



Università
Ca' Foscari
Venezia

Corso di Laurea magistrale (*ordinamento ex D.M. 270/2004*) in Economia e gestione delle aziende

Tesi di Laurea

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Organizational change: the role of routines and their qualities

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2013 / 2014

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Introduction

Purpose of the dissertation

Organizational routines can be used as unit of analysis when studying organizations. They can be imagined as a generative system, and as such they have internal dynamics that allow exploring different phenomena such as change, stability, and flexibility. In this dissertation we want to capture the recurring features happening in the organization before and after a process of organizational change. We advance the hypothesis that is possible to observe and capture which characteristics of a routine contribute the most to the performance outcome during a process of change, and that identifying them through a framework can help the management in creating tools that help to control and foster such elements in a moment of change. Following this hypothesis, we developed a framework of analysis based on the work of the main contributors on the topic of organizational routines. Such framework have been used to evaluate a routine in two moments of time within the organization, to capture the features that emerge in a process of organizational change. Based on the observations and on the framework, it will be shown how the study and analysis of organizational routines can be useful in a process of governance to understand the dynamics of organizational change.

Context

The idea behind this dissertation came to my mind after several conversations regarding the way in which organizations evolve. Most of the times we are not able to grasp which characteristics contribute to the success of a process of organizational change. It became more and more of an interest as AIESEC was announcing a process of change. By being part of the AIESEC National Office in Italy, it gave the chance to witness the process the organization is carrying on and analyse its evolution. In February 2014, the Global Office of AIESEC informed that the organization would have gone through a process of change, which would have redefined the current routines of the organization. By recognizing this as a critical and interesting moment for the organization, it could further the understanding of routines and how their role might have contributed to be a key success factor in defining how the organization would have reacted to change.

The analysis in the dissertation focus on AIESEC, an international youth organization, founded by university students in 1948. In the decades, it grew from 7 founders in 1948 to around 65000 members in 2013. AIESEC operates as an independent organization around the world, and due to its widespread, it operates according to law of international affairs in each Country where it is present. Since some Countries do not recognize other territories in which the organization is present, AIESEC is divided into Entities, not referring to Countries or territories. In the following paragraphs, the term Entity will be used to refer to an independent branch of AIESEEC operating at international level. Currently, the organization is present in 214 Entities, each one adopting different legal forms according to the specific context (association, company, foundation, etc.).

AIESEC provides its members with an integrated development experience comprised of leadership opportunities, international internships and participation in a global learning environment (The AIESEC Way, 2008). The core business of every Entity is to provide students its four programmes:

- Team Member Programme (TMP). It is chance to participate to the activities run by AIESEC in one of its Local Offices and take part of different projects.
- Team Leader Programme (TLP). A leadership development experience in which participants get the chance to lead a team, receive and give trainings, develop soft skills and hard skills on organizational knowledge. Each TLP is the final responsible of a project in the Local Offices, which aims to provide opportunities of international mobility.

- Global Internship Programme (GIP). A professional experience abroad, which gives the participants an intense learning experience in a professional context. Duration of the programme is between three and six months.
- Global Community Development Programme (GCDP). A volunteering experience abroad, which lasts up to 8 weeks. The projects are created by AIESEC in collaboration with NGOs and institutions to tackle specific issues (education, literacy, cultural understanding). During the project, volunteers have the chance to work in teams and to develop their competencies in a different environment.

TMP and TLP participants work in order to generate opportunities for GIP and GCDP in the AIESEC network. GIP and GCDP are programmes of international mobility, aiming to provide intense learning experiences to the participants; they are run by every Entity in synergy with another one (sending and hosting Entity), fostering in this way international relations. Each exchange programme realized counts as a performance result for the Entity, as they are the services offered to the customers of the organization.

From 1948 until 2011 AIESEC provided 257,079 exchange programmes, and aims to deliver nearly 1 million programmes by 2015 (cumulative programmes from 2010-2015). Since 2000, the organization faced a rapid increase in results (number of programmes) thanks to:

1. The introduction of IT
2. International relationships in every Entity around the world

In 2010, the organization sets a mid-term ambition to strive for growth globally in terms of performances; the goal have been set in 17000 GIP and 38000 GCDP delivered in one year. Despite the rapid growth of the late years, the organization is facing bottlenecks in making a big leap that will lead to achieve the desired amount of programmes in 2015. To enable growth, the Global Office haven been working on possible strategies that would have led to the desired state. The main one is a change in the IT platform currently used to attract customers and run exchange programmes. The current platform defines the performance indicators, and marks the touch points every Entity has to follow when running the process of international exchange programmes. According to the Global Office, the change of platform would influence the virtual reach of the organization, the indicators linked to performances and the routines of the organization. Each AIESEC Entity is structured in departments, according to its capacity. In order to run exchange programmes, there are two departments for every exchange programme: incoming and outgoing. This defines Incoming Global

Internship Programme (IGIP), Outgoing Global Internship Programme (OGIP), Incoming Global Community Development Programme (IGCDP), Outgoing Community Development Programme (OGCDP) as the departments accountable for the exchange programmes results, and the main ones influenced by change. Each Incoming department works with the Outgoing department of another Entity and vice versa, therefore homogeneity of the processes is observable in every Entity, facilitating the observation and comparison of routines and allowing to evaluate routines within each department in whatever moment. In the case of the Entity AIESEC in Italy, the National office coordinates the routines of the 4 departments (IGIP, IGCDP, OGIP, OGCDP) in the local chapters of the organization. At local level is where the performative aspect takes place, each department, where present, has a final responsible. The final responsible works with the teams and team leaders allocated in the department and carries out the specific routines of the department. In the paper, we are going to analyse a fundamental routine for the OGCDP department.

Structure of the work

To research the questions presented above, an explanatory case study of AIESEC will be presented. The structure of the work is the following:

Section 1 will introduce the literature scene regarding organizational routines. The first focus will be to analyse the different definitions given to routines and their role in the framework of organizational change and stability- The second focus is to define the framework that will be used to analyse the routine in this paper, building on the literature review.

Section 2 presents the case and the analysis. A description of the current state and how the organization works.

Section 3 will show the methodology used in the research. The link between the research question and the framework adopted, how data is gathered and evaluated, the way in which to analyse the results.

Section 4 will show the routine analysed according to the framework developed in Section 1 before organisational change

Section 5 presents the analysis of the routine according to the framework after organizational change.

Section 6 presents the results and implications of the paper, its limitation and further suggestions.

1. Literature

1.1 Brief summary

The literature presented shows the different definitions of routines. They can be observed from different definitions: behaviour, rules, generative systems. Different definitions show different aspects that link routines to organizational change and stability. As the reason of this work is to analyse how routines help to capture and address organizational change, choosing a broad definition allow to catch the change while lowering ambiguity, focusing on the specific definition that is taken into consideration. Moreover, the common qualities depicted in literature are presented. Routines serve as storing knowledge, source of stability, and are path dependent. Stability is the base on which learning happen, not a static aspect of routines. Another aspect of the analysis is the different ways to look at routines: as black boxes, examining pairs or connections, as presented by Feldman and Pentland (2005), and analysing branches, nodes and architecture behind the routine (Nooteboom, 2004). Then we focus on the understanding of the role of teams and communities in the field of organizational change and how technology should be treated when evaluating its implementation within an organization, what is the role of performance feedback and learning within an organisation. To conclude, we will review the role of antecedents, characteristics and performance outcomes of recurrent interaction patterns to evaluate them at two different moments of times as presented by Beckr (2005). This analysis will give us the perspective upon which evaluate the case study and build the framework of analysis.

1.2 Literature

It is possible to trace the introduction of the concept of routines in 1982 by Nelson and Winter, where they were addressed as unit of analysis to explain the behaviour of organizations and how they can innovate: “And that, of course, is the heart of our theoretical proposal: the behavior of firms can be explained by the routines that they employ. Knowledge of the routines is the heart of understanding behavior. Modeling the firm means modeling the routines and how they change over time” (Nelson and Winter, 1982: p 128). Since that moment, routines have been unit of research to understand their role and contribution for organizations. In the following years, different author wrote about routines, thus increasing the popularity of the concept, but also bringing discrepancy in literature. The concept of routine is not written in stone; instead, it is defined by the set of qualities associated to it; Winter himself stated that the polysemy of the concept is part of its strength (Winter 1986; Cohen et al.1996). As such, no unique of the concept can be found (Becker, 2001; 2004);

despite that, it is necessary to define what we are considering as routines in the work that will follow.

1.3 Routines

We can find different definitions of the term exploring literature, with the most relevant being: recurrent patterns of action, rules, generative systems.

1.3.1 Recurrent patterns of action

Kostler defines them as “flexible patterns offering a variety of alternative choices” (Kostler, 1967: 44); similar belief was also in the work of Nelson and Winter making routines “all regular and predictable behaviour patterns of a firm” (1982:14). However, even when using the definition of pattern, there’s the need of aligning the meaning behind, which has proven quite confusing for some authors (see Winter, 1990; Cohen et. al., 1996; Dosi et al, 1992; Feldman & Pentland, 2003). If we consider routines as patterns, we must understand what are these composed of. In the analysis made by Becker (2008) in his review of the literature around routines, we can identify four denominations to define what constitutes patterns.

The first one presented is “action” (Cohen et al, 1996), then “activity” (Winter, 1990), “behaviour” (Nelson and winter, 1982), “interaction” (Dosi et al, 1992). Of course, four different concepts turned out to present unclarity when referring to the term behaviour. While for action and activity the problem is less relevant, as they can be used as equivalent, we cannot say the same for behaviour and action. A behaviour is a detectable answer to an inducement, “The way in which a machine or a phenomenon works or functions” (The Oxford Online Dictionary), and it is perceivable. Consensus has emerged that the terms routines should be reserved for the group or organizational level (Dosi et al., 2000; Zirpoli & Becker, 2008). Recurrence is another important element of the description (Winter, 1990; Pentland and Rueter, 1994), this does not have to do with how many times a routine is put in practice, but if it is practiced and repeated. “Recurrent interaction patterns” gives us a specific term to refer for the stability of a behaviour involving different actors.

1.3.2 Rules

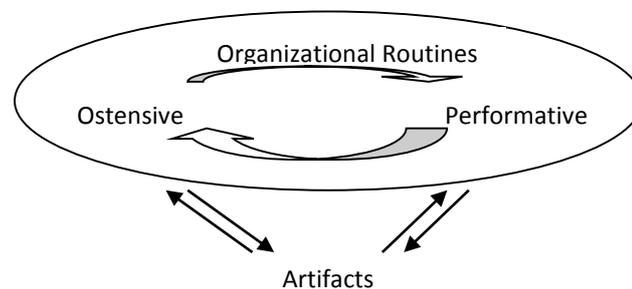
Another way to see routines is to think of them as “rules”, or standard operating procedures. Rules should represent the best examples to follow a process: “To the degree that choice has been simplified by the development of a fixed response to defined stimuli. If search has been eliminated, but a choice remains in the form of a clearly defined and systematic computing

routine, we will say that the activities are routinized” (March and Simon, 1958 p. 142). The quote above shows two qualities of routinized performances they define them as rule following, a fixed answer to a stimulus, and they suggest that routines continue because search has been took out. We also have to point out that rules not always clarify the causal relationship, so the way in which they help in generating recurrent patterns. It is rather true that agents and their role needs to be addressed when undertaking rules.(Feldman and Pentland; 2003).

1.3.3 Routines as generative systems

The different definitions led some authors to consider combining the two dimensions, viewing in this way routines as a “*generative system*”. In fact, Feldman & Pentland (2003) drew a framework considering routines as such; in this framework they find two main aspects: ostensive and performative. The *ostensive* refers to the cognitive dimension and *performative* refers to the behavioural dimension.

Image 1



Source: Feldman & Pentland (2003)

In their analysis, the aspects that constitute routines are related parts. One is abstract, it refers to the expectations that enable the actor to refer to specific performances of a routine: the ostensive aspect (representing the standard operating procedure, the abstract pattern), the other one is the performative aspect (representing the actual recurrent interaction), the performances of specific actors at specific times and places.

As the definition given by Latour (1986) clarifies, one aspect is not enough, and both are necessary in the understanding of organizational routines as a source of change. It is important to focus on collective performances and on the ability of the participants and observers to create the ostensive aspects from the performances: it's the analysis and the observation that

allows participants to draw the abstract patterns out of the pattern. With these two aspects, a routine can produce “repetitive, recognizable patterns of interdependent actions, carried out by multiple actors” (Feldman & Pentland, 2003:95). The performative aspect refers to specific actions, “effortful accomplishments” (Reuter, 1994) of participants to build up routines. Despite the rules behind actions, there can always be some divergent actions, and the more the divergence, the more improvisation is part of the performances. Here we find again the role of agency and its effects on the routine, and aspect that we will analyse further in the next paragraphs.

The ostensive aspect, on the other side, is the “generalized pattern of the routine” (Feldman and Pentland, 2005). It is the description and reference of the routine. An example is the budgeting in a company. The simple way of describing it would be piling up costs and revenues according to the policy of the company. Still, there can be many differences on the best way of budgeting and on the criteria considered.

Another aspect to take into considerations when talking about routines are artifacts; written procedures and rules are examples of such concept. They have been described as a way of collecting data about routines (Feldman and Pentland, 2005); and as part of the physical manifestation of the routine, able to active contribute to the aspects of organizational change (D’Adderio, 2008). They can take different forms, for example a database, being able to trace the performative aspect of a routine. Due to the relevance acquired by late researches and the role they play in this case study, such as change on IT and consecutively in artifactual representation of the routine, as for the interactions that agents have with such artifacts, a paragraph will be spent on artifacts.

1.4 Qualities of a routine

When talking about the qualities of a routine, different terms can be used as focus depending on what is the purpose of the research: innovation, stableness, change. At the same time, different definitions can be used in the same paper depending on the subject; when speaking about organizational change; it is anyway possible to use more concepts under the same cover. As the reason of this work is to analyse how routines can help when facing organizational change, and in particular, which aspects are critical in a process of change, a varied perspective that will take into considerations different concepts will be used to capture and frame change and its aspects. Routines hold “the crucial nexus between structure and action, between organization as an object and organizing as a process” (Pentland and Rueter, 1994:

484). This is why also the processual nature of routines will be underlined in the analysis, as a way to glimpse at the small details of change.

A routine is a process, and to describe its nature it is important to pay attention to the details that constitute it. Paying attention to the qualities that it have, we can in fact find agreements in literature on the characteristics attributed to routines:

- i. Source of storing knowledge
 - ii. Reducing uncertainty
 - iii. Coordination and control
 - iv. Stability
 - v. Path Dependence
 - vi. Context dependence
- i) Storing knowledge. “The routinisation of activity in an organization constitutes the most important form of storage of the organization’s specific operational knowledge” (Nelson and Winter, 1982:99). Knowledge is in every actor of the organization, who knows the way in which each activity is performed and where such notions are useful. The results of organizational learning are in the generation of routines that define common methods to perform activities under specific scenarios (Levitt and March, 1988). When these scenarios happen with frequency, the routines take place; it is in this way that they serve as storing knowledge and memory: routines can be seen as “recipes” that can shape and channel behaviours because of acquired and stored memory. Organizations might choose to create a new routine so that activities will occur repetitively. Moreover, an organization can adapt new rules to coordinate activities that were scattered before and merge in this way knowledge. Organizations can also embed their experience in informal ways with informal standard procedures (Darr et al, 1995). It can happens at times that when a routine is acted in a very automatic way, the procedural knowledge of the agents (how to do things) increase in comparison to the declarative knowledge (why to do things) (Cohen and Bacdayan, 1994). This might cause a counterproductive approach to alternatives of the action performed. As Hutchins reports (1991), participants to the routine at times cannot describe the higher-level routine they carry on, this can lead to problems if agents are facing change, not understanding their contribution to the routine anymore, missing a clear view of

what happened in the organization. Mnemonic qualities of routines can be problematic as well; if for example a group encode anything fake (Levitt and March, 1988), or if an organization carries on outdated routines that have no value in the new context, it will be difficult to erase such mistake or update the content of the routine.

- ii) Reducing uncertainty. In a situation where there can be different outcomes and results, it is possible to diminish uncertainty by increasing information and its availability, but this alone is not enough, as the significant of information might still be unclear. Routines plays an important role in guiding human agency in choosing a patch of action: “greater uncertainty will cause rule-governed behaviour to exhibit increasingly predictable regulatiries, so that uncertainty becomes the basic source of predictable behaviour” (Heiner, 1983: 570). Studies (Narduzzo, 2000), shows how it is easier to follow a routinized pattern of action rather than choosing different paths, leading empirical research to set the ground for these kind of considerations.
- iii) Coordination and control. “Routines coordinate” (Nelson and Winter, 1982), and by coordinating different tasks at the same time, they increase the level of standardization that have to be carries on. More standard means as well facilitation in comparing, and therefore in controlling: “What is central to a productive organizational performance is coordination; what is central to coordination is that individual members, knowing their jobs, correctly interpret and respond to the messages they receive. The interpretations that members give to messages are the mechanisms that pick out, from a vast array of possibilities, consistent with the roster of member repertoires, a collection of individual member performances that actually constitute a productive performance for the organization as a whole” (Nelson and Winter, 1982:104).
- iv) Stability. March and Simon (1958), points out that up to the moment in which a routine is able to achieve good results, it will be easier to keep the routine like that instead of finding different ways of achieving the same results. Nelson (1994) as well suggests the role of routines in bringing stability. Stability means that predictability is made easier (Nelson and Winter, 1982), therefore also planning is easier for the management who can predict results with a safe margin of error based on the current routines and performances. Another important aspect of stability, brought up by empirical findings (Becker, 2004), is that change is

endogenous to routines. As pointed out by several scholars, (Narduzzo et al, 2000; Pentland and Rueter, 1994), routines are not permanently stable, but they can change over time. For example, a routine to evaluate a promotional strategy can be still the same when discussed by the management of different functions, but the way in which reports are collected can change, using for example virtual storage and video conferences instead of physical meetings. This small change enables more mobility of personnel, virtual storage (which should follow a standard procedure for labelling and storing, therefore facilitating the research of information) and easier confrontation of data. Small incremental change is therefore part of the routines, not an exemption, but it does not affect the overall stability generated by the routine.

- v) Path dependence. Organizations can learn through the usage of current routines. “The experiential lessons of history are captured by routines in a way that makes the lessons, but not the history, available to organizational members who have not themselves experienced the history” (Levitt & March 1988:320). We also have to consider that for organizations with long histories and high turnover, it turns out to be easy to un-know the reason behind the existence of a routine, increasing the difficulties to understand its reasons and effectiveness. It can happen in these cases that organizations starts to acquire knowledge superior to the routines that are in place. To avoid this, organizations should pay attention to make sure that the routines they enact allow a learning process for the agents to understand the purpose behind current routines and why they are like that.
- vi) Context dependence. Routines are specific to their context (Cohen et al, 1996). Context is the factor defining if a routine can be replicated or not. Imagine a process that is meaningful in a specific context, such as recording information of the customer service quality in a call-centre right after the call; the same routine most probably would not be replicated in a fast food chain after the customer have been served, as it would cause delays. This makes the habits and of the performative aspect of routine meaningful and effective in the specific context of the organization, but when analysing if it would bring the same value to another reality, deep analysis must be taken into considerations.

1.5 Artifacts: a peculiar role in understanding change

“The strategy of using physical state as a form of memory is widespread. Unfortunately, its very ubiquity may lead us to overlook its importance and miss its theoretical significance”. (Hutchins, 1995:16). Feldman considers the relationship between artefacts and ostensive aspect important for the alignment of documents and other objects with what we perceive of the performative aspect. Therefore analysing the alignment of artefacts with the change the organization want to see can be a crucial point in understanding how the management is ready to influence the performative aspect, according to the understanding of routines. Artifacts in fact cover important roles in routines (Nelson and Winter, 1982; Becker et al., 2005; Pentland and Feldman, 2005; D’Adderio, 2008, 2010). They can guide routines in their disclosure and endurance, they perform different actions and functions, fostering cooperation between communities and activities (D’Adderio, 2010), sometimes they are mandatory touch points. Only in recent literature though, authors have started to analyse their influence on the evolution of organizational routines (Pentland and Feldman, 2005; D’Adderio, 2008, 2010). We will not explore the dimension of artifacts such as driving automatic behaviours, but rather focus on the latest contribution of their understanding as, which brought them to the very centre of routines theory, that makes us understand how “the combined influence of human agents and material artifacts that shapes the course of routines” (D’Adderio, 2010:3). Artifacts can be documents, timers, screens, letters (Nelson and Winter, 1982), spreadsheets, the physical layout of machines, computer systems. They are made by workmanship, and they can take the most diverse forms. They can be a representation of the routine, such as standard operating procedures and rules (Cohen et al, 1996; Pentland and Feldman, 2005).

With the form of rules and procedures, artifacts can be representative of the ostensive pattern of organizational routines (D’Adderio, 2008); this is of great importance in the understanding of the evolution of routines, but we need to clarify that any procedure, rule, is not the routine (Pentland and Feldman, 2008). They can be a representation of routines, total or partial, explicit or not, but they are different: it is not enough to have a procedure to be able to obtain performances. As D’Adderio reports, “practitioners all too often design artifacts in their attempt to control and prescribe routines, they are committing the clear mistake of confusing artifacts with the routine’s “ostensive” (abstract) aspect” (2010). The artifacts can be very different from the routine, but still have a crucial role in the evolution of it, therefore analysing them means understanding routines better. With this premise, we will analyse deeper the different artifacts that are part of the process.

We presented above that artifacts are not just objects; if we consider cognitive science (Hutchins, 1991, 1995), it is possible to get a broader understanding of their role which help the spread of information, making artifacts representational forms, such as graphs and models tools to increase cognition, which if observed, can shed a light into practices and habits, and their replication (Hutchins, 1995). This will be important to remember when analysing if and how the usage of artifacts differs within the teams of the case study, and how this impact the performances at local level. If cognition is distributed, the agent's notions depend on the artifacts they use in their performance, and even in those they create, becoming mediators that play an active role in the generation of knowledge and the renewal of actions (Latour, 2005). What is the mutual influence of artifacts and routines that can capture theory and practice? It is important to understand if the procedures completely prescribe and determine actions or not. There are micro dynamics by which specific ostensive views are selected and become embedded into representations of routines (rules, procedures) and by how focusing on the relationship between artifacts and performative aspect, it can be possible to capture the dynamics by which artifacts influence performances.

1.7 The role of teams and communities

We will spend this paragraph to analyse the research done so far in the understanding of the role of teams and communities in the emergence of organizational routines. Routines guarantee the regularity of individual behaviour necessary for the collative action, (Cohendet and Lerna, 2008), and they represent successful solutions to problems solved in the past (Paoli and Prencipe, 2003). As the paper will explore routines performed by teams, it is good to clarify the concepts behind the analysis.

In every organization, its members need knowledge that is not just repertoire: they specifically need to know which routine to perform, how to influence performances, how to act in practice. It is in this context that routines can act as attention focusing mechanism. It often happened that in literature, the members who are carrying on the performative aspect usually in an anonymous way, but actually routines are by definition done by multiple actors, therefore teams and communities play an important role, and they differ between themselves by power, scope, motivation, hierarchy.

Cohendet and Lerna (2008), distinguish an analysis between teams and knowing communities. Teams can be described working groups characterized by high level of coordination and interdependence, with a predefined job. Knowing communities instead are

different types of learning groups of individuals. Both deserve an analysis to understand how routines are replicated within them, how the knowledge is transmitted within teams and communities. Teams will be described as made of functional groups, defined as group of people with the same specialization (for example hr, legal...). What are the methods of accumulation of knowledge? The teams learn by learning by doing. Specific efforts have to be made to delineate and reproduce the routines that result from it; but the learning process is intentional and imposed by hierarchy. Knowing communities instead are intra-organizational, geographically dispersed groups of people that have a long term orientation. It is a gathering within the organization of people who have the same goal and exchange knowledge on a regular basis (Andriessen and Verburg, 2004). In this way their knowledge increase and there is no friction. In general, all connections developed between teamsters are important for the development of the routines. These connections are developed in a specific context: the organization, able to “activate organizational menominc processes” (Paoli and Prencipe, 2003:153). In fact, as explored before, the environment itself is able to trigger the right behaviour needed by the organization in a specific time, thanks to the role of routines in guiding behaviour. We will analyse the role of connections in organizational routines further in the following paragraph.

1.8 The role of connections

The connections that routines make between people contribute to stability and ability to adapt to change (Feldman, 2000). Connections that are formed as they interact in routines are important for the understanding about what needs to be done in specific instance of performing a routine and about the goals of the organization those routines helps accomplish. As Feldman states, connections that individuals make among themselves are important outcome of organizational routines, becoming a mechanism that allows organizational routines to contribute to both stability and change. Given that, analysing connections is a powerful tool to evaluate if and how an organization is ready to adapt to change, as we want to understand in this research. We will define connections as interactions between people that enable them to transfer information, enhancing mutual understanding. With each connection there's exchange of information, and on the base of this, individuals learn about each other's task and responsibilities, as well as on the perceptions of the routine. On the base of the information received, each participant of the routine may decide on taking different actions based on information acquired through connections, thus analysing the information

exchanged and the way in which this happens can provide insights on the role of the routine itself.

1.9 The role of technology

The presented case study analyses an organizational change that has the explicit form of a change of technology. In order to get more insights on how to perform a correct analysis and carry on a good study on routines and technology, we will present a review of the literature regarding the role and impact of technology on organizations. It will be a mistake though, to think that a change in technology would lead to a change of routines, as routines are acted by users, not by the technology itself (Orlikowski, 2000). We have to consider this when evaluating what people do with technology. In our case, it is not a matter of understanding whether a technology is likely to be adopted or not, but how actors engage with technology and they use it in their daily operations, and if this is going to shape routines, and in which way. It is possible to study people and their work: people using tools to perform tasks (Pentland & Feldman, 2007). Agency therefore plays a very important role when it comes to evaluate the establishment of new practices. With the modern information technologies, there is more interconnection than ever, and organizations are recombining modular activities to perform tasks. Technology is usually adopted and meant to be recurrent (Orlikowski 1996), therefore the attention is on the repeated actions of the agents, that in this way embed technology into routines: analysing how often and how frequently actors make usage of technology is the first step to understand whether this can impact a routine or not. Orlikowski presents a framework to be adopted when studying technology in organizations: while I analyse practices carried out by actors regarding their approach to technologies, there are three types of conditions that have to be taken into considerations, interpretive, technological, and institutional (Orlikowski 2000), as well as three types of effects: processual, technological and structural; conditions:

- By interpretative, we mean the common acknowledgement and shared understanding that people create to sense technology. This can refer to the understanding of the properties of a particular technology, such as a database for storing and looking for data.
- By using the term technological conditions, we refer to the properties at disposal of actors in their everyday working context. For example, cloud computing allows users to have direct access to information in every moment of the day, despite the place.

- By using institutional conditions, we mean the social structures part of the system within which actors perform. Which refers to the type of usage of a given technology an actor is supposed to make given his hierarchy level, as the access to specific informations.

Effects:

- Processual effects means any difference in the result of the actors' actions. Whether or not an actor changes his/her way of working in the routine, for example he/she creates digital reports rather than printouts.
- Technological effects means any difference in the technological properties at disposal of actors, such as high speed internet connection or higher processing properties of computers.
- Structural effects means any difference in the pattern actors carry out as part of the social system, for example if a technology becomes participative, such as instant messaging for a team.

Conditions and effects are a way to interpret the effects on routines, but there are as well other aspects to keep in mind when analysing group behaviour: users might improvise when using technology, experiment and try new and different ways of working in order to achieve better performances by exploiting data and tools at their disposal. To do this, they must have a good understanding of the tools to use or a high desire to improve their actions; different try-outs might occur before adopting a new technology, making learning a fundamental aspect in the path. This is another prove that only users can influence their performances through usage of technology, not technology itself. Analysing the practices that take place in the organizations therefore, can help us in examining the emergence, improvisation, and change over time as people reconfigure their actions according to the technologies they adopt.

1.10 Organizational routines and performance feedback.

“What organization does is a function of past routine changes, and at the same time, how much it keeps on doing it is defined by the processes that generate changes in routines” (Greve, 2008). When analysing intra-organizational learning, performance feedback theory is an interesting perspective. It can be found at micro-level, when analysing teams, and at macro-level, when analysing the organization itself. According to the performance feedback theory,

a decision maker evaluates performances according to the level desired that indicates the desired amount of performances. The desired level comes in help when it is time to evaluate performances. This is done by comparing previous results, a peer or with a previously defined goal. If performances do not match the desired level, this triggers the research for a solution. The findings are compared keeping in mind the risks they might carry and whether they are suitable or not for the organizational needs. According to the risk tolerance of the decision maker and the solutions suitable for the problem a final decision is made. By following this reasoning, it is possible to understand the importance of desired level of performances, which are a comparison for performances.

Performance feedback can drive behavioural change (Locke and Latham): actors that have available data about their performances and a clear performance goal will evaluate themselves according to the goal, therefore adapting their behaviour according to the achievement or not of the goal. Despite pointing out that the actor is changing his/her behaviour though, it does not address the ways in which habits or routines are changing: someone might just follow better a procedure or respond faster to triggers. So how does a group routine change? Greeve (2008) focus on intraorganizational routines; he analyse how changes at macro level routines can reach the micro level, the group and individual behaviour, influencing it. Performance feedback therefore affects groups, individuals and the organization itself.

What interests us for the current work is what affects groups and individuals. According to the framework of Greeve, working groups can trace their goal source into the organization and the group itself. They can decide whether to change working routines, or review the desired state. When talking about individuals instead, their goal source is the same as groups, plus they can find their own goals, When looking at which actions they can take to review their performances, a review of the individual actions that take place in routines is the most recurrent action. Each level might influence another one, therefore an analysis have to consider multiple levels. If this is correct, the organization might set the desired performance for lower levels and influence their goal, but this does not imply a change in the routine of another level. In order to achieve such result, if desired, an organization have to take into account more specifically what happens at a lower level understanding deeply the routine, in order to influence it. A key characteristic of performance feedback theory is that a lot of work does not affect directly routines. Influence on the individual level is on performance, while at macro level is on strategic changes. In this paper we will try to understand whether decision making opportunities will affect change in routines, and how.

1.11 Approaches in studying routines.

1.11.1 Brief summary

Organizational routines are not easy to measure, observe and compare. The main issues that can arise when approaching the task are the identification of the routine and their comparison (White, 1992). Identification is about finding the traces of a routine, the small pieces and the whole. Comparison can involve different routines or, like in our case, changes in the same routine at two different points of time. These two aspects are important considerations for any empirical work: we are interested in something that represents a generative system, not a fixed set of actions; we are interested in how activities connect together. Work might or might not happen all at the same place, the boundaries needs to be defined. When does the follow up happen? Are there interruptions, are people following the same customers? Even performances by themselves are hard to see because they are distributed in time and space, and not all the events are noticeable, some are hidden. Archival records might help when dealing with fragmented data. Once we are able to have a clear understanding of the concept of routine and their qualities, we can apply different methods to explain how do they work. This section will present a small review of the different frameworks found in literature for applying the concept of organizational routines in empirical cases. The methods we will present refers to the studies of Pentland and Feldman (2005), which identify three ways of approaching a routine when we consider it unit of analysis. Then a method proposed by Nooteboom (1996; 2000; 2004), who used a method developed by Shank and Abelson (1977) which identifies the different aspects that compose a routine and their interaction at different points of times considering branches, nodes and architecture. Lastly, a review made by Becker (2005), which analyses the relation between the characteristics of a routine on the behavioural level, its antecedents and outcomes. We will present the different aspect they take account of and how they can be applied for the purpose of this paper. After that, we will identify a final framework that will serve the analysis of the case study of this paper and will be used to frame and evaluate the qualities of the routine at different points of time.

1.11.2 Routines as a unit of analysis

Starting with the analysis proposed by Feldman and Pentland, who conceptualize routines are composed by three different aspect: ostensive, performative and artifact, and consider the possible chance of divergence between these three aspects. By seeing routines as part of a multi dynamic system, they identify three different approaches: (i) studying routines as black boxes; (ii) examining parts of routines; (iii) analysing the interactions within routines. The

approaches cover the full spectrum of analysis of the aspects of the routine and each one have different effective use.

1.11.2 Routines as black boxes

A common approach, it allows to analyse the routine as a whole, not needing to go deep into the analysis of the routine as no mapping on the internal structure is done. This approach can be a safe approximation if the intent is to look for a forecast or a comparison regarding the routine as a whole. This approach allows to get insights without a whole map of the routine, but as Weick says, “it is impossible for a theory of social behaviour to be simultaneously general, accurate and simple” (Weick, 1979:35). In fact, routines do not work like black boxes and their exploration and map is necessary need for the purpose of this analysis; we will use this approach just to have an overview of the routine, before digging deeper. “What is the conversion rate from A to B?” This types of questions are useful and simple, can give a mathematical explanations of what is happening, at two different points of time, but it is not deep enough to relate them to organizational change and to the qualities of the routine.

1.11.3 Examining parts of routines

In order to provide details on how a routine works internally, we need to look at its structure. As stated above, according to Feldman and Pentland (2005) there are three aspects to consider: ostensive, performative, artifacts. Analysing the performative aspect requires a lot of details and accuracy; scholars have compared already performances of routines over time in different scenarios, such as Hutchins (1991), Pentland and Reuter (1994), Narduzzo, (1998), Hovee et al (2007). Performances are specific to time, place and actors; comparing them is important to understand the context and the action under analysis and to generate data that can be useful for the understanding of the routine, therefore part of the study will be dedicated in comparing the performances at different moments of time. The ostensive aspect on the other side look for the abstract pattern of the routine. Comparing the ostensive aspect allows to compare different views of the firm according to different groups of people, in order to understand how hierarchy, power and position can influence the abstract pattern of the routine. The third aspect, the artifacts, are useful to understand how change take place, being indicators of the other two aspects. They can reflect performances, by keeping track of the work processes, and as they can also reflect the ostensive part, like rules, SOPs and checklists. As we will analyse a situation where artifacts change, big importance will be given to this aspect; as it will be presented further on the case study, the artifact object of analysis represents both

the ostensive and the performative way in an intrinsic way, contributing to the definition itself of the routine.

1.11.4. Interactions within routines

The third approach dig deeper into the internal structure of the routine, analysing each and every factor that creates stability or change. To do so, interactions are the starting point of the analysis, which is composed by: (1) relationship between ostensive and performative aspects; (2) relationship between ostensive and artifacts; (3) relationship between performances and artifacts. The work of Feldman (2000), Narduzzo et al (2000); Pentland, (2003) exploited the analysis of different parts of the routine to explain the apparent contradiction that routines help change and stability within an organization. This approach constitutes the most suitable for analysing organizational change and the interaction that are object of the analysis can be presented as follows:

1. Ostensive-performance interaction. These two aspects are recursive and multiple, not being one pattern that can be identified as “the routine” as such, but varying every time it is enacted, therefore their interaction is complex. When observing such interaction, hypothesis can be made on the fact that being mutually constitutive, diversity in one can increase diversity in the other; these diversity can be seen as non consensual ostensive definition or as performance variations. Divergence is another aspect to be considered; low divergence might lead to stability, and high divergence to flexibility and change. This relationship is interesting as divergence can fuel different groups within an organization and align them with different aspects and versions of performative and ostensive, affecting productivity and efficiency. Analysing and dealing with divergence in a moment of change can be fruitfully analysed in this case study.
2. Artifact-performance interactions. Artifacts are documents, objects, physical trace of a routine. Standard Operating Procedures (SOPs) are a way to codify organizational routine and can be referred as artifacts. In this analysis, the focus is the match between artifacts and performances. According to Pendland and Feldman (2005), the ability to control and monitor performances can directly influence the divergence between these two aspects. If rules stay the same, but it is not easy to monitor performances, the actual practice might change if they have little impact on rules. On another perspective, we can consider SOP as the command, with the match between actual performances and the standard operating procedures as the measure of control; the divergence between these two aspects is worth the exploration. Little divergence might indicate that actions are followed as prescribed

because of control or because the management legitimated the actions of the actors. High divergence can mean resistance or misunderstandings about the work, and an outdated behaviour. Such relationship and analysis will be interesting to evaluate after the moment of organizational change we want to analyse.

3. Artifact-ostensive interaction. Artifacts such as SOP sometimes are assumed to be the routine itself, therefore taken as the ostensive aspect of the routine. It can happen that the two aspects are close, but attention should be put in not misunderstanding them, “the relationship between these aspects is about the alignment of documents and objects with what we understand about what we are doing” (Pentland and Feldman, 2005:807).

1.11.5 Another approach for analysing routines: branches, nodes, architecture

Noteboom presents a different method, which models routines as a specific pattern of behaviour in terms of branches, nodes and architecture. Branches are transposable sets of actions (for example paying, can be performed via online payment systems, through cash, credit card...) found within the routine. Nodes are produced by a reflection during which the previous branch is analysed and the following action is selected (an example is the transcript of a call after a phone request is done through a support line). The architecture instead is the reasoning behind the routine itself and it comes more clear action after action. Noteboom's (2004) approach focuses more on the change and its interpretation, focusing less on the phenomenon of the routine itself. As we want to understand what happens in a moment of organizational change, an analysis of the change will help in setting the basis for the performance assessment and its comparison in $t=1$, after change happened, giving a baseline and a methodology for the analysis. Noteboom goes further in the analysis and distinguishes three forms of change: optimization, which refers to a change in the branches, substitution related to a change in the nodes, and innovation: a change in the architecture. Such approach will be used to identify which type of change the organization faced and to label it as such.

1.11.5.1 Linking antecedents, characteristics and performance outcomes of a routine

The different interpretations of organizational routines (Winter, 1964; Dosi et al, 1992; Hodgson and Knudsen, 2003) all refer to regularities (Becker, 2005); starting from this point, Becker presents an analysis on how to operationalise recurrent interaction patterns by focusing on one aspect of such regularities: the behavioural level. It is in this level that

performance implications emerge and we can consider it a proper level of analysis when analysing the change in performance as we are doing in this paper.

As recurrent interaction patterns show how actors behave in a specific time and situation, framing how tasks are carried out in an organization according to the specific scenario and circumstances, they are useful to analyse the change in the action perspective. To understand how such recurrent interaction patterns can be operationalized, he identifies four methodologies: repeated sequences; fixed condition-action rules; task variety and analysability; identifying the content, process and sequence of recurrent interaction patterns.

By identifying repeated sequences of patterned behaviours, it is possible to capture the recurrence of a routine, the question that arise is up to which point we can consider a behaviour the same. This make us question whether an identical repetition is possible or not (Nelson and Winter, 1982:118-119). As this involves actors, they can replicate the same patterns, choose, and influence it with their agency. By identifying fixed condition-action rules it is possible to define a method that considers the connection between cognitive and behavioural level. This tough pones the limit of having to compare the similarity of the rules, not the behaviours induced by them (Egidi and Narduzzo, 1997). This methodology therefore is more appropriate for scenarios that can be highly controlled. The case presented here does not fit the requirements and therefore cannot make usage of this method. By identifying the task variety and analysability, Perrow (1967) suggests different measures of routinization focusing on organization units. As this method does not relate to the action perspective and the processes and qualities of an organization that we will analyse in the paper, we will not explore the methodology further. By identifying content, process and sequence of recurrent interaction patterns it is possible to assess the routineness of tasks (Pentland, 2003). According to Pentland, it is possible to extract sequential variety of the tasks, focusing in this way in task execution and process. Sequential variety means the possible different combination of actions of the process necessary to achieve the same goal, similarly to the branches and nodes developed by Noteboom. When using this method, we need to keep in mind that one can sequence actions to introduce variation. After having analysed the sequences, it is possible to compare them to evaluate their similarity in terms of variety. This shifts the attention from the SOP to the practical actions and how work is accomplished even in a routinized environment.

The methods presented shows diverse way in which it is possible to operationalize recurrent interaction patterns. Becker focuses his attention on the two methods of identifying repeated

sequences and the one presented by Feldman which identify patterns by recurrence, which use frequency and variation as key defining criterion. He then builds a framework that relates recurrent interaction patterns with their antecedents and outcomes, based on what advanced by Abbott (1992) and developing fourteen propositions on how they influence each other. The dimensions that characterize recurrent interaction patterns according to the review of Becker are frequency and variation (sequential variety):

- Frequency. Following the line of Perrow (1967), Whitey et al (1983), Becker omits the connection between skills and tasks from the operationalization of recurrent interaction patterns; we will follow the same approach, not being interested in such match, but rather on the qualities of the process. In addition, following Pentland (2003), who reports how people focus on the variety of the content, not of the process, when asked about a routine, we limit self-assessment by actors in terms of assessing frequency, which tend to produce opposed results to direct observations. We can consider frequency a measure for repetitiveness (Becker, 2005), which is defined by how frequently an interaction pattern is observed in a time span.
- Sequential variety. What is presented here follows Pentland explanation (2003,a,b). He describes how similarity and variety usually focus on the content of the activity, not reflecting variety in the sequence of the actions in which the task is performed, but rather what the recurrent pattern are about (Becker, 2005). Sequential variety therefore is used to measure the variety in the action sequence. Pentland elaborates two methods to measure it: one involves directly comparison of a sequence to another one; to do so, one measures the distance between two strings by counting the number of operations needed to transform one string into another. The second allows to measure variety by comparing a set of observed sequences to a completely random process. A matrix formed by the observed sequences is compared to a uniform random matrix representing a Markov process, where each action is likely no matter which action has just occurred, and then computing the distance between the matrices (Pentland 2003b).

There are as well different organizational aspects that can be taken into consideration for a more specific analysis when talking about frequency and sequential variety. When it comes to evaluate and compare routines, variety and frequency can be identified in some more noticeable ways, as Narduzzo (2000) points out in his empirical studies; some are more easily relatable to frequency:

- The speed of executing routines, which can directly influence the frequency of it.

- Reaction speed of a routine, also positively related to frequency.
- Time lags and delays of a routine.
- Duration of an activity.

While other aspects can be related to sequential variety

- How the routine is triggered (actor/action related or external).

These aspects will be taken into consideration for a deeper understanding of the routines in the variations of its characteristics, as intended by Becker. There are as well other aspects that Narduzzo analyse when talking about the characteristics of a routine, which are not directly related to frequency and sequential variety, but that will be taken into consideration when analysing the routine; they are:

- Quantity and quality of information regarding to a specific activity;
- Amount of employee and turnover;
- Volatility of the decision environment;

We will now move forward with the analysis presented by Becker, which describes the antecedents of recurrent interaction patterns and their link to characteristics of the recurrent interaction patterns.

1.11.6 Antecedents and characteristics

Antecedents can be described as the cause of the characteristics of organizational routines (Becker, 2005). We can find different examples of them in literature, to say one, by analysing the world of flights as an example, Gittel (2000) shades alight on which are the antecedents of recurrent interaction patterns in such context: tasks characteristics like uncertainty, interdependence and time constraints are very important in a highly routinized context. In the work of Perrow (1967) we can see the focus on the antecedents of routinization and the identification of the antecedents of recurrent interaction patterns by identifying task characteristics (which are always emphasized by situational factors). Perrow (1967) identify the following characteristics of antecedents:

- Task complexity. It refers to how many steps are necessary in order to achieve a task and how many connections are present between those steps.
- Task interdependence. With interdependence we refer to the fact that some steps have to be carried out before others can begin, or between elements of the process.

- Time pressure. It can be measured in the time available to accomplish a task. Empirical research (Weick, 1990), shows that it directly influence how a task is accomplished and consequently, the recurrent interaction pattern that comes from it.
- Uncertainty pertaining to the task. Routines are believed to enable decision making in situations where there is high uncertainty (Nelson and Winter, 1982), as a routinized behaviour influence the actor in making a decision dealing with uncertainty based on previous experience.
- Turnover of agents. The level of turnover is important as a high turnover can influence the persistence of a pattern (Feldman, 2000; Narduzzo, 2000)

1.11.7 Performance outcomes of recurrent interaction patterns

Becker identifies the outcomes of recurrent interaction patterns as coordination, cognitive resource savings and learning by doing. Before moving on to the analysis of the connection between antecedents, characteristics and outcomes of such patterns, here follows a brief description of them:

- Coordination. We have seen in literature how routines directly influence coordination (Nelson and Winter, 1982; Dosi et al, 2000). Routines foster coordination by creating an expectation on someone's behaviour, which becomes stable and provide a point from which to take decisions and set expectations, in a mutual way. This appear to be true also in team work, where interdependence can generate more coordination.
- Saving on cognitive resources. By this we refer to a state in which recurrent interaction patterns can be accomplished with less attention, therefore saving on cognitive resources (Nelson and Winter, 1982). Thanks to this, routines guide search through experience (Levitt and March, 1988).
- Learning by doing. As someone acquire experience with a task, thanks to the learning curve effect, he/she will become more efficient in such task, reaching a higher quality in the output of the task.

According to the model here presented, one can represent antecedents, characteristics and performance outcomes of recurrent interaction patterns (RIP), as follows:

Antecedents of RIP

Characteristics of RIP

Outcomes of RIP

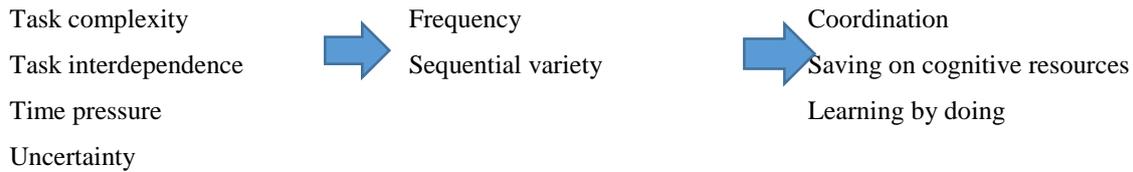


Figure 2.

1.11.8 Antecedents and characteristics.

After having identifies antecedents, characteristics and performance outcomes, it is possible to link them and make proposition on what can be observed within a routine, starting from antecedents and characteristics of such recurrent interaction pattern.

Task complexity.

Task complexity influence sequential variety on two aspects. on one side, if the task is complex, more elements will be required in the sequence of action to complete such task, therefore the possible variations will be a higher number, in a positive correlation (Becker, 2005). Another aspect, is that tasks that are complex require more unique acts to be accomplished, using more sources of information and higher coordination within teams (Anand et al, 2003). Therefore Becker arrives to define the first proposition: *“The higher the complexity of a task, the higher the sequential variety of the recurrent interaction pattern that accomplishes the task”*. (Becker, 2005:830). On the other side, there can be mechanisms in response to complexity that aims at simplifying things by increasing codification, the categories to which data refers to, and abstraction, a smaller number of categories needed. These mechanisms cam reduce the tasks and goals taken into account, reducing interaction needed for taking decisions and centralizing the process of making decisions. This equals to lower sequential variety. *“The higher the complexity of a task, the lower the sequential variety of the recurrent interaction pattern that accomplishes the task”* (Becker, 2005:830). The final effect of task complexity on sequential variety can only be found through empiric methods. Regarding the effect on frequency instead, tasks that are more complex require more time to be performed, leading to less frequency repetition, although this does not mean that sub tasks cannot be repeated with higher frequency. *“The higher the complexity of a task, the lower the frequency of the recurrent interaction pattern that accomplishes the task”* (Becker, 2005: 831)

Interdependence.

Interdependence is a characteristic that can be typically found in teams and consequentially in teamwork. The effect of interdependence directly influence the feasibility of tasks when considering a sequential variety, therefore limiting it: *“The higher the interdependence between steps of a current interaction pattern, the lower the sequential variety of the recurrent interaction pattern that accomplishes the task.”* (Becker, 2005:831).

Time pressure.

Empirical research have found how time pressure directly impact frequency, increasing the chances of routinized choices (Garapin and Hollard, 1999), following this, we can say that *“The higher the time pressure for carrying out a task, the higher the frequency of the recurrent interaction pattern that accomplishes the task”*. (Becker, 2005:832). On the other side, the influence on sequential variety is quite different by pulling out a routinized behaviour: *“The higher the time pressure for carrying out a task, the lower sequential variety of the recurrent interaction pattern that accomplishes the task”*. (Becker, 2005:832)

Uncertainty.

Uncertainty refers to a scenario that frequently changes, where something is unknown or not certain, there can be frequently variations on work load, lack of clarity. Becker builds on the hypothesis of Heiner (1987), according to whom a higher uncertainty will lead to an increase in predictable behaviours, and interprets that as a lower sequential variety. *“The higher uncertainty pertaining to a task, the lower the sequential variety of the recurrent interaction pattern that accomplishes the task”*. (Becker, 2005:833).

1.11.9 Characteristics and performance outcomes

Sequential variety on coordination

The outcomes of performance are coordination and saving on cognitive resources. Sequential variety directly influence them; as pointed out by Hutchins (1991) in the case of a ship’s crew that had to manage manually the manoeuvre of a ship, he noticed how the establishment of a clear division of labour and stable interaction between the members of the crew, thus limiting sequential variety, brought positive effects on coordination. *“The lower sequential variety of a recurrent interaction pattern, the less coordination problems”*. (Becker, 2005:834).

Sequential variety on saving on cognitive resources.

When a setting is highly routinized, in terms of high coding and good experience in terms of tasks, the actors focus more on unforeseen events. *“The higher the sequential variety of a*

recurrent interaction pattern, the less it will contribute to saving on cognitive resources”. (Becker, 2005:834).

Sequential variety on learning by doing.

In an environment that is stable due to recurrent interaction patterns, learning can be a base on which to assess feedbacks. A stable baseline is an important precondition for learning. *“The higher the sequential variety of a recurrent interaction pattern, the more difficult learning by doing”.* (Becker, 2005:834).

Frequency on coordination

In an environment with high frequency, actors learn and can improve their actions by enacting tasks in a more stable way, becoming more easy for teamsters and colleagues to set expectations on the base of their behaviour and therefore benefit from coordination. *“The higher the frequency of a recurrent interaction pattern, the less coordination problems”.* (Becker, 2005:835).

Frequency on learning by doing.

As learning is built on repetition, actors can become more effective when repeating tasks. This directly relates to sequential variety, which, being low, can help in creating the baseline on which actors learn. On the other side, with high sequential variety, it will be more difficult to increase the learning by doing. *“With low sequential variety, the higher the frequency of recurrent interaction patterns, the more the recurrent interaction pattern will generate learning by doing effects”*

“With higher sequential variety, the higher the frequency of a recurrent interaction pattern, the less that recurrent interaction pattern will generate learning by doing effects” (Becker, 2005:835).

Frequency on saving on cognitive resources.

Considered what mentioned above, the impact of frequency directly applies on cognitive resource savings: *“The higher the frequency of a recurrent interaction pattern, the higher saving of cognitive resources”.* (Becker, 2005:836).

As this framework deals with behavioural regularities, it can be used to assess organizational performance on the base of the aspects observes in terms of antecedents and characteristics, therefore making assumptions on the outcomes on performance and then verifying them. We can test hypothesis on the performance outcomes of the recurrent interaction patterns. How does frequency matters? How does sequential variety matters?

1.13 Final framework

The analysis that will be done in this paper will analyse a change in the artifact within a routine, with the purpose of assessing how the characteristics and qualities of a routine change in such scenario, analysing the performance outcomes that they directly influence. Therefore, the analysis will take into account the different methods presented in the previous paragraphs:

- Studying part of a routine, analysing the three different aspect that compose it.
- The relations between ostensive, performative and artifact level when assessing parts of a routine and the interaction within routine.
- Nodes, branches and architecture.
- The characteristics of a routine (frequency and sequential variety) as main responsible for the behavioural implications of performances of a routine, their relationship with the antecedents and outcomes of such characteristics.

The framework will be built on such methodologies and will consider:

1. Relationship between parts of the routines: performative aspect, ostensive aspect, artifact aspect.
2. Interaction within routines: The relationship between ostensive and performative as mutual relationship that can create endogenous change, the relationship between artifact and performance to analyse the control of behaviour before and after change. The relationship between artifact and ostensive aspect, considering the alignment of artifacts with what actors understand about what they are doing.
3. Nodes, branches and architecture will be used to map the routine and explain how change take place within the routine in terms of optimization, substitution and innovation.
4. Interaction between characteristics of a routine, considered as frequency and sequential variety, and their antecedents and performance outcomes. Based on the analysis presented above, we can build matrixes that can serve to evaluate the routine in time $t=0$, before organizational change, and to make propositions and hypothesis on the expected outcomes of organizational change at time $t=1$. The first matrix will link antecedents with the characteristics of the routine, the second one will link the characteristics observed with performance outcomes.

Antecedents	High	Low	Characteristics	High	Low
Task complexity			Frequency		
			Sequential variety		
Interdependence			Frequency		
			Sequential variety		
Time pressure			Frequency		
			Sequential variety		
Uncertainty			Frequency		
			Sequential variety		

Figure 3: antecedents and characteristics

Characteristics	High	Low	Outcomes	High	Low
Frequency			Coordination		
Sequential variety					
Frequency			Saving on cognitive resources		
Sequential variety					
Frequency			Learning by doing		
Sequential variety					

Figure 4: characteristics and outcomes

2. Identifying the routine unit of analysis

Brief summary

In this section will be presented the routine of analysis of the paper. First, which criteria are taken into consideration for the selection of the routine and how it matches them. Second, a small analysis of the process will show how the routine works. We will then briefly present the evolution of the organizational routine throughout time in the organization until present days, where the limits of such routine started to emerge, requiring an analysis of the routine in view of a future change. To conclude this section, the process of change that the organization undertook will be presented, including a description of the scope of change and its implication. As it presents data and information from the case study, we will use different sources of data, in this section we will present data from internal archival data: business plans, presentations, history of the organization.

2.1 Criteria

Routines comprehend an extremely differentiated sequence of actions. Based on the considerations of section 1, in order to identify the routines that compose them, we will focus on those which possess the following qualities: (1) they involve multiple actors and participants; (2) they are recurrent and (3) interconnected.

To analyse organizational routines we will identify how they are accomplished by the organization. Following the given qualities mentioned above, the process have to have be recurrent, accomplished in a similar way throughout time. Moreover, the task have to contribute directly to the goal of the organization and have to be easy recognizable. Considered these aspects, we started to map different routines within AIESEC as an organization, to understand which could have been matching such criteria in the best way. The result of such mapping is an identification of the different routines currently shaping the organization and that constitute the core activities of the organization; they are:

1. Outgoing recruitment: it refers to attracting, selecting and preparing students to take an internship programme abroad with AIESEC. It includes Outgoing GCDP (volunteering) and Outgoing GIP (internship in a company).
2. Incoming programmes: the creation of specific internship programme within an AIESEC Entity, it includes selling, selection process of the students who will take part of the programme, logistics, the part of realization and evaluation of the programme. It refers to

Incoming GCDP, social projects organized by AIESEC, and Incoming GIP: the selection programme for companies.

The decision is to focus on the routine that more than any other presented the aspects of recurrence, interaction, and that contributed most of all to the organizational goals: *the Outgoing recruitment*. Such routine directly contributes to the sustainability of the organization (as each participant selected pays a fee to the organization) and to the performances of it (AIESEC measures its performance with the numbers of programmes realized). It also contribute in aligning expectations towards the experience the customer is going to get, playing a big role for the quality of it. The activity is very capillary in the organization, being one of the most important process in every Local Office.

As talking about routines is not an easy matter, and extrapolating one requires a specific level of granularity and of analysis, the focus of the analysis will be specific, not covering entirely the outgoing recruitment. It will instead focus on the one that presented more observable examples of interconnection, involving more actors in dedicated teams and having a higher frequency rate compared to the Outgoing GIP recruitment: the Outgoing GCDP recruitment. The OGCDP recruitment takes place 3 times a year, for an approximate period of 70 days for each cycle. It can be considered highly interdependent: there are several steps that have to be carried on in sequence to make sure the routine is run properly, therefore a bad performance or incoordination between teamsters in any of the steps this routine would create a bottleneck for the overall process and for the organizational performance. Recruiting aims at achieving not only stability in results, but a higher volumes of operations each time it is enacted. It requires planning, a set of norms and guidelines to be carried out and execution during a specific time. The ways and methods of doing recruitment evolved throughout time, mostly as a process of trial and error, where constant feedback were analysed to gain awareness of the bottlenecks and improve the efficiency.

2.2 Analysis of the processes

We will now analyse the process of recruitment in the OGCDP department; to start the analysis, we refer to its process management, which represents an important tool for the management, as it allows the comprehension of the genesis of performances (Torchia, Tramontano, Turchini, 2001). In order to adopt such perspective, it is necessary to run an analysis of the organization to and to define its system indicators. Such indicators should be (De Toni and Torchia, 1996) global, able to represent the transverse processes of the organization, and able to measure the efficiency of it in the pursuit of the final output of the process. The system needs to allow the following identification:

- Which performances are related to a process:
- Indicators directly linked to the performance drivers of the processes.

All of this considered, we can say that it is possible to apply a process management approach when describing the routine under analysis in the case of AIESEC, as all the steps meant to realize an internships can be summed up in the macro processes of: “Apply”, “Match”, “Realize”. 1. Apply is the step of attraction and recruitment of the candidates; it counts as a performance when the candidate register in the online platform used by AIESEC. 2. Matching the moment in which there is correspondence between a profile and a programme opportunity in the online platform. 3. Realize is the step when the programme begins, as the student is not abroad.

Processes are mapped and aligned at the Global Office in Rotterdam, according to global standards; this allows the management to have a clear understanding of the way in which activities takes place, to identify possible bottlenecks, being able to evaluate cause and effect looking at the indicators. In every Entity, the processes are symmetric for every department, for example: a customer is able to “apply” in the outgoing department of one Entity, and the incoming department of another Entity “creates” an opportunity. If there is correspondence between the two, there is a “match”; when the customer starts its programme in the hosting Entity, both departments “realize” a programme. Ideally, for every apply there should be a match and a realization, this would indicate an efficiency of 100% between the steps of the process. Unfortunately, the conversion rate from raise to realize varies and depends on different factors: mismatch between expectations of a candidate and the required skills of a programme, communication issues, or any other fact that can arise during any sort of recruitment. Each step: apply, match, realize, is a performance indicator of the process.

2.2.1 The ostensive aspect

Routines are characterized by an abstract pattern that actors can use to guise, account for and refer to specific performance of a routine; this is how we consider the ostensive aspect. (Feldman and Pentland, 2003). The ostensive aspect is a generalized pattern of the routine. In a general recruiting routine, it can be seen as engaging, screening, and choosing applicants. For what regards the recruitment in AIESEC, it is easily seen and interpreted as “apply”-“match”-“realize”, as it provides a simple and vivid identification of the different steps needed of the process, within the organization.

In the presented way it is easy to conceptualize the ostensive aspect in few words recognizable in every Entity, as the teams dedicated to such routine work in similar context and follow the same norms needed to realize an internship programme. Most importantly, the teams take part in all the steps of the process, therefore is able to recollect with such definition easily. From archival data and interview, all the aspect of the recruitment process are described considering different aspects of these macro steps, but they all remind to such nomenclature, which constitutes the official norms and mandatory touch points of the recruitment process for the computation of performance, being the standard operating procedure at Global level.

2.2.2 The artifact aspect

It is possible to look at artifacts as indicators of both performative and ostensive aspect. They might reflect SOPs, or keep track of the process, therefore representing performances (Pentland and Feldman, 2005). It is easy to identify them and to have unique interpretations about their role, compared to what happens to routines. The same is true for the case study: as process and performance management requires a good measurement system, the widespread usage of information technology plays a fundamental role within the routine: in order to track all the activities and coordinate the exchange programmes that run globally, AIESEC uses the platform myaiesec.net. In the platform, it is possible to browse opportunities and monitor the customers who applied to an OGCDP programme, to assign matches and realizations. Myaiesec.net therefore has the crucial role of counting as the performance measurement system, having global indicators (# apply, # matches, # realizations) for every Entity and playing an important role on the performative aspect of the routine. It also allows an analysis at Global, National and Local level; in this way routines of different realities can be compared and evaluated, and it contains the norms that have to be

followed during the process (apply, match, realize), serving as a representation of the ostensive part of the routine as well.

We can see that the main artifact plays an important role in the routine, serving the double function of tracking performances and containing SOPs. We will not take technology as given as it is part of the organizational change that AIESEC will face, but rather analyse its role in shaping the routine; of course there are different artifacts present, but myaiesec.net cover more relevance than others.

2.3 Brief history and current situation

Apply-Match-Realize represents the current flow of operations, it is a sequential set of activities, like a production chain; the flow was adopted to standardize processes globally. The process run on an IT platform (myaiesec.net) in 2007, giving the chance to perform data analysis and evaluate the process. Given these fixed boundaries of the process, as time passed by, each Entity started to adapt the routines that compose the 3-macro steps, to adapt them to specific reality in a process of learning and trial. Being strategically independent, each Entity's management board started to develop a path dependant growth, which varied year by year and that represent the outcome of testing and trials of routines, learning by doing and performance measurement.

In the last 5 years in fact, the level of interaction and complexity became extremely high, with Entities achieving paths of growth over 100% in terms of realizations, and having to review and execute solid routines to maintain their growth path. Examples of the rise of complexity are different: several Entities showed high HR demand in order to sustain the growth, testing and evaluating different team structures and job descriptions to find the best way to carry out activities at local level.

What was happening was that the ostensive aspect did not present major variations, having always the three macro steps defining the norm of the routine. At the same time tough, major variations were happening in terms of performances and therefore in the performative aspect of the routine, where actors and the management felt free to try novel actions to implement in the routine and new or little artifacts to serve the purpose.

Information management became another relevant topic, which directly increased the relevance of routines as source of organizational memory, but that at the same time needed to be coded and encrypted into artifacts, that would have allowed to capitalize on records, to evaluate a fast changing scenario. The progresses of IT done in the last years, the availability of free platforms that were at disposal of actors to use them and make them artifacts part of the routine and the increase of competitiveness in the external market, made the limits of the platform myaiesec.net became more visible. Within the organization, no-one challenged the definition of the process, but mainly the methods used.

Myaiesec.net did not allow to monitor any of the steps before and after apply-match-realize, limiting the perception that actors could have had of the routine. For instance, there is no global standard regarding how to track tasks out of these steps, limiting the record and availability of information of how the routine works outside of what is in the platform. Moreover, the platform presents the limit of being a closed system, not being accessible directly to potential new customers to apply for a programme, but rather presented only after the first part of the recruitment, when the customer have been assessed and deemed suitable to take part to a programme.

“Whether it is not user-friendly, myaiesec.net plays an incredible role regarding coordination with other Entities, tracking of performances, and storing knowledge. Generations of students that joined the organization learnt how the organization works also thanks to that system, but now I find myself and the teams I lead limited by it.” – Mariavittoria Pesce, National Director of OGCDP for AIESEC in Italy.

Aware of the limits, and of the variations in the performative aspect that were taking place around the Entities, the Global Office of AIESEC started to evaluate a process of reengineering, which focused on different steps. In 2012 they mapped the processes present in every Entity with the performance data of myaiesec.net and with a questionnaire named SOGA (State Of the Global Activities). Once this step was done, they started to evaluate possible alternatives to the current system with external consultants and partners. In August 2013 after the alternatives evaluated by the Global Office were presented to the Entities, which decided how things would have changed: the organization would have faced an intervention on ICT, shifting all the activities happening in the current platform (myaiesec.net) into two different ones (experience.aiesec.org and opportunities.aiesec.org).

The change of platform, and with that the change of artifact, represents only the surface of the organizational change AIESEC would have faces, which started with a revision of its macro steps and led to a new flow that substitutes the indicators of Apply-Match-Realize.

2.4 Scope of organizational change

The solution aims to achieve a better combination of efficiency, effectiveness and strategic repositioning (AIESEC International Congress, 2014), to achieve this, instead of the 3 macro steps present in myaiesec.net, the new platform will adopt a flow based on 6 steps: Sign-up -> Apply -> Match -> Realize -> Completed -> Reintegrated. The 6 steps will become the new indicators used to track the progress of activities within each Local Office, give feedback and provide insights on the performances. The students willing to take part of an internship programme will have direct access to opportunities.aiesec.org, that will show all the opportunities previously present on myaiesec.net. The members of AIESEC will work from experience.aiesec.org, the back office of the website, where they have access to all the information regarding EPs, opportunities and are able to track each step of the process.

2.4.1 Implications

The identification of other steps of the process bring a big change in the ostensive aspect of the routine. It allows to map in a standard way other indicators, which become measurement of success of the process itself, and new norms that each member of the organization working in the recruitment have to follow. This directly influence the routines underlying, and raises the chances of having a new ostensive and artifact aspect that can influence the performance of the routine. Here is presented a brief description of each of the step of the routine in the platform:

- Sign-up. This is the step when people register on experience.aiesec.org, they provide their details and can directly browse the opportunities present in the platform at any time. The difference with the previous platform is that it will be possible to track the number of sign-ups directly to the platform, have a unique way of keeping records and tracking in every Entity. Moreover, it will allow a first assessment of profiles who are registering in the platform according to the level of information they provide and their preferences for the programmes available according to the cooperation set.

- Apply. After the sign-up, each student will be able to apply to the opportunities available on the system. For the Local Office it will be able to limit the visualization of opportunities just to those in cooperation, being able to funnel the candidates to the selected opportunities.
- Match. This is the step in which the student find an opportunity that suits him and is matched to it;
- Realize. The moment in which the student starts his programme abroad, there are no differences compared to what was happening with the previous platform.
- Completed. When the opportunity is over, the student has the chance to evaluate his programme through surveys sent to him, this provide additional useful information regarding the programmes and the qualities of the services offered.
- Re-integrated. When the student comes back after his programme, a set of activities can be organized to involve him in the activities of the Local Office and make him join the organization. This step becomes a new indicator that allows to evaluate of how many people who join the GCDP programme are willing to be part of the local activities (Re-integrated/Completed is the new ratio).

2.4.2 Implications of the new platform.

With myaiesec.net, it was not possible to have a clear view of the whole recruiting routine in the platform: experience.aiesec.org set the basis for what should be a better understanding of the dynamics around the recruitment, possible bottlenecks and solutions to improve the process. At the same time it gives to all the actors the same tools to evaluate the routine and the contribution of each task to the final outcome. Based on the current state and functionalities of myaiesec.net, the switch will have different implications:

- It will give to every Entity more in depth analytics on how their customers and members move through the flow, allowing better tracking of performances, information and recorded data for organizational memory.
- The proliferation of artifacts that were created to supply the lack will be limited as more functions are embed in experience.aiesec.org; at the same time the importance of a single artefact (experience.aiesec.org) becomes stronger and more relevant for the enactment of the routine.

- A possible modification of the performative aspects of the tasks of the recruitment routine. Action patterns have to be mapped and confronted with the required steps after the implementation of the new flow. Each Entity will have to understand how this change is affecting the different aspects of routines.

3. Methods

Brief summary

This section will present the connection between the research question, the type of strategy, the methods used, the way of collecting and evaluating data, and the criteria for interpreting the findings. As this paper presents a case study as research method, it is possible to use multiple sources for data, in this work, will be used:

- Semi-structured interviews, around 1 ½ hours of length per interview.
- Surveys addressed to management and non-management personnel.
- Internal archival data: business plans, presentations, history of the organization, websites, databases.
- Direct observation of meetings.

Interviews

Semi-structured interviews were used to gain knowledge about the actor's experiences and perspectives about the process and to get deeper insights regarding the performative aspect and people's experience. The interviews consisted of one to one interview with the top management of different AIESEC and with the local responsible of the Local Offices of Italy. The purpose of the interview is to understand:

- Description about the routines: before and after organizational change; in particular on the performative and ostensive aspect of it;
- Any information regarding organizational change that took place in the last year, and if and how that affected performances;
- The implications of learning communities, working in teams, learning by doing and of the degree of freedom when enacting a routine according to the actor's experience, focusing on the performance outcomes of their actions;

Surveys

Three types of survey were developed and addressed to the personnel of AIESEC. The surveys were sent to Local Offices of different Entities and then to the Italian Local Offices; the results were evaluated and compared to see whether the Italian reality could have been compared with the international network in terms of similarities, thus serving as sample for what would have occurred in the network.

One survey was handled before organizational change took place, at time $t=0$ one; was handled during the process of shift to the platform; one after the change occurred. The surveys present

questions regarding the antecedents, characteristics and outcomes of recurrent interaction patterns, to allow data gathering and evaluation regarding the case in hand. The purpose of the survey is to understand:

- The degree of learning allowed within the routine;
- The role of artifacts in the process;
- The role of routines as source of organizational memory;
- The role of communities and connections as a source of coordination;
- The degree of freedom of different actors and its role for the performance outcomes;
- The elements that contributed the most in the transition period;

Archival data

Raw data from myaiesec.net and experience.aiesec.org will allow an evaluation of the process, before and after change in terms of performances. An analysis of the artifacts used in the organization will be used to gather insights and information regarding norms and the SOPs of the routine.

Direct observations

To get more insights, there will be direct observations of meetings of the National Office and of the Local Office, to gather information and to attend the actions enacted by the actors, in order to have enough material to evaluate the routine and its characteristics.

In order to gather useful data at different times, we can evaluate the differences between the routines at T0 (before the switch to experience.aiesec.org) and T1 (after full switch). Once data are collected, we can analyse better the performative level, branches, nodes and architecture, at three different moment of time, so that a comparison between the two states of the routine is made possible. Together with an analysis of the two scenarios, information from survey and data will allow to identify which are the characteristics of the routine which contributed the most to the performance outcomes during the process of change according to the framework developed in Section1, and that contributed the most to an implementation of the switch before $t=1$.

4. Assessing the routine

Brief description

In order to analyse the routines, we will start from a description of the performative aspect observed during the recruitment process, and from the considerations and insights that arose from interviews at time $t=0$. To analyse the actions observed, sequential data temporally ordered were collected. Once the actions are identified, we can consider the relationship between them, identifying them as nodes, this was easily done by asking the question “What happens next?” Once the performative analysis is done, we will move on according to the framework with an analysis of the interaction within routines, the role of nodes, branches and architecture and an assessment of the routine according to its antecedents, characteristics and performance outcomes. The analysis takes into consideration the Italian scenario as a sample of the routine in different Entities, thanks to the comparison made through the surveys.

4.1 Performative description at time $t=0$.

To present the observations gathered, we will use a method introduced by Feldman and Pentland (2007) when talking about technology and its impact on organizations: the “narrative network”. Narrative refers to a set of actions connected by unity of purpose (Abbott 1992); network refers to the possible interconnection between actions, what is done and what can be done by agents and actions. The narrative network concept allows to describe and visualise these patterns. Here follows the description of the recruitment recalled through interviews, observations and archival data such as guidelines, at time $t=0$. It focuses on the performative aspect but is supported by a set of “guidelines” that the National Office creates and refer to on how to organize tasks, and “norms”, which are mandatory requirement and parameters defined by the IT platform used. What follows, are the guidelines and norms referring to the recruitment:

- Guideline on the planning process for recruitment. As the recruitment process is responsibility of each Local Office, the local responsible plans it according to what is set in the guideline provided by the National Office. It provides different information: from the times required by each step of the routine for a correct plan of the timeline, to the database that needs to be consulted before the process starts, to gather further information.

- Guideline on how to structure HR and JDs. As the recruitment is carried on by a team in every office, it is important to define the accountability of every member of the team, their specific key performance indicators in order to have clear responsibility during the process.
- Norms on how to use the platform myaiesec.net. A must-read booklet containing all the information on the usage of the platform for the different steps apply-match-realize.
- Norms for assessing and selecting a possible customer. It provides information and a framework on how to assess the candidates that are willing to take a GCDP programme.

These guidelines provide precise information, and can have up to 50 pages of explanation on how to carry on the different tasks, they were used to pair the direct observations of meetings. The Entity of reference for the direct observations is AIESEC in Italy; interviews have been held with AIESEC in Brazil, AIESEC in the USA, AIESEC in Colombia and AIESEC in Germany.

Direct description

From September 2013 until October 2014 three recruitment processes took place: September-October-November 2013; April-May-June 2014; September-October-November 2014. During this time, in each Local Office, the dedicated team have been performing the different steps of the process. They received trainings, guidelines, materials useful to have a clear understanding about roles, goals and activities to do. A team leader was assigned to coordinate the work, in direct contact with the final responsible of the local office. Once the first tasks start, a weekly performance assessment is run to evaluate the state of each step of the process, according to the specific task run at that moment. Each check has as output a record, with the data of the step and allows the team to discuss of eventual changes of the process goal. The recruitment follows a regular cycle, described in the guidelines that suggest the regularity of checks and eventual corrections to be taken by the team during the process. The recruitment can be described in logical order as it follows

4.1.1 Planning.

The National Office releases a guideline regarding the recruitment at least 3 weeks before the process starts officially in every Local Office. This allows the teams around the Entity to have enough time to study them and prepare for the recruitment. Once the guidelines are released,

the local responsible is in contact with the National office to define the details of recruitment goals and timelines; virtual meetings are held and information are exchanged through emails. Each recruitment plan starts from an evaluation of the previous one, where data and of previous process are analysed to see what has to be improved. To do this, teams use myaiesec.net and database of records. Unfortunately though, not all the teams perform a deep analysis, as it is not a mandatory requirement for the recruitment process; most of them move directly to planning the recruitment, using guidelines from the National Office. The main responsible for the planning is the team leader together with the local responsible. Roles within the team are defined, tasks are assigned, timeline of activities is created and different checkpoints are set. Another important aspect is the planning and development of cooperation with the hosting Entities of the programmes. In this way, the local offices set the programmes offered according to an analysis of supply and demand of programmes around the AIESEC Entities; this analysis is based on data from previous realizations, and on an analysis done at National level that presents the Entity partner and their contacts. To set a cooperation, local offices send emails and set conference calls to get in touch with the Hosting Entity. There are no guidelines on how to keep record of it, which are mainly held through emails. Myaiesec.net do not allow to set a cooperation, therefore the team leader have to keep track of the number of programmes, collect information about the duration, requirements and job description, and put them on a tool developed by the National Office. Setting cooperation is not mandatory, but allows to work on a bigger scale of results and to ensure a better quality, reducing the risk of anomalies in the internships, that can happen when working with an Entity (the best offices were able to run 80% of their programmes through cooperations). The outcome of this step is the final plan on a spreadsheet that serves as point of reference and evaluation during the process. The team leader uploads the plan on a virtual platform shared with the National Office, it will be updated weekly at every check. Not all the teams stayed up to this frequency of updates, forcing strong reminders by the National side, which can only have a clear image of what is happening in the Entity thanks to myaiesec.net, but cannot compare the plan of each Office and provide feedbacks when in lack of information, as the platform does not allow to do so.

4.1.2 Promotion.

The first step after the plan is the attraction of possible participants, and for that the team have to promote the programmes. This step last four weeks, starting when the online application form and the promotional material are released at National Level. All the offices appears to customize the message according to programmes and cooperation set. The promotion phase

consisted of online promotion through social media and informative events done physically by the team in synergy with the marketing department. Every time an application is received, it automatically gets into a database. This triggers action from the promotion responsible in the team, who contacts the applicants within 24 hours to schedule an appointment to the “assessment centre”. An observation was that there is no official tool to keep record of how many applicants have been contacted in this step of the process, how many replied and so on; to overcome this, every office use a personalized tool where they can insert all information and track process. Different local responsible appear to use the same tool, as they shared the same need during the weekly checks with the National Office and decided to use the same system. During the weekly checks, if there are lack of applicants, the team leader usually spend more time with the marketing department, analysing the data from applications and set offline activities with the team to fill the gap of applications needed. In some interviews, the team leaders pointed out that thanks to weekly checks and team meetings, most of them started to cooperate with other departments or asked consultancy to the National Office, pointing out the importance of informal communication. This process of information gathering and consultancy can also be triggered by the National Office, if the data provided by the teams do not match the plan.

4.1.3. Assessment.

Once the applicants are contacted, the promotion manager invites them. for the assessment. Times and places are defined by the team, while the methods come from a National guideline that gives a framework, for the interviewers. Once the interviewee comes, a series of questions are asked to evaluate his/her competencies according to a global assessment system used by the organization, the programmes are presented to see which are the preferences between the cooperation set. All these data are collected and then uploaded on the workspace of the team; each Entity appears to develop his own workspace with the chance of customizing it, as there is no guideline on it and myaiesec.net do not allow to do it within the platform. For every students who wants to leave and become an EP, an EP manager is assigned, this figure is the tutor of the EP for the entire duration of the programme. To allocate EPs, the guideline suggest to have a responsible for Entity partner within the team, and give the EPs interested in such Entity to the manager responsible for that cooperation. In practice, sometimes the EP manager turns out to be simply the interviewer, for lack of coordination by the team or misalignment of information.

4.1.4 Legalities check.

After the assessment, to starts the procedures for the programmes, each EP have to sign the contract (provided by the EP manager); together with the contract, he accepts the Exchange Programme Policy, which defines the responsibilities and duties of both Entities and of the EP. These steps are tracked in different ways in every office; every EP manager have to keep the original copy of the documents for legal proof in the office, and uploads such document in the workspace of the team and marks the step as done, so that the team knows who is moving on with the steps in the programme.

4.1.5 Applying.

Once the contract is signed, the EP can apply on myaiesec.net; it's a norm as he needs to fit the required fields on the platform to proceed. Once he/she creates the "EP form", a description about profile and interests, this will have the status of "draft", requiring the approval of the National Office to be put on "new". EP with the form on "new" can browse opportunities within the platform and apply to them. In order to get the approval of the National office and have the EP on "new", as there is no automatic notification by the system, the code of every EP generated through myaiesec.net are uploaded into a workspace of the National Office that checks the EP form and puts them on new. This happens as soon as the EP manager gets the EP code, in a direct communication from all the offices to the National one. The EP manager then helps the EP getting in contact with the hosting entity. It is important to notice that formally, it's possible to apply through myaiesec.net even without filling the application form and going to the assessment centre, but just landing on myaiesec.net browsing the web, but very few cases ever happened, moreover, the National Office would leave the EPs on hold, as there is lack of action steps to get in touch with such EPs and direct them to the local offices.

4.1.6 Matching.

Once the EP is in the platform, he has the chance to browse the thousands of opportunities in the system. This is usually avoided, as the EP manager guides he/she towards the programmes of the cooperation, so much that most of the times the EP just registers on myaiesec but never actually uses it. The matching phase is the agreement and acceptance of the EP and of the hosting Entity to run a specific programme. The EP go through an interview with the hosting Entity responsible. If the interview is successful, to make the agreement formal, the hosting Entity sends a printout called exchange "acceptance note" (AN) for the EP to be signed, which represents a formal agreement within the hosting entity and the EP guaranteeing the commitment of realizing the programme. Once the 2 parts signs the paper and exchange it,

the match can be done on myaiesec.net: this is a technical procedure done by the hosting entity with which local offices cooperate. Each recruiting team evaluates the ratio of EPs that go from “Applying” to “Matched” as indicator of the routine and as performance indicators, taking into consideration the matching time required. Local responsible reported that the estimated amount of time to match an EP is around two – three days if done through a cooperation, otherwise one – two weeks if done outside of a cooperation.

4.1.6. Payment.

Once the math has been assigned on the platform, the EP has to pay the participation fee. The EP manager provides all the information for payment and tracks that the payment on the team workspace, making sure the payment have been received before going on with the next step. There is lot of communication and synergy with the finance department during this step.

4.1.7 Outgoing Preparation Seminar.

The last step is for the EP a participation to a seminar of preparation regarding the programme, organized by the sending local office. A responsible in the team organize the event considering at least 2 weeks before departure of the EPs.

4.2 Organizations of tasks and considerations

The Offices observed presented a clear distribution of tasks between selection, quality, matching, bureaucracy; all had a final responsible within the team, to ensure that the team was working for processes, and not all on the same step. The “selection manager” have the task to collect applications, filter them and contact applicants to set the assessment centre; all these tasks should have take 2 days from the moment of receiving an application. Anyone of the team could have done the interview, thus maintaining the same figure for the EP manager; interviews had to take place three – four days after the applicant was contacted. Once the interview was done, the “bureaucracy manager” was responsible of collecting contracts, request to join the association, details for the payment of the first fee; this phase was set in 3 days after the assessment centre. When the bureaucracy manager collected all the material from the EP and checked the payment He passes the contact to the “matching manager”, who sends information to the EP about how to raise its form on myaiesec.net by itself, and guides him/her in matching for the right programme. When the EP is matched, the quality manager is responsible for the outgoing preparation seminar, delivered together with the rest of the team. Once abroad, he/she would have sent surveys to keep track of the experience and provide

support. Surveys were collected and sent every week. Myaiesec.net automatically sent 2 surveys, at matching and realizing, that the quality manager had to gather and evaluate.

In the analysis, using organizational routines allows us to do a number of things: capture how tasks are accomplished in practice; describe the interaction patterns to capture behaviours. As they capture them, they also allow to show what characterizes the organization. During the different steps, the description of the interactions between members of the team shows the importance of interaction. The process can be speed up to avoid mistakes if a record of every step is tracked. This might cause other tasks to be late or to be performed with lack of information, influencing the final goal (es, in step2, if there is lack of tracking regarding the applicants, this will diminish the effectiveness of the process). The analysis allow to show the small details that are usually unseen: the local responsible appears sometimes unaware of the status of the work if lack of records are available and if that happens, at national level the overall state of the process can appear misleading. As there are no artifacts that allows to keep track of every step of the process from beginning until the end, but rather a system of fragmented database and information, there is a high risk of losing information and applicants, as well of not recording them to be evaluated for the next routine. Management get to know the status of recruitment through weekly checks-points and individual conversations with the local responsible, this allow to focus the efforts on systematic problems connected to the step of the recruitment, but just if there are enough information, rather than one-off events and biases. When managers are aware of how tasks are performed, it is easy to define interventions that will be effective; regarding this, checks allows to compare with how these tasks should be carried out according to the guidelines. As the steps of the routine analysed are consequential; to evaluate the process, final responsible and team leader use different indicators: ratios from a step to the following one of the routine. This gives a performance assessment of the process and allows to guide each of the step: they represent a reflective moment to understand how to address the next actions of the actors. A simple example is the index given by the number of applications received divided by number of raising: it provides a conversion rate that allows to evaluate the efficiency of the promotion phase, it allows to calculate the amount of applications that will be needed to reach the goal for the recruitment. Constant feedback and evaluation during the routine process was highlighted during the interviews as a method to improve the understanding of the process and increase the ownership and understanding of the single contribution to the routine of every member of the team. Communication within and across different teams was another aspect that emerged in

the interviews, as a tool what allow direct comparison between how a routine is carried out from office to office.

In terms of speed of executing routines, a whole recruitment process takes up to 3 and a half month from the launch of application to the departure of the EPs, this is reported by guidelines and by the management, who is responsible of the National timeline which is of account for the Local Office and for foreign Entities to make plans upon. As in an assembly line, when an application is receives, this triggers the process and put in motion the a routine, which may terminate in success, with the beginning of the internship program, or before, in case of unexpected event. At the same time, one must ensure that all the applicants are being brought forward as possible in parallel, to ensure the right time to each task, which is performed multiple times within the routine. Every activity has a different time duration: from contacting the applicants, which takes very few minutes and is highly routinized, happening dozens of times a day, to the assessment centres, which happens with less frequency, around 3-4 times during the week, and which can vary more in terms of content, being hard to replicate every time in the same way. If one of the step is in delay, the following are put on hold and delayed, slowing down the process and the performances. Information is not always provided by the Local Offices, limiting quantity and quality of it for later evaluation and coordination from the National Office. This is a pretty common aspect in the process, according to local and national responsible, who can do few but to send reminders. Frequency of repetition depends on the peaks of activity of the different Local Offices; in the case observed, each step was repeated according to schedule, and if it was not possible to perform it, the team was informed in advance to take action.

4.3 Consideration on the artifact level.

The role of artifacts appears to be very important throughout the whole process. As seen, they constitute a common “touch point” for the different steps of the recruitment. The main artifact around which revolve most of the operations, myaiesec.net, represent the basis of analysis of performance itself (apply-match-realized). In myaiesec and on the three steps we can find the norm and the ostensive aspect embed in the artifact, that guides the performances of the actors. Other artifacts are present during different step of the process, such as the planning phase and the promotion. The tools created by the National Office are then shared with the Local Offices which use them to run the step of the recruitment. There is a widespread usage of spreadsheets, online forms and databases to gather and process information. Besides the tools that gather

information, there are other artifacts such the National Guidelines, which are the backbone of the process, and have similar role as the Standard Operating Procedures. They are defined by the National office and presented to the Local offices to be adopted. National guidelines represent the outcome of a process of analysis and evaluation of the previous recruitments. They can be considered the result of the generative interaction between different aspects of the routine and a sum of organizational learning. They embed all the information a Local Office has to know: from team structure and trainings needed, suggested timeline of activities, and so on.

Besides this artifacts, during different interviews, actors showed how they usually take the initiative to create artifacts that suites a missing function in the steps, particularly those which need a higher degree of control, and are not mapped by myaiesec.net or by any national tool.. This gives rise to different tools and codified information that is not homogenous around the Local Offices.

4.4 Observed interaction within routine.

4.4.1 Ostensive to Performative aspects.

The analysis done at time $t=0$ allow us to see that on the performative aspect, actions carried out at specific time by each actor have been influencing the ostensive aspect for the way it was envisioned as “apply”-“match”-“realize”, being able to add a set of actions in between the steps, and at the same time influencing the artefact level. When referring to different part of the process, for example “match”, actors can easily relate to them, but it’s interesting to notice how the experience gained by influence their approach on such steps. Local Offices have been found to perform different actions when enacting the recurrent patterns of the routine. Performances match the ostensive definition on the moment in which the “match” is on the platform myaiesec.net, but there is lot of variations in the actions around the Offices.

On the other side, no influence have been recorded from the ostensive aspect on performances, which might identify the relationship between the two unbalanced, with more source of influence and change coming from performances.

4.4.2 Artifact to performative

This relation measure the control over behaviour. As said before, performances respect the norms of the three-macro steps on the platform when it comes to using the main artifact. We

also saw how the degree of freedom of actors allowed them to create other sets of artifacts that are meant to supply the lack of the main platform; when this happens, the relationship is not about the control over behaviour with SOPs, but on how artifacts play a role in facilitating the performances. When actors were reported not to follow the guidelines, the management did not take action for increasing the control over the behaviour, limiting the action to an assessment done with the local responsible, and leaving under the responsibility of the Local Office any corrective measure in terms of governance. What emerges from this analysis is a lack of strong measure of pressure and control on the behaviours of experienced actors.

4.4.3 Artifact to ostensive

When we go to analyse the specific actions of every actor, we see a quite high degree of discretion. The steps that each team has to follow are the same, but the specific way in which they are carried on appears to be different. These variants appears to depend mainly on the understanding of each team leader and team member of the guidelines, but they are also related to the knowledge that they are able to put together to solve the bottlenecks of fragmented information and tools. In order to create more alignment, the relation between artefact and ostensive aspect suggest that there should be alignment between “tools and rules” (Pentland and Feldman, 2005). Such alignment exist in terms of guidelines, but its influence is limited as actors have the power of customizing their actions and their tools when enacting the routine, making the alignment different in every Local Office..

4.5 Branches, nodes and architecture

4.5.1 Branches.

Branches, defined as “transposable set of actions” (Nooteboom, 2007), are the steps comprehended within the routine. The routine of the actors performing the recruitment is built upon a sequence of activities operating on myaiesec.net, the Local Office and remote working on through emails and online platforms. The technology (myaiesec) dictates the sequence of branches; other branches are added with the creation of artifacts by the actors. Each branch has specific indicators for control, usually the conversion rate from one branch to the other. They have been observed to be:

- Planning and data gathering; this can be done through data from myaiesec.net, artifacts of the Local office, past performances records and database.

- Cooperation setting; emails, conference calls, and other tools are the way in which to do.
- Promotion; it is one of the most various branches in the routine, taking different forms, whether it is executed through social media, offline channels and material, but have a clear performance indicator: the number of applications collected.
- Assessment centre; the moment in which the competencies and motivation of the customer are evaluated. This the way in which to run interviews, through online platform, face to face, with other people, can vary in the methodology, not in the outcome desired. Guidelines and interviewee suggest the individual assessment centre as the most adopted if the situation allows it.
- Apply; when the students are helped by their EP manager to register into the platform and apply to the programme they are looking for.
- Signing the contract.
- Signing the EP Acceptance note.
- Match; is the moment of formal acceptance of the EP and the Hosting Entity to start the programme
- Payment; payments are done in cash or through online money transfer, with the second option being the preferred one.
- Outgoing Preparation Seminar

4.5.2 Nodes.

They are produced analysing the and branches and the choosing the consequent action. When analysing a recruitment process, they appear logical and consequential. What emerged in the observation and interviews is the specific approach that every actor has, thanks to the customization of the performances before the phase of apply and in between the three macro steps. Actors do not all the check the same tool or data when choosing how to deal with the next branch, buy they all follow the same logical order. It appears that actors are aware of their own role and tasks, “their constraints” (Nooteboom, 2004) but they are also aware that they can influence their repertoire of actions in the nodes of the routine, and this can appear to be not aligned with the SOPs, although in the logic of the routine.

4.5.3 The architecture.

As architecture, we can see the what’s behind the routine itself: a logical reasoning to make recruitment efficient and effective according to the planned result, with choices that might not follow the guidelines, depending on the specific environment, but that are meant to achieve

the same goal. We can consider the architecture the “sequential variety”, where actors, aware of their repertoire of activities, can choose to influence them for the achievement of the results of the routine, therefore impacting the performative level and the tasks define by the guidelines and SOPs. Actors already know what to expect out of the recruitments’ routine architecture, therefore they know what to expect from one another, differently in every local level, when enacting the recruitment tasks. The result of how they will adapt to change where role and tasks might be redefines is matter of investigation for this paper, as it will influence the expectations of the actors and the repertoire of activities at disposal.

4.6 The role of communities and connections

Further considerations emerges after the observations, when the actors are describing the role that the knowledge community plays in the routine. The community in this case is made of all the local responsible of the Entity, which together compose what is referred as “functional area”: the OGCDP community. People in the group hold knowledge about the recruitment which have been acquired through experience; they appear to be in frequent communication, exchanging knowledge and increasing the awareness of the routine within the group. The local responsible observed took the chance to compare their actions and performances with others, mainly to get feedbacks; in this way they were able to reflect on the nodes of the routine and to get deeper inside from reflection about their actions. As literature Latour said “A continuous definition and redefinition of what collective action is about [...] involves shifting from an ostensive to a performative definition” (Latour, 1986:277), with this in mind, we advance hypothesis that needs to be tested better during interviews and survey regarding if and how the actors are able to shape the definition of ostensive through their actions. Team work is a situation where behavioural aspect can plays an important contribution in dealing with the interdependence of tasks and in achieving coordination. Can we advance the hypothesis that the opportunity of reflection and sharing given by the community play a relevant role in the routine, increasing the performance outcomes? Such aspect will be object of analysis of the following paragraphs.

4.7 Analysis of the antecedents, characteristics and performance outcomes of the routine.

What follows now is an analysis of the routine according to the framework presented, in section 1, which will help in identifying at time $t=0$, how the antecedents are influencing the characteristics of the routine and how such characteristics are reflected on the performance outcomes of the routine in different moments of time. The output of such evaluation will be compared during and after the transition to assess which changed happened and which aspects contributed the most to such change.

4.7. 1 Task complexity.

As reported in the first propositions developed by Becker (2005), the higher the task complexity, the higher will be the sequential variety of the recurrent interaction patterns that accomplishes such task. This is true when more elements are requested in sequence of action to accomplish the task. Instead, if the elements are codified within the routine, few connections are needed to take decisions, a higher complexity will lead to a lower sequential variety of the task. Based on an evaluation of the routine and on the observations to far, we can see that tasks do not display a high level of complexity. On frequency, the current level of analysis shows that tasks complexity appear to have impact in such cases where the responsible of the routine can run a performance appraisal and evaluate if the patterns are not achieving the set goal of performances, increasing in such cases the time needed of some tasks. This level of complexity explain the variety of combinations that can be found performed in different Offices, thus we can develop the hypothesis that an increase of complexity will limit such variety and the repertoire of sequences that actors perform, when running the recruitment.

4.7.2 Task interdependence.

The higher the interdependence between steps of a recurrent interaction pattern, the lower the sequential variety of the recurrent interaction pattern will be observed. Interdependence is present both between the steps of the process (which are sequential), both between the different elements that are part of the process, such as tools and artifacts. Being teamwork itself typical of interdependence, as Gittell points out (2000:518) “the most commonly accepted definition of a team is that of a work group whose tasks are interdependent”, and being all the tasks carried out by the team, .we can see how interdependence is present in the routine under all aspects. Different patterns needs to be carried on at the same time and other in parallel. The level of interdependence between actors and elements of the routine can vary a lot because of the interaction of the participants, which

depicts a big network of action (Feldman, 2000). The increase amount of artifacts and tools created increase the level of interdependence between Local Office and the National one, as well as between Local Office and EPs, limiting standards tools and elements and creating different sequence of actions according to the different pattern. Interdependence is more limited if we consider the sequential process on an ostensive level (apply-match-realize), which will increase after change, allowing us to make predictions on a possible lower sequential variety as outcome of the process of change.

4.7.3 Time pressure

Regarding time pressure, there is positive correlation between time pressure and the frequency of a pattern that accomplishes a task. This is proved by the routine observed itself, as for when goals of a specific pattern are not met, for example the number of applications or assessment centre run, decisions were taken to increase in frequency of action to meet the goal within a certain deadline.

4.7.4 Uncertainty

The routine observed did not present any particular level of uncertainty regarding tasks, therefore we can predict a rise in the level of uncertainty after change. Routines have a powerful role in helping decision making (Nelson and Winter, 1982; Cyert and March, 1963) as a routinized behaviour help decision makers to cope with uncertainty. Therefore according to the model we can expect actors to prefer a behaviour already tested based on their experience, but we still don't know if and how experience will help them to cope better with a new scenario.

4.7.5 Coordination

The current routine allow the actors to operate in coordination, as they have developed clear expectations regarding the choices of their colleagues, being able to predict choices. Current sequential variety appear to allow actors with a good level of coordination, being aware of the steps required by the routine and having a final responsible within the team for each step. To simulate the study of Hutchins (1991), in which the crew of a ship had to coordinate dividing tasks between themselves, the Local Office of Venezia was asked to take part into a simulation. During the simulation, the team leader was supervising the actions of the team members. A volunteer was asked to simulate the part of an student willing to leave for an GCDP programme, the team thanks to the experience developed and a clear division of labour, were able to simulate all the recurrent interaction patterns of the recruiting, being able to give clear information and inputs needed to the rest of the team, and to complete the task just

through communication done on written papers. This proved a good level of coordination within the team, which had clear expectations towards each other developed with experience. Forecasting an increase level of complexity and interdependence, the result of lower sequential variety on the team and in its interaction with the routine will depend on their ability to replicate such predictable behaviours (Simon, 1965; Becker, 2005). We argue that it is necessary for the participants to have good understanding of the division of labour to keep on carrying on the routine in such a way. With lower sequential variety it will be necessary for the participants to focus their cognitive resources on setting the right expectations with the team on how to manage the new patterns and to replicate them. At the date of evaluation, no Local Office around Italy simulated any pattern deriving from the adoption of experience.aiesec.org, thus lowering the chances of replicating such level of coordination right after the switch to the new platform.

4.7.6 Saving on cognitive resources

Routines allow this by establishing predispositions to respond issues in a certain way (Ashmosh et al, 1998), thanks to a fixed set of actions the actors can choose. Currently, this outcome was noticeable especially during the interaction of the team with the EPs, when performing interviews or assessment centre. If the questions asked by the EP regarding the programme were pointing towards Entities that were not partner of the Local Office, or to particular specifications regarding the programme they were interested in, actors were responding with a routinized behaviours, leading to a set of answer that re-direct the EP towards the standard information and specification of the programme, excluding those who were not aligned with them. Higher uncertainty and lower sequential variety should lead to dedicate cognitive resources to events that are unexpected. Therefore, in a moment of organizational change where broad concepts of the routine change (artifact, ostensive), the actors are expected to need an aware behaviour regarding the interrelation of tasks needed to succeed in enacting the pattern to redirect any unexpected events to the boundaries of the routine that are known to them (Weick and Roberts, 1993).

4.7.9 Learning by doing

Stable behaviours of the actors provide a baseline to assess events, results, feedbacks and understand what's coming next. The current interaction patterns are a good base to learn as they are stable. When this baseline will change, there is a risk for actors to overreact and limit the experimentation of new behaviours (March, 1988), limiting the chance to foster learning by doing in short times after change.

4.8 Case study evidence: survey

The previous section presented an analysis of the performative, artifact and ostensive aspect of the routine, an analysis of the interactions between routine and of the branches, nodes and architecture of the routine. This section will instead give more space to the analysis of the characteristics of the routines enacted within the organization, trying to get information at international and Italian level. The idea is to measure the aspects of the routine at international level and be able to draw a representation of such routine at international level, then compare it to the Italian Entity and see if it is possible to take it as a sample for the analysis of organizational change of AIESEC at Global level.

4.8.1 Criteria and respondents

To do this, a survey of 20 questions was created to be sent to the entities of the AIESEC network. Out of the 124 Entities of AIESEC, following criteria to select the most suitable were applied:

- A minimum of 200 EP realized per year in the last three years through the recruitment.
- The recruitment had to be done at least 3 times a year.
- Each local office that took part in the survey had to have at least a team dedicated to the recruitment.

50 Entities were fulfilling the criteria. Out of them, the final confirmation in the will to take part of the survey was by 20 Entities worldwide (Australia, Brazil, Colombia, Bulgaria, Canada, Czech Republic, Egypt, France, Germany, Hungary, India, Korea, Malta, Mexico, Peru, Portugal, Russia, Spain, Taiwan, UK), which participated by sending the survey to the local responsible. Out of it, were collected in total 62 responses. All the entities contributed to the survey with 3 respondents, besides Mexico, Russia and Spain, UK with 4, Colombia Bulgaria and Egypt with 2.

The goal of the survey was to sense the characteristics of the routine at international level, in different Entities, and come out with a reliable description of the routine. Once the first step was done, the same survey was sent to the 20 local responsible of Italy. The Italian Entity is the one that will be deeper analysed during the paper, and in order to understand whether the Italian scenario and its routine have the same characteristics of those at international level, both surveys will be compared.

4.6.2 Characteristics assessed

The characteristics analysed through the survey are:

- *Degree of freedom*: the actors' room for personal interpretation of the routine; the extent to which an agent is able to change the content of his tasks or the way in which he performs them. This can directly affect his customization on the patterns and partially the sequential variety of a routine, which actors might influence according to their perception of task complexity and interdependence of tasks.
- *The role of artifacts*. Since organizational change take the aspect of a change of artifacts, potentially impacting both the ostensive and the performative level, the evaluation of the role of artifacts constitutes a relevant piece of the puzzle.
- *Intra-organizational cooperation and learning*. How teams and communities have the power of capitalize on learning by doing, interactions and connections to increase problem solving. A clear understanding of whether the organization allows collecting proposal for improvement, and having an environment that foster it, will enhance the chance of continuous learning, cooperation and coordination as outcomes of the routine.
- *Source of storing knowledge and reducing uncertainty*. If the routine enacted allows the actors to learn from their actions and help them when facing different situations, to improve the outcome of their work, and how.

4.6.3 Limits of the methodology

Using a survey to test empirically the characteristics of a routine presents of course several problems: routines have aspects such as rules that are not easy to test, and the answers rely on the perception of the respondents. It is tough possible to use data gathered through answers to assess the routine at different point of time and to assess some of its characteristics by testing the propositions developed in the framework and to test the routineness of the patterns (Whitey et al, 1983). It was possible to collect answers that depicts different aspects of an organizational routine, what follow is the results of such findings

4.8.1 International survey results

4.8.1.1 findings 1. Degree of freedom

In order to identify the degree of freedom within the organization, which can allow us to develop hypothesis on the propositions regarding task complexity and interdependence of a routine, the following three questions were asked.

Question 1.

To which extent you can select or change the content of your work?	Respondents	Percentage
Great	21	34%
Somewhat	35	56%
To a less extent	6	10%
Total	62	100.0%

Question 2.

To which extent you can change the order in which you perform tasks?	Respondents	Percentage
Great	15	24%
Somewhat	29	47%
To a less extent	18	29%
Total	62	100.0%

Question 3

To which extent you can change the way in which you perform tasks?	Respondents	Percent
Great	21	33,8%
Somewhat	30	48,3%
To a less extent	11	17,9%
Total	62	100.0%

Analysing the answers we can say respondents state to have some or a high degrees of freedom upon their work in terms of content (Question n1); we don't have to mistake this with sequential variety, as according to the approach we are following, we refer to sequential variety as to change in the sequence of actions, not their content. Moreover, actors *can* select or change the content of their work, but does not necessarily need to, as it is the actors' performances that in the end define the path of action. It is tough important to notice how the routine allow this discretion and how it is recognized by the actors. Regarding their approach

towards sequential variety though (Question n 2), we see a lower perception on the degree of freedom, underlying the flow by which routines are executed; this also shows that the routine is composed of subsequent steps, with a perceived high degree of interdependence between the steps of a recurrent interaction pattern that limit the order in which tasks can be performed. The way in which tasks are performed, the performative aspect, is as well a dynamic component for agents: 17,9% of the respondents stating who do not feel like they can influence the specific way in which they are carrying our tasks, having a good degree for interpretation of the routine. We can assess that actors do have room for interpretation over the *content* of the task, and on the performative level. These findings gives us information regarding the relationship between the performative-ostensive interaction and the artefact-ostensive interaction.

4.8.1.2 Findings 2. Intra-organizational cooperation and learning

The interviews and the observations pointed out the role of communities as a way to share knowledge and information; in order to test such statement and to identify if and how the actors of the recruitment cooperate and communicate across teams, within different position and if such interactions contributes to increase coordination and learning, the following five question were asked.

Question 4

Does it happen to you to contact colleagues from other Entities or of other Local Offices during working hours?	Respondents	Percent
Yes	52	84%
No	10	16%
Total	62	100.0%

Question 5

What is the most frequent reason to contact colleagues from other teams or of other Local Offices during working hours? (multiple choice)	Respondents	Percent
To get informations	51	82%
To give informations	35	56%
To solve problems	31	50%

Question 6

How often do you get in contact with your colleagues?	Respondents	Percent
More times during the week	4	6%
Weekly	19	31%
Monthly	22	36%
Rarely	17	27%
Total	62	100.0%

Question 7

Does the management arranges meetings where you can express your personal opinion on what is going on in the organization?	Respondents	Percent
Yes	53	85%
No	9	15%
Total	62	100.0%

Question n 8

If any, do you recall situations in which you looked for consensus of your ideas from the management or from your team?	Respondents	Percent
Yes	56	90%
No	6	10%
Total	62	100.0%

Major part of the respondents are used to contact other responsible during their working time. This data shows the importance of the role of communities, which serves different roles; of these, the most relevant is to be a source of information, with 82% of the respondents stating that the primary reason why they contact the community is to ask information. The second most relevant reason of why colleagues are contacted, is to give information and

support, supporting the role of communities as a source of information and learning. Also the frequency at which these contacts are made is pretty high, with the highest response being Monthly (36%) or Weekly (27%). On the other side, there is almost one third of respondents who rarely exploits such chance. The data highlights the importance of shared information as a way to give and receive support, increasing a learning approach, and as an outcome, a way to achieve more coordination and learn by doing.

“My team [intended as the people with my same job description] are a very important source of knowledge, with them I can share learnings, inputs, question the way we perform tasks.”

Question 7 and 8 adds a parallel perspective next to the one of communities, the management one, towards the processes that are part of the organization. With moments of confrontation between the actors and the management, possible learnings can emerge from the performances observes, together with needs and ideas, and have more chances to be noticed, learning by interaction as informal practice takes place in the workplace and contributes to the problem solving of daily activities.

4.8.1.3 Findings 2.1 Intra-organizational learning

To assess how much the current routine contributes in the learning of the actors and of the organization, and give chances to assess their competencies and practice of learning by doing within the organization, the following questions were asked.

Question n 9

How often does your workplace requires you to learn something new?	Respondents	Percent
Very often	22	35%
Often	34	55%
Not so often	6	10
Total	62	100.0%

Question n 10

Have you ever faced new or complex problems during the recruitment process where it took you at least 30 minutes to find a solution?	Respondents	Percent
Yes	54	87%

No	8	13%
Total	62	100.0%

Question 11

If any, did you experience any situation during the recruitment process in which you analysed your actions and found solutions to improve your work?	Respondents	Percent
Yes	56	90%
No	6	10%
Total	62	100.0%

Question 12

Do you run performance evaluation of each task of the process with checks points?	Respondents	Percent
More times during the week	8	6%
Weekly	20	31%
Monthly	29	36%
Rarely	5	27%
Total	62	100.0%

Question 13

Do the management finds effective ways to inform you about how to perform each step of the recruitment?	Respondents	Percent
Yes	58	93%
No	4	7%
Total	62	100.0%

A high majority of the respondents faces often (55%) or very often (35%) situations that require them to learn something new while enacting the routine of recruiting. Learning is a constant presence in the routine, as an outcome of recurrent interaction patterns. A big percentage also shows that they are used to face situations that requires their understanding

of the situation and analysis, which due to task complexity can make actors learn things that are not present in the guidelines, but that increase the expertise with a learning by doing process, generating specific competencies and knowledge within the organization. Connecting these findings with the relevance of communities, we can see how the intra-organizational learning, is a relevant aspect to foster cooperation and to improve shared knowledge between the members of the community itself. Performance evaluation is seen as a good way to measure the progress of the routine and to provide feedbacks on going when checking plan versus achieved. The management has a relevant role in providing the guidelines and instructions on how to perform the tasks that are part of the routine. 93% of the respondents to the survey consider that they are informed properly. Learning as a process appears to be not limited to the actors who are directly involved in the routine, but to be part of the organization as a whole, involving different levels of the communities and of the organization.

4.8.1.4 Findings 3. The role of artifacts.

The importance given to artifacts by actors is of particular importance in the context of the paper, were a major change is the online platform that allows to coordinate operations between Entities, therefore, to assess the usage of artifacts by the actors and their role in the routine, the following questions were posed.

Questions n 14

To which extent you can select or change the tools you use to perform your work?	Respondents	Percent
Great	20	32%
Somewhat	26	42%
To a less extent	13	21%
Not at all	3	5%
Total	62	100.0%

Question n 15

Have you ever implemented different tools to perform better? (database, spreadsheets, workspace, contact lists)	Respondents	Percent
Yes	54	87%

No	8	13%
Total	62	100.0%

Question n 16

Did such tools have any impact in the way you are performing your task?	Respondents	Percent
Positively	43	80%
Nor positive nor negative	6	11%
Negatively	0	0%
No changes	5	9%
Total	54	100.0%

Regarding artifacts; most of the respondents considers to have a good or high degree of freedom in the way they are using artifacts when performing tasks, reflecting previous considerations on the artefact-performative interaction. 87% voluntarily created or implemented artifacts in the routine performed, and 80% of such respondents value positively the impact that they brought in their tasks. We can see the degree of freedom that came out from *Findings 1* having impact also in the artifacts when performing a routine. On the other side, the emergence of so many different tools may have downsides when a higher degree of coordination is required and on the control over behaviour, with a high spread of information. The relationship between artifacts and performances result biased, as the number of artifacts that emerge and support the main macro-steps held by myaiesec.net somehow dilutes the imposed behaviours that the main artifact should bring (norms of myaiesec.net)

4.8.1.5 Findings 4. Routines as source of storing knowledge and reducing uncertainty.

Organizational change should capitalize on the knowledge of the organization gathered thanks to the work of actors that serves as a storage of memory for the organization. To evaluate if the current routine allowed to store organizational memory, the following questions were asked.

Question n 17

To which extent you find access to useful data regarding how to perform the recruitment?	Respondents	Percent
Great	30	48%

Somewhat	22	35%
To a less extent	10	16%
Not at all	0	0%
Total	62	100.0%

Question n 18

To which extent you have an understanding of all the action step required to run a recruitment?	Respondents	Percent
Great	40	64%
Somewhat	18	30%
To a less extent	4	6%
Not at all	0	0%
Total	62	100.0%

Question 19

If any, did you experience any situation during the recruitment in which you had few information on how to behave?	Respondents	Percent
Very often	1	2%
Often	10	16%
To a less extent	31	50%
Rarely	20	32%
Total	62	100.0%

Question 20

Would you say that by performing the tasks, you were able to gain knowledge and information on how to perform the recruitment?	Respondents	Percent
Greatly	54	87%
Somewhat	6	10%
To a less extent	2	3%
Poorly	0	0%
Total	62	100.0%

According to 48% of the respondents there is great access to information, with 35% saying “somewhat”. 64% admits to have a great understanding of the tasks to enact during the current routine. As a recurrent action pattern can serve to store organizational memory thanks to the frequency by which a routine is enacted and becomes part of the knowledge of the actors, considering that the organization is about to face a process of change, we can say that the routine successfully allowed the actors to gain knowledge regarding the procedures, steps and tasks of the routine. This knowledge held by the actors can serve in a process of change, to recall situation and save cognitive resources.

4.9 Findings from the Italian survey

4.9.1 Degree of freedom

Question 1.

To which extent you can select or change the content of your work?	Respondents	Percentage
Great	4	20%
Somewhat	13	65%
To a less extent	3	15%
Total	20	100.0%

Question 2.

To which extent you can change the order in which you perform tasks?	Respondents	Percentage
Great	3	15%
Somewhat	10	50%
To a less extent	7	35%
Total	20	100.0%

Question 3

To which extent you can change the way in which you perform tasks?	Respondents	Percent
Great	6	30%
Somewhat	6	30%
To a less extent	8	40%

Total	20	100.0%
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Compared to the international survey, we can notice higher percentages of answers being “Somewhat” and “To a less extent”, that show a lower discretion in the degree of freedom in terms of content of work. Content variety of the routine are perceived as more stable when compared to the perspective of other Entities. We can observe a higher % of response under “Somewhat” (+7%) and “To a less extent” +6%, that seems to report the perception of a lower sequential variety of the tasks compared to the international perspective on the same routine. In question n3 we see the major increase of the percentage of answer “To a less extent”, against 18% of the international survey. We can see that the process of the work appears to be more complex and interdependent, limiting the degree of freedom of actors.

4.9.2 Intra- organizational cooperation and learning

Question 4

Does it happen to you to contact colleagues from other Entities or of other Local Offices during working hours?	Respondents	Percent
Yes	16	80%
No	4	20%
Total	20	100.0%

Question 5

What is the most frequent reason to contact colleagues from other teams or of other Local Offices during working hours? (multiple choice)	Respondents	Percent
To get information	14	70%
To give information	9	45%
To solve problems	10	50%

Question 6

How often do you get in contact with your colleagues?	Respondents	Percent
More times during the week	2	10%

Weekly	12	60%
Monthly	5	25%
Rarely	1	5%
Total	20	100.0%

Question 7

Does the management arranges meetings where you can express your personal opinion on what is going on in the organization?	Respondents	Percent
Yes	15	75%
No	5	25%
Total	20	100.0%

Question n 8

If any, do you recall situations in which you looked for consensus of your ideas from the management or from your team?	Respondents	Percent
Yes	19	95%
No	1	10%
Total	20	100.0%

There are no relevant changes compared the international survey: 80% against 84% still proves the importance of communities as a source of knowledge and information that can foster coordination in the routine. We can observe a higher frequency of contacts during the week, making communication more frequent and easier to evaluate in the Italian sample. We can see less involvement from the management side (+10% of “No”) in gathering ideas and inputs on how the routine. Despite the lower percentage of answers in question n 7, we can see that the responsible have the chances to look for the management in terms of looking for support when they have ideas regarding their work.

4.9.2.1 Intra- organizational cooperation and learning

Question n 9

How often does your workplace requires you to learn something new?	Respondents	Percent
Very often	4	20%
Often	13	60%

Not so often	3	15%
Rarely	0	0%
Total	20	100.0%

Question n 10

Have you ever faced new or complex problems during the recruitment process where it took you at least 30 minutes to find a solution?	Respondents	Percent
Yes	16	80%
No	4	20%
Total	62	100.0%

Question 11

If any, did you experience any situation during the recruitment process in which you analysed your actions and found solutions to improve your work?	Respondents	Percent
Yes	19	95%
No	1	5%
Total	20	100.0%

Question 12

Do you run performance evaluation of each task of the process with checks points?	Respondents	Percent
More times during the week	0	0%
Weekly	8	40%
Monthly	6	30%
Rarely	6	30%
Total	20	100.0%

Question 13

Do the management finds effective ways to inform you about how to perform each step of the recruitment?	Respondents	Percent

Yes	20	100%
No	0	0%
Total	20	100.0%

As in the international survey, the routine plays an important role in fostering learning also in the Italian Entity. The percentage of positive answers is higher when compared to the findings of the first survey, showing a better knowledge and understanding of the routine supported by the National Office. We can see a lower usage of evaluation checks during the process, while at international level we could see a lower percentage of respondents that were having them on going also during the week, in the Italian scenario we see few differences between the respondents.

4.9.3 The role of artifacts.

Questions n 14

To which extent you can select or change the tools you use to perform your work?	Respondents	Percent
Great	5	25%
Somewhat	10	50%
To a less extent	4	20%
Not at all	1	5%
Total	62	100.0%

Question n 15

Have you ever implemented different tools to perform better? (database, spreadsheets, workspace, contact lists)	Respondents	Percent
Yes	18	90%
No	2	10%
Total	20	100.0%

Question n 16

Did such tools have any impact in the way you are performing your task?	Respondents	Percent
Positively	15	75%

Nor positive nor negative	5	25%
Negatively	0	0%
No changes	0	0%
Total	20	100.0%

Questions n14 and 15 shows the same results as of the international survey, confirming the level of discretion of the actors on the artifacts. Regarding question n15, answers are similar, with a higher percentage of answers being “Nor positive nor negative”, showing less improvement and impact on the performances by the change of artifacts and their adoption.

Question n 17

To which extent you find access to useful data regarding how to perform the recruitment?	Respondents	Percent
Great	6	30%
Somewhat	11	55%
To a less extent	3	15%
Not at all	0	0%
Total	20	100.0%

Question n 18

To which extent you have an understanding of all the action step required to run a recruitment?	Respondents	Percent
Great	14	65%
Somewhat	6	35%
To a less extent	0	0%
Not at all	0	0%
Total	20	100.0%

Question 19

If any, did you experience any situation during the recruitment in which you had few information on how to behave? Respondents Percent

Very often	1	5%
Often	1	5%
To a less extent	13	65%
Rarely	5	25%
Total	20	100.0%

Question 20

Would you say that by performing the tasks, you were able to gain knowledge and information on how to perform the recruitment? Respondents Percent

Greatly	19	95%
Somewhat	1	5%
To a less extent	0	0%
Poorly	0	0%
Total	20	100.0%

There is good access to information in the routine under consideration.

According to 48% of the respondents there is great access to information, allowing to have access to data and to organizational memory stored in it. We can say that the routine successfully allowed the actors to gain knowledge regarding the procedures, steps and tasks of the routine. This knowledge held by the actors can serve in a process of change, to recall situation and save cognitive resources and at the same time confirm the role of learning by doing of the routine, proved by a high availability of information and the chance to repeat the pattern of actions.

4.10 Considerations.

4.10.1 Results of the comparison

Comparing the results of both surveys, we can see that despite the few results given by the small sample available (20 local responsible of the recruitment in Italy), there is a high match rate between the international and Italian scenario. This allow to evaluate the results of both surveys in a similar way, taking the Italian scenario as a sample of what is happening around

the other Entities. We refer to a “sample” of the international scenario for what concerns the characteristics of the routine analysed through the survey. This constitutes the premise for a deeper analysis of the variations on the performative aspect at the level of AIESEC in Italy, where direct observations are possible, and it is easier to get insight of how the routine is changing. At the same time, it is possible to consider and evaluate the results as a good representation of the characteristics of the recruitment routine in the international context.

4.10.2 Results from the survey

The results of survey present interesting insights that are able to represent the characteristics of the current recruitment routine enacted in the organization at the level of different Entities. Given the current routine, the main aspect that appear relevant regarding the aspects analysed are:

- Degree of freedom. The performative aspect of the recruitment routine evolved arriving to a point in which despite the frequency, complexity and interdependence of tasks, actors have a good degree of freedom on their actions. This allows to go out of predetermined schemes to achieve the tasks, whether we are talking about the way in which tasks are performed, or the usage of artifacts.
- The role of communities. It have been proved a relevant aspect, which allows confrontation, interaction and both a source of support and of information. Teams and communities helps in shaping the culture of the organization and in achieving the tasks, as the main actors in the routine.
- Learning by doing. The fact that routinization can foster learning and coordination, as the more exercise an actor has with the task, the more efficient it will be in managing it, is well present in the current routine. In this way routines guides search through experience (Levitt and March, 1988) and allow to save on cognitive resources, increasing the attention on other events that might occur, as a case of organizational change.

All these three aspects are linked together and define the recurrent interaction patterns of the routine under exam. In order to evaluate the contribution of such patterns at $t=1$ after change happened, their contribution during the period of transition will be assessed and will be asked the importance assigned to them directly to the actors.

5. Organizational change: the shift to experience.aiesec.org

5.1 Brief summary

Myaiesec.net officially shut down on November 7th, despite the date have previously been announced to be the 5th of November. From that moment on, the platforms at disposal of the organization became experience.aiesec.org and opportunities.aiesec.org. From the official launch tough, many bugs were present in the system (EXPA official newsletter #1). The big limit appeared to be the management of operations in the phase of “signup”, “apply” and “match”, as the system, an artifact, was influencing the performances of the actors. Actors they found themselves to deal with more uncertainty than before with a platform that (1) presented some bugs and (2) was of different usage and with different indicators of the process. Some Local Office were reported to not follow the guidelines of the new platform and instead work “offline”, with other methods by which they were carrying on operations. By working offline, we refer to any activity that is carried on outside of the official platform and that influence the six step flow that the recruitment adopted, choosing therefore other indicators and tools. This created several issues for the National Office that was not able to have an overall perspective on the situation and on which aspects the management could have triggered to efficiently work on routines and their qualities to put the organization on track with the new routine. Reports of the quarter speaks clearly (figure 6) most performances did not involve the usage of the platform experience.aiesec.org as the results of the organization were not reported officially.

It is in these conditions that was run a survey to assess the transition period to see how the characteristics of organizational routines would have come in hand to facilitate the process and if it was possible to work on them. More time was dedicated in the analysis of the routine in contact with the local responsible and the National Office to see how they were dealing with the scenario, strong on their experience with the recruitment process. What follows is an analysis of the recruitment process during the shift to experience.aiesec.org; the timespan goes from the 7th of November until the 21th of December, day in which most of the activities stopped officially for holidays. The analysis consider the relation with the different aspects of the routine, the branch, nodes, architecture approach and the framework for analysis of antecedents, characteristics and outcomes of the recurrent interaction patterns of the routine. Qualitative evaluations on the methods of observations used were formulated and are presented arguments that aim to address the change management on the behavioural level of

the routine, taking into considerations the facts that arose during the process of organizational change.

5.2 The context of the shift for the recruitment process

When myaiesec.net shut down, most of the Local Offices were running promotion activities and assessment centre; different EPs were made apply to the opportunities present in the system. The goals of the recruitment at National Level to be met January were of 180 EPs on “apply”, 150EPs matched, this would have allowed 120 realizations of GCDP programmes between January and February. On the 7th of November 40 EPs were on “apply” stage, and 15 were already matched. After the shift, most of the Local Offices continued running informative sessions and interviewing EPs to meet their goals and continue the process. All the cooperation were already set by the end of September, as reported by the National Office. With the new platform, most activities that were before run on different tools could now have been processed online. Experience.aiesec.org was not directly influencing some branches of the recruitment (promotion, running the assessment centre) which were run offline and using the workspace of the teams, but other yes, like receiving applications online, messaging EPs within the platform and perform the phases of the flow “signup-reintegrate”. Some issues of the platform were reporter by other Entities (EXPA newsletter #2) regarding the functionalities of signup, as with all the opportunities being visible within the network, each one was receiving hundreds of applications from EPs. In order to have more control on the process, the National Office decided to delay the usage of experience.aiesec.org as the official platform for direct promotion of the programmes, and rather to use the old application form online managed with Podio (online application system) that was used to collect online applications. Thanks to a work of coordination with the Global Office, each EP registered through Podio would have been registered automatically on opportunities.aiesec.org, leaving contacts and information to the Local Office, which would have been able to run a headcount of EPs and track their steps in the platform with close monitoring and communication.

What was found is a slowdown in the processes of the recruitment at local level. If the recruitment was a process of different steps that can both be run both in parallel and sequentially for different EPs, most of the operation run in the Local Office reported to diminish, especially those focusing on the latter parts of the flow, from matching and realizing on. At the same time, most Local Offices were not properly following the standard operating

procedures of the platform to run such operations, using different tools to coordinate the work. To investigate on such aspects, the routine was analysed on different levels.

5.3 Analysis on parts of the routine

5.3.1 Change in the ostensive aspect

The standards “apply”-“match”-“realize” changed, leading to a six step process that defines in a different way the recruitment in its steps: “signup”-“apply”-“match”-“realize”-“complete”-“reintegrate”. This drastic change redefine the steps that are part of the recruitment and provide different methods to guide and account for activities of the flow. The recruitment routine proved to have a strong effect on the behaviour of the people enacting it as actors had now new definitions of the activities they were accountable for, indicators and tools to use. Such an event of change should redefine the abstract perception that actors have of each action within the routine, its link to the next one, and the overall architecture behind. Having to deal with new definitions, actors can recall their previous experience to connect the activities they need to do with previous tested patterns (Weick, 1990) to save on cognitive resources and mentally match the new needs of the flow with actions associated to it (see the different meaning of the step “apply”, where a student can see and choose between different opportunities, and of “complete” and “reintegrated”, which imply new ways to engage the customers). At the same time, the change on the recruitment flow add new checkpoints for the actors, which change the way in which they assess the overall achievement of the organizational performances (as results) and the role of performance feedback change in its content. Process management therefore include new global indicators, which are the ratio of two linked steps of the process (match/apply; complete/reintegrated). This lead to re-evaluate the meaning behind each pattern within the routine by every actor, who needs a clear understanding of the actions of the process to translate such definitions into performances.

5.3.2 The change in the performative part

Performances varied, as actors adopted a new system, which combined part of their previous knowledge, different standard operating procedures, new definitions of activities. This means new way of carrying on each action within the routine and associate one or more new recurrent pattern for each step of the routine. When doing this, actors started a process of trial and error of the actions to do; therefore, there were very specific actions, due to the need of coupling the ostensive aspect with new specific actions. Those who started to adopt experience.aiesec.org were the first one directly involved in a process of trial and selection of

practices that might determine the new defining aspects of how to run a recruitment. On the other side, there were Local Offices where actors did not follow the standard operating procedures and their performances were instead reflecting the old routine, with similar actions as in the past. The division of work did not change much, performances were based on developing effective patterns to manage and control EPs and communicating more with the team the achievement of different part of the EP flow. One could say the teamsters are still working on a similar job, some are performing tasks that they were not assigned to before and others changed the way in which they are working, especially concerning the interaction with the EPs. The introduction of the chance for the EP to visualize all the different opportunities present in the platform from the moment of their sign-up was an unexpected event for the teams, who did not know how to react. Suddenly the management and communication of the EPs through the platform required more work, as actors (1) did not have previous experience on how to address EPs to the specific opportunities set with Entity and (2) were not aware of the time required by the apply-match phase, which increased because of the behaviours of EPs. More workforce was moved to work on these steps of the recruitment and were assigned to different tasks from those that they were responsible of when working on myaiesec.net. The most relevant changes shown by the Local Offices were for those who did not follow the SOPs of the platform for what account the steps within experience.aiesec.org. Feldmand and Pentland (2003) reports that the ability of selection and adaptation of new actions done by the actors directly influence the routine: people combine elements of past experiences of specific actions from other sources to deal with present situations, “with a view to how this particular combination affects future understandings of what the routine is” (Pentland and Feldman, 2003). This gives different chances to the actors to test variations of the routine, to select them, and to choose between them as it has been done in this case. Variations introduced on the recruiting so far (running activities “offline”) will probably not be part of the retention and adaptation to the routine after change, but it directly influence the options evaluated by the actors, especially in a scenario of increased uncertainty. Other options, such as using more informative sessions in which actors can already do a pre-screen of who is interested and who is not, and video interviews for those who live far away, all of this before spending more time in a process of tracking and assessment centre seems more reasonable choices that can influence the performances on the long run. This directly diminish the time required by part of the steps and increase interdependency in the first steps. It is more difficult to imagine that more Local Offices will keep on working outside of the platform, which seems a short term answer to organizational change, but that affects the organization’s policy and the customers.

Specific changes in the action will be described in the paragraph regarding changes in nodes, branches and architecture.

5.3.3 Changes in the artifact

The most visible aspect have been the change of ICT platform. The main artifact that contained the norms previously adopted ceased to exist, the six steps defining the routine are now embed in experience.aiesec.org as norms. This means that the main artefact is still able to cover its function of representing the ostensive aspect, and on the other side, can represent the performative aspect with on-going performance reporting and tracking.

Jozef Vodicka, member of AIESEC Advisory Group, ran an Internal Audit for platform. The audit addressed Data protection, User management, Contract management, Security management, System Performance; the final considerations on the report are the following: *“We are using newest possible technologies available right now. This is very positive. EXPA system itself is designed very well, UX is on high level with great product vision. With every coming month, I believe, it’s going to gain power and increase efficiency of our organisation. I think setting up of EXPA platform and related processes in AIESEC, can boost dramatically exchange programmes rate. It is going to be caused mainly by allowing people to share content, internship opportunities and we will take first position on result page if somebody Google the terms “internship in ...”.*” The audit address the purpose behind organizational change: a drastic increase in exchange programmes realized trough the platform, meaning that the platform is now up to the expectations of the Global organization. But as in every organization, it is not enough to have IT or procedures to obtain certain performances, as it is “the combined influence of human agents and material artifacts that shapes the course of routines” (D’Adderio, 20010:3) and with that, its performances. Therefore our analysis have to dig deeper, to understand the influence of the artifact subject of change and the routines that capture ostensive and performative aspect: what is their mutual influence? Are actions prescribed and determined? D’Adderio (2008a) proposes a framework to analyse such relation of influence: when rules makes the process more like its depiction, we have a strong prescription done by the artifact, which is likely to be represented on the performative side.

The emergence of differences in the performances (actual actions of the actors), make us reflect on the role of the prescription within the sphere of influence of the actors. Why actors choose not to follow the SOPs and adopt the artifacts? The artifact have technical constraints

in the process: the six steps required, the EP form, the EP AN and so on. At the same time though, people bypassed some step. This turns the prescriptive role of the artifact into a rule that *have weak effects* in the process, becoming descriptive instead of prescriptive (D'Adderio, 2010). When this happened, it was not reporter just in AIESEC in Italy. Interviews with Local Offices and with the National Offices confirmed that other Entities were taking similar directions, preferring to run operations on other tools and knowing *what is described* by the SOPs, but not following the prescription. Remembering that artifacts are not the ostensive aspect but only partial representation of the routine is important in this part of the analysis; artifacts can similarly coincide in terms of definition of the process of the routine, and they play a key role in their evolution no matter what (D'Adderio, 2010). In the case under exam we see a disclosure between the representation (routines in theory) and the expression (routines in practice), which should be linked thanks to the new artifact, thanks to a process of translation “from routines to performances and vice-versa” (D'Adderio, 2010). Such disclosure might be caused by agency, which guides the decision of the actors of the routine and in shaping the role of the artifact. If we consider the artifact not as just a “dead object” but as something that constructs data on a specific format and produce effects on the cognition of the recipient actors, thus taking the view proposed by Callon and Caliskan (2010), then we need to examine how the artifacts works to help propagate information in social environment, thus effecting agency. Considering tools as “cognitive artifacts”, that can facilitate actors cognition and provide insights into practices that specific groups produce (Hutchins, 1995), we see how such artifacts can influence the characteristics of routine and the role of actors and community.

We therefore analysed the artifacts actors were working on:

- On one side there is the main artifact experience.aiesec.org. It allows to run processes and shapes the routine.
- On the other side, there are other artifacts, such as those who arise from the interaction of actors: their messages and communication, spreadsheets, database, anything that helps to facilitate the work within the Local Office and in the exchange of support.

Through interviews it was possible to find how the exchange of material and information increased in the email communication since the 7th of November. These tools, meant to support actors in the enacting of the routine, were made adopting the three step process (apply-match-realize), in a way that actors were encoding their past experience into them and transmitting it despite they were supposed to be considered outdated. With old data and tools

at disposal, artifacts constructed data on a specific format which should have been abandoned, producing effects on the cognition of actors, as a mediator and as relevant element in the co-creation of knowledge and its transformation into actions.

We argue that this factors contributed in keeping old information and tools as a reference for the source of knowledge to take into account for, on one side reducing uncertainty of the actors and influencing their performances, on the other side affecting the time needed to reach stability in the new performances which needs to rely on different tools and actions. Artifacts play an important role in the process of organizational change, being not just the tools to serve the process but as mediators that can guide actions and affect the behaviours of actors. To reinforce the role of artifacts as of prescriptive and not merely descriptive is of great importance to foster the stability of performances. By using the framework of Orlikowski for our analysis on the change of artifact, considering technology, we can analyse deeper the practices carried out by actors on their approach to technologies. On the interpretative side, the common acknowledgement and shared understanding that actors create to sense technology is limited by the circulation of old tools and artifacts which reflect the old recurrent interaction patterns, this limits the understanding of the properties of the technology at $t=1$. In this moment of time, the technological conditions (properties at disposal of actors in their everyday working context) improved thanks to the change in the IT platform. At the same time, the social structures part of the system within which actors perform does not foster yet the new technology. The effects are in the process, as the prescriptive role is missing, not creating strong difference in the result of the actors' actions as not all of them changed their way of working with the patterns, to adapt to experience.aiesec.org.

Team and community behaviour increased of importance n the analysis of performances as users improvised at $t=0$ with artifacts and are improvising at $t=1$, experimenting and trying new and different ways of working by exploiting data and tools at their disposal. To do this, they must have a good understanding of the tools to use or a high desire to improve their actions; this is the moment in which different try-outs are occurring before adopting in a stable way the new technology, making learning a fundamental aspect in the path.

5.3.1 Considerations on the analysis on parts of routine

This type of analysis allowed us to shed a light on the role played by the different aspects of the routine after the implementation of organizational change. We saw how the new ostensive

definition brought new concepts in the routine that needs to be concretized into new recurrent interaction patterns to couple with the actions of the actors, and how the role of artifacts can contribute in adopting certain behaviours. Actions were found to not fully represent the ostensive aspect nor the prescriptions of the SOPs of the main artifact. This created a tension between ostensive-artifact and the performances of the routine, pointing out at the role of actors and agencies as relevant when considering a process of change and its the influence of performances; people who enact the routine might alter what they are supposed to do, influencing performances. If we explore what actors are doing, we can understand which elements of the routine brings stability in a process of change and those that do not. By solving this question, analysing different interactions within the routine, we will be able to understand how the organization and actors can learn from a process of change, and re-adapt their performances. Analysing routines only on this level does not allow us to provide solid answers on which aspects of the routine affect performances and organizational results, but it allowed us to frame the main facts emerging from organizational change, in the same way, it can provide directions to the management to understand on which aspects they can work within the routine at macro level to start analysing a performance appraisal. The divergence emerged and the state of tension that it caused focuses the attention on issues that can arise in other context of organizational change, and set the basis for corrective actions that can allow to overcome such divergence. Aligning artifacts, increasing control or sanctions are ways to influence the behaviour that can be used to change the performative aspects of the routine. In order to design better mechanisms tough, a deeper analysis is needed.

5.4 Changes in the relations within aspect of the routine

5.4.1 Ostensive-performances

The analysis done at time $t=1$ allow us to see how after a modification on the ostensive aspect a process of change is set up within the routine. The actions that before were part of the performances but did not find a match in the definition of the process, now find their reason in the norms and action flow now at disposal of the actors. Agents now find themselves in need of time to couple their actions with such definitions for the good of the achievement of the routine. The process of change gave rise to tensions between the two aspects, as what one prescribes is not be followed and enacted by the actions of all the actors. Interviews with the actors in the days after change showed few sense of urgency to adapt to the new definition and procedures. To explain such tension we need a deep analysis but we can start recalling the contribution of Cognitive Science (Hutchins, 1991, 1995), which gave us the notion of

distributed knowledge, telling that there is more to cognition than what takes place in the actors' mind. Cognitive Science emphasizes the role of contextual elements in shaping individuals and groups. Starting from this and analysing how the ostensive definition was not subject to change in the last 7 years of the organization, reflected in the three step process, we can understand how a deep cognition have been rooted in the actor's mind and in the organizational memory, enacted by the routine. This cognition became part of the community shared knowledge as perception and impression about the old ostensive definition. The new definition instead does not occur to be the guide of actors' action as it was not possible to become a practice of the culture of the organization yet (Hutchins, 1995).

With this is we imply that is necessary to work on the actors' perception to ensure that a new definition of rules does not merely stay a description encoded into a platform, but becomes the new common definition and language within an organization, thus completing a process of organizational change.

5.4.2 Artifact- performative

The relation that measures control over behaviour have been seen to change in comparison to $t=0$. Actors have been observed not to always follow the SOPs of experience.aiasec.org, causing issues in the coordination of activities for the management. This lack seems to push different behaviours within the local responsible, which tried to make usage of different artifacts rather than switching to the new platform. As this relationship is a measure of the control over the behaviour, we can argue that solutions aiming to address such issue on the behavioural level, thus working on the characteristics and outcomes of the recurrent interaction patterns of the routine will provide support to the management. By focusing on the relationship between artifacts and performative, we can capture the micro dynamics by which artifacts influence and are influenced by performances. As discussed in the above paragraphs, it is important to focus on addressing the behaviour of actors by ensuring that the artifact does not merely work on a descriptive function, but that after change it becomes a constituent part of the prescriptions on how to enact the routine, thus being able to partially represent it and work in synergy with the ostensive aspect in ensuring stability of performances after the switch. The role of artifacts becomes of great importance in addressing a process of change; from the analysis of artifacts created by actors after the 7th of November, we see how their role of mediators in the co-creation of knowledge acquire importance. Fostering the presence of artifacts to increase the knowledge required by the routine at $t=1$ is of great importance, on the other side, limiting the usage of previous artifacts have to be

considered, as those information are fundamental for the records and have to be stored, but should not address the performances of actors at time $t=1$.

5.4.3 Artifact-ostensive

This relationship is about the “alignment of documents and other objects with that we understand about what we are doing” (Pentland and Feldman, 2005). To analyse this aspect, we checked the guidelines and written rules regarding the new actions that have to be taken; we found out that they were provided both by the National Office and by the Global Office, explaining all the different steps that should have been taken by the actors. The divergence that emerged out of the artifact-ostensive relation may be linked to the vision of the artifacts themselves (myaiesec.net and experience.aiesec.org); in fact, when a process and the knowledge related to it became old, its understanding might go lost (Weick, 1990). In such cases some of the actors might react to this by transferring their vision and understanding of the main artifact to other, secondary, which would have had the same meaning. This appears more clearly in interviews run with local responsible who pointed out how “*I was doing the same things as before, I was just using a different system, until the moment in which I had to follow the procedure on experience.aiesec.org to make it official for the performance count*”. This leaves space for questions regarding in which way the management can force a behaviour and increase the alignment within artifacts and performances, or limit the artifacts to make them adherent to the ostensive definition. The relationship between artifacts and ostensive allowed us to capture the dynamics by which the new ostensive view is selected or not. In order for the ostensive definition to become embedded into artifactual representations of routines, the National Office have been working on the creation of different booklets, materials and guidelines that would have provided all the information regarding how to enact the new process, limiting the access to previous materials created by changing the content on the online library of AIESEC in Italy, and by saving a back-copy of the materials.

5.4.3 Considerations on the interaction within routines.

An analysis of the interaction within routines allowed us to frame better the consequences of organizational change on performances. What emerges is the change in the performances, which did not couple the change of the ostensive and artifact description of the routine. In order to influence performances of the actors it is possible to increase forms of controlling behaviours, before and after change is implemented to allow behaviours to adapt to new

definitions of the aspects of the routine. This is required in order to allow the routine to maintain its qualities of stability, functioning as organizational memory and increasing coordination within the organization; in fact, routines are thought to stabilize an arrangement, but they can be used to promote change (Adler et al, 1999) if the organization adopts mechanisms to drive such behaviours before the process of change.

Considering routines a generative system, its function of stimulating change should be exploited to set the ground before any modification in the performances, artifacts or in the ostensive aspect. Having a clear understanding of the internal dynamics of the routines should be enough to allow to provide ideas on how to foster such change, which can be achieved working on the behavioural level through trainings, simulations, incremental changes and other forms.

5.5 Changes in the branches, nodes, architecture

The shift to the platform affected part of the branches and nodes of the recruitment, and consequently the performances of the actors. In order to understand how the behaviour of the actors was influenced by such changes, here follows a description of what was observed. Planning, data gathering, cooperation setting and OPS will not be examined as they were not performed at the moment of transition.

5.5.1 Promotion.

The online and offline channels used by the Local Offices did not change; the activities carried through social media and offline channels stayed the same. An element of change is the fact that students could have applied directly through opportunities.aiesec.org and choose by themselves programmes available in the system. This would have meant that for an EP it was possible to skip the assessment centre if the Local Office was not able to contact him/her directly, missing a step in the routine. The functionality that was supposed to limit the view of opportunities for the EPs was not functioning, so each EP was browsing all the opportunities available in the platform, applying to different programmes and limiting the control by the Local Office. To limit this issue, the majority of the Local Offices observed started to run more informative sessions to provide deeper information and set expectations with possible participants. During interviews the local responsible pointed out how with an open platform where EPs could have explored different opportunities, an investment of time and effort into clarifying the details of the programme through informative sessions was found to assess better the expectations of the students and reduce the time spent browsing

opportunities. More workforce of the team was moved to perform this part of the recruitment, to remove the bottleneck created of EPs that were not moving within the platform. This meant that trainings were required for the team members now allocated to such tasks, and that their focus was moved from other tasks, such as the other steps of the recruitment after match, which required more time. This extra amount of work impacted the outcomes of such recurrent patterns, as analysed further.

5.5.2 Assessment centre.

The step did not change with the shift, it was instead used by the Local Offices to reinforce the message regarding the purpose of the GCDP programme and let the EP choose the programme according to the cooperation set, increasing the frequency and the number of assessment centre run. As for the promotion, more people were allocated to such task.

5.5.3 Signing the contract, the EP AN.

The contract is an official document that have to be provided by the EP manager and signed by the EPs, it did not change. The EP Acceptance Note instead became a virtual document that can be signed online from each EP, reducing the time and effort needed by the step; the system allows to monitor if an EP signed the EP AN or not, limiting the access to the next steps of the flow.

5.5.4 Nodes

A big difference appear in the nodes, the reflection during which the previous branch is analysed and the following action is selected. Before the switch, when an EP was registered on the system, it would have applied to a specific programme and waited to move on. The EP manager would have took care of him and of the required process. Now that EPs have access to multiple informations, the node of the EP manager in the signup apply stage is more complicated: the manager tries to redirect the EP to opportunities in partnership, while lots of EPs browse around different programmes, taking longer time. This complicates the coordination between EP and EP manager and the information at disposal of the manager when tracking the progress of the students in the flow. The decisions that the EP managers have to take are different from those of the previous patterns, requiring more effort and trying to compete with the EP to find the best solution in the shortest amount of time. New decisions to be made means more cognitive effort (Becker, 2005), less coordination. In order to save their resources, it is easy to imagine lots of teamsters to follow procedures not present on experience.aiesec.org, taking the fastest and easiest way, not letting the EP register online until the matched was agreed upon the selected opportunities. Such behaviours are definitely

made to last, but influence the performances of the team and their commitment to stick to SOPs and prescriptions, rather than coping with a new definition of the routine.

5.5.5 Considerations on the changes on branches and nodes

An analysis on the branches allowed to understand the changes in the performances of the groups of actors observed and to map them. Such evaluation allowed a better understanding of the changes enacted by the actors in their action and the influence in the recurrent interaction patterns. It is visible how in order to face a new situation (different control over the first steps of the routine) actors tried to find solutions within the team directly involves, giving rise to new necessities (need trainings, coordination) and how their effort reflect the focus and the needs brought up by organizational change. With this, we saw the importance of a clear understanding of the actors performances at time $t=0$ and the influence on change into such performances at time $t=1$. A clear picture of the impact of change on the performative aspects allow us to evaluate on which patterns it is necessary to take action to remove the tension between performances and the ostensive-artifact level. At the same time, this is necessary to understand the causes of the change in the behavioural level. We saw how actors are facing patterns with which they have less experience with more frequency, therefore the mechanisms that allow stability within a routine (the repetition of action patterns) are already at work to allow performances to foster learning by doing and organizational learning. Routine participants are more likely to integrate the ostensive aspect of the routine in their actions as they enact with high frequency new patterns, therefore reducing the tension between the aspects of the routine. By enacting the new patterns, actors will be more likely to achieve coordination and to understand and integrate the new ostensive aspect of the routine, that becomes concrete only with their actions. The meetings held within different Local Offices, in the moments in which the local responsible was giving feedback on a weekly basis on the patterns enacted, actors were unconsciously starting to shape the new performative aspect of the routine, contributing to its persistent enactment. We argue that it is possible to influence such learnings and to speed up the process of adaptation to change, monitoring the integration of the new patterns of the routine within the performances.

The analysis revealed how the new performances enacted by the actors and the change in the nodes influence the reasoning behind the decisions of the actors. According to the performances that come from each new pattern, which in its enactment is embedding the ostensive definition, the performative aspect will create and maintain the ostensive definition, if it is shared by the actors who are participating in the routine. Providing ways in which it is

possible to guide the actions of the actors with tailored performance feedbacks is a relevant matter to foster coordination and improve results in the short term.

5.6 Antecedents, characteristics, performance outcomes Observations.

The framework presented will be used to evaluate change in the performance outcomes to understand how change is contributing in shaping the recurrent interaction pattern. The evaluation is done comparing results at time $t=0$.

5.6. 1 Task complexity.

Was there variation in task complexity? Did this influenced sequential variety and frequency? Starting from the ostensive aspect and the routine in its overall, we can see how the number of task in hand increased. We can say that more unique acts are required now to complete the routine, involving higher level of information to coordinate the EP and the Entity partner, but at the same time between team members. This answers the definition given by Anand et Al (2003) of complex task. We also see tough that the new definition serve to simplify and emphasize codification, by specifying categories that before did not exist, to which data are now assigned, and limiting those abstract that had to be considered before. In this way, the possibilities of combination increased, not stopping the actors to try and test different performances. Regarding the impact on frequency, complex tasks take more time to be carried out than less complex tasks (Becker, 2005); we saw how tasks complexity appear to have an impact on frequency of some recurrent interaction patterns (increased frequency of assessment centre, more signups, more informative sessions). At the same time we cannