledge) but does not want to (Desire), this person is unlikely to change. ADKAR points at the main factors influencing success and suggests tactics and measures to be planned to address these factors.

Structuring the Implementation Plan

The development of an implementation plan for a change initiative can be seen as a part of the actual implementation – it is in the preparation phase and actually with the updates of the plan during the implementation.

Change management models call for engagement and communication at the earliest possible stage of the process. In line with the ADKAR model, raising awareness is the first step which, if done properly, increases the chances of building desire for the change.

Thus, the approach of developing the Implementation Plan is the first opportunity to assess—as well as build—awareness of (and desire for) the proposed transition. The specific activities to introduce and assess the ADKAR model building blocks were structured as follows:

- *Focus Group*, aimed at getting understanding of the initial level of awareness with regards to the change amongst representatives of the ECHO partner organisations;
- *Interviews*, aimed at reaching out to decision-makers within the partner organisations (who are not necessarily part of – and closely following – the ECHO Project activities) to get an understanding of their level of awareness and possible requirements of information to decide for joining the future ECHO Network;
- *Strategic Planning Simulation Game*, aimed at testing the Strategic Planning Process and decision making in the future ECHO CNO.

These activities inform the analysis of the current status, desired status and gaps to be addressed through the Implementation Plan. During the implementation itself, it was planned to extend some of these instruments to include the other three pilot projects and European Cyber Security Organisation (ECISO).⁹ This is important to address a larger stakeholder community with influence on the success of our transition efforts.

At the same time, in the two spirals of change, supported by updates of the Implementation plan, simulation games on the other key processes are also planned for Partnership Development Process; Catalogue Management and Customers Management Process; and Innovation Management Process.

Change Management Initiative

The ADKAR Lifecycle

The change management model ADKAR suggests a lifecycle¹⁰ for implementation of the change. It aligns the building blocks of the ADKAR with a transformation project lifecycle from planning to deployment of the change. Thus, explaining, planning and designing the change (Awareness and Desire); developing the tools for change (Knowledge and Ability) and finally, deploying new capabilities through Reinforcement.

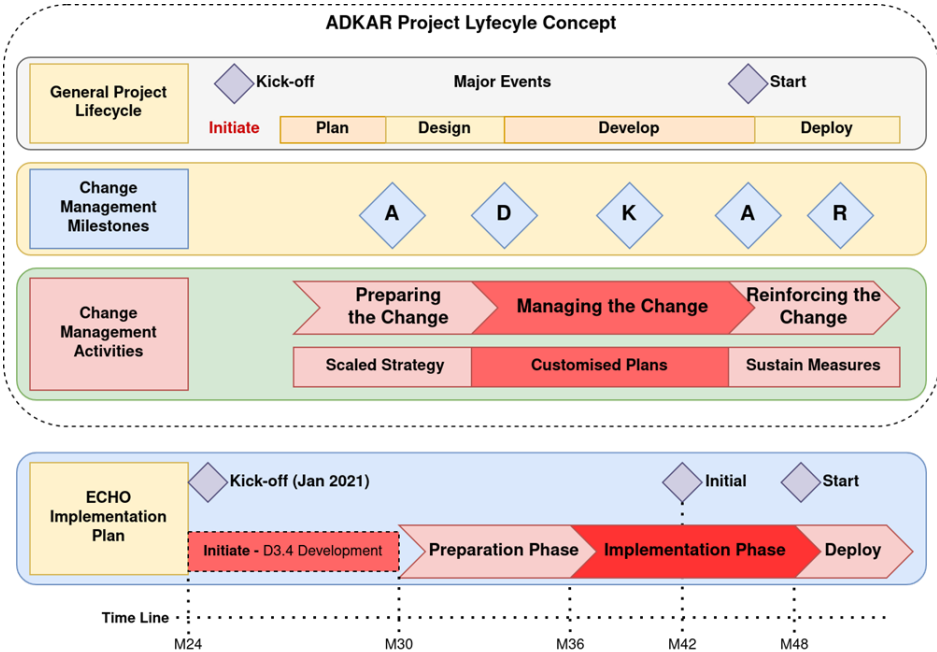


Figure 2: Change Management Initiative, ADKAR Lifecycle and Implementation Plan.

Figure 2 presents the lifecycle relationships and project activities. The figure also shows the timetable and change management activities within ECHO in regard to the ADKAR model.

It can be argued that many activities related to planning, design and developing of the project are already in place at the start of Implementation Plan development. Processes and structures are planned and designed in general already in D3.2 and D3.3. Many major activities for Awareness and Desire are presented within other deliverables.

In this regard, the Plan can be considered as the official initiation of a change management project with structured activities, roles and responsibilities and timeline, but some parts of the initial design and developing phases are already in place.

The ECHO CNO Implementation Plan has its specific characteristic – the networking environment of partners willingly participating in the network with different levels of commitment. Therefore, more Awareness, Desire and Ability is needed, and the implementation phase is divided by one additional important Initial Milestone. At this milestone, one or more National Hubs and Service Groups should be established as a testing ground of network organisation.

Measure the Change

In order to know where we are and how close are we to the change goals, we should have a framework for measuring the progress.

In this regard, the Current status has several aspects and helps assess Awareness, and to a certain extent Desire stages:

- The Current Operating Model (COM) describes the organisational structure, procedures and mode of operations. COM should be assessed from the perspective of whether it can support the implementation of the (new) vision and strategy of the organisation;
- Attitudes to the proposed change – these are assessed through the focus group, interviews and strategic planning simulation game;
- Current behaviours, processes – these are assessed using available information such as assessments of the maturity of the COM

The assessment is also supported by Annual reports on Governance Model operation, Internal Audits aligned with the demonstrations and simulation games to assess the maturity level of the key processes and organisational structures as defined in Governance model description (D3.3).

The Desired status is defining the status we want to achieve and also supports Awareness and Desire stages, and includes:

- Vision and Strategy;
- Target Operating Model (TOM);
- Requirements for new behaviours, and processes are assessed based on the defined structure and processes in D3.3.

Current status is assessed through the interviews, set-up and discussions through Focus Group comprised of managers, and conducting a Simulation Game on Strategic Planning.

The ADKAR building blocks in the initiation of the Plan are assessed through five questions within the Interviews. Main obstacles for the change are also identified and ranked by the interviews' participants.

The Process of Implementation Plan Development

The process of development started with forming of the Development Team (DevTeam), which includes about ten experts coming from ECHO Partners.

The DevTeam organised two main events – the Focus Group Workshop and Strategic Planning Simulation Game, as well as gathered opinion and evaluation by conducting interviews within survey on awareness and desire for change.

All these three activities were supported by initial analysis of the following topics of ECHO external environment and organisational development:

- External aspects of EU cybersecurity landscape;
- ECHO deliverables and documents;
- Internal environment and services with the focus of planned ECHO Governance Consultancy Service.

Gathering Opinion and Testing Processes

The *Focus Group* objectives were as follows:

- To reach a general understanding about all partner organisations' attitudes with regards to the proposed change to a CNO;
- To identify the factors that will support or hamper the transition process;
- To start a discussion with regards to how the proposed change aligns with internal goals and strategies of the partners;
- To discuss and prepare for Strategic Planning Simulation Game;
- To set up the way ahead in organisational change.

Twenty-eight partners from the ECHO Consortium attended the two break-out sessions of the Focus Group. The organisation of the meeting included developing and sending pre-reading materials supporting the discussion, as well as appointing the facilitators and Analytical team, where participants had to take notes and provide analysis of the discussion.

The Strategic Planning Simulation Game preparation includes developing the simulation scenario, pre-reading materials, as well as the appointment of the participants to respective future structures of the ECHO CNO. The participants from the DevTeam were divided into discussion facilitators and an Analytical Team. The Analytical Team members observed the discussion during the sessions. They also provide an analysis of the discussions after the end of the Game.

The Game had the following objectives:

- to enhance the awareness on ECHO Governance Model development;
- to test and verify the Strategic Planning Process developed in GMM;
- to receive feedback from participants on the proposed Strategic Planning Process;
- to identify deficiencies and to assess the maturity of the planning processes.

The game scenario includes changes in the environment related to increased demand for ECHO services and changes in the EC NIS directive. The response of the participants was recorded and analysed.

The goal of Interviews with experts and the Survey was to measure the level of awareness and attitudes of the decision-makers in partners' organisations regarding the envisaged transformation of the ECHO Project into a CNO after the completion of the Project in 2023.

The survey was based on the self-reporting to an online questionnaire containing 19 questions with a 7-point Likert type scale with a minimum score of 0 (named “Not at all”) and a maximum of 6 (named “A lot”), as well as three open-ended questions.

On the whole, 45 experts from the ECHO Consortium filled out the online questionnaire, including 13 members of the DevTeam. The 32 managers from ECHO Partners were briefed on the goal and questions by the DevTeam members before answering the survey.

In regard to the field of employment, 29.7 % of the respondents come from large companies, 24.3 % are from small and medium enterprises, 43.2 % – from academia, and 2.7 % – from military organisations.

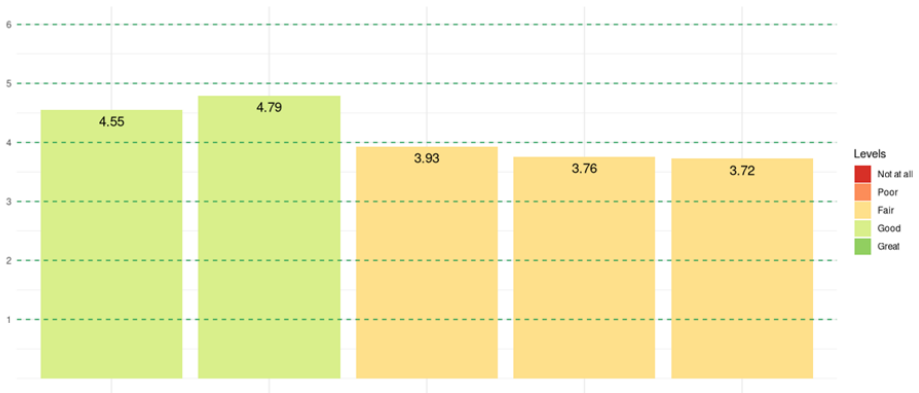


Figure 3: ADKAR building blocks initial assessment.

The questionnaire of the survey contained questions related to the following topics:

- Level of awareness and attitudes of the respondents towards the transformation of ECHO into a CNO;
- Perceptions of possible obstacles for the transformation;
- Vision about funding opportunities;
- Perception of necessary knowledge and availability of resources to implement the process of transformation; and
- Perception of potential negative consequences for the organisations as a result of the transformation of ECHO into a CNO.

The results from the Survey were analysed in detail on all topics. In regard to ADKAR building blocks, the results of the initial measuring are presented in Figure 3. The relatively high levels of Awareness and Desire can be explained with previous work on Governance and Management Model up to the Implementation Plan development. The targeted levels of ADKAR blocks at the end of the transition is between 5 and 6 (the scale of the measurement is between 0 and 6). Lower levels of other ADKAR blocks will be addressed in the

final version of the Implementation Plan by providing specific activities for improvement in these areas.

Related Activities

The *maturity level appraisal* and use of Capability Maturity Model Integration (CMMI)¹¹ is an important part of the Methodology Framework for the ECHO Governance Model. The maturity appraisal and improvement is another important task within the ECHO Project.

Within the CMMI approach, it is possible to evaluate the future state of the organisation on the basis of current organisational developments. The DevTeam used SCAMPI Methodology “Type-C” appraisal.¹² It is the easiest and fastest type of appraisal based on structured interviews with managers and process owners.

The Appraisal Plan was prepared, and information was gathered during the Focus Group and Strategic Planning Simulation Game. The appraisal and reporting activities are also included in the Implementation Plan.

The induction training is also planned as important change management related activity. The training will be delivered as an asynchronous e-learning course to the decision-makers and all interested in participating actively in the transition processes towards structuring and operating the future CNO. The objective of the training is to provide knowledge and abilities to the responsible and accountable persons for active participation and reinforcement of the processes that lead to a fully operational ECHO Collaborative Network Organisation.

It considers the specifics of the target group through translating and interpreting the needs and objectives of the ECHO governance model. The induction training will enable the managers and decision-makers of the ECHO partner organisations to pilot their experts, teams and legal bodies to the future ECHO CNO in an informed, transparent and participatory manner. After the completion of the training, decision-makers will be able to interpret and communicate the ECHO values, mission and vision at the organisational, supply chain and national levels.

The Implementation Plan

The Structure

The Implementation Plan was structured in two main phases – Preparation and Implementation – according to the ADKAR Lifecycle (see Figure 1) and to the DevTeam’s analysis of ECHO deliverables and activities.

Each phase contains a description of the following main elements:

- Goals of the phase;
- Phase Key Performance Indicators (KPIs);
- Activities and timetable;

- RASCI matrix² describing roles and responsibilities for the execution of the planned activities.

Table 1 presents an example of the activities and timetable.

Table 1. Example of activities planned in Preparation Phase.

Activities and sub-activities	M31	M32	M33	M34	M35	M36
	Aug 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022
CNO’s Strategic Plan and Business Model development						
Planning of the “CNO’s Strategic Plan and Business Model” Workshop						
Implementation of the “CNO’s Strategic Plan and Business Model” Workshop						
Drafting of the CNO’s Strategic Plan and Business Model						
Discussion of the CNO’s Strategic Plan and Business Model during the November 2021 GA				GA		
Finalisation of the CNO’s Strategic Plan and Business Model						D3.11, D3.12
....						

Improvement and Way Ahead

The structure of the Plan permits continuous assessment and improvement of the Plan itself. The current developed plan can be considered as a very well structured set of activities, but there are still many aspects to consider, to be coordinated and adopted as ECHO Partners’ decisions.

Support of the leadership of the Consortium members and attraction of new Partners and with Induction training focused on the Governance model, the DevTeam will be able to:

- Raise the awareness (A of ADKAR);
- Raise desire and decision (D of ADKAR) for starting of change in 2022;
- Improve the knowledge and abilities of involved people (K and A of ADKAR);
- Help developing reinforcement mechanisms (R of ADKAR).

² The RASCI matrix is a tool to assign responsibilities and roles within an organisation, where R means Responsible, A – Accountable, C – Consulted, S – Supported, and I – Informed.

Therefore, the update at the end of the Preparation Phase will provide for assessing the achieved levels of ADKAR building blocks. The level of knowledge and ability will be special aspects of the assessment – not only for members of the Consortium but for the newly attracted partners. The assessment will be the basis for proposing how to update the Implementation Plan for 2022.

The decision will be taken according to the relations with the European Cybersecurity Competence Centre (ECCC)¹³ in Bucharest and the development of National Hubs.

Realistic planning will be implemented not just for changes in 2022, as well as a contribution to other ECHO deliverables, documents and tasks.

It is not possible to predefine the content of the final results of the transition process at the end of the ECHO Project. The transformation will follow practical developments under other related tasks, as well as coordination with the three other cybersecurity pilot projects and relevant EU agencies.

Conclusions

The design and establishment of a new collaborative networked organisation in the field of cybersecurity require a complex approach, both as methodology and as activities and decisions.

The described overall framework used within the ECHO Projects reflects the complexity of the task to transform a project consortium organisation into a fully functional network. The presented methodology can be used as an example and will certainly be applied in the future ECHO Governance Consulting Service.

Key processes, organisational structures and RASCI matrix, as well as key change initiatives, are identified and described as an Implementation Plan. Nevertheless, the plan for a coherent change is not the end of the organisational effort – it is a living concept of monitoring, evaluating and improving the organisation.

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About the Author

Assoc. Prof. Dr. Georgi **Penchev** works as a full-time lecturer at the Department of National and Regional Security, University of National and World Economy, Sofia, Bulgaria. He is teaching courses on Defence and Security Economics, IT in Nuclear Security, Defence Acquisition and other security-related courses. He took part in several national and international research projects, including projects funded by NATO and EU programmes.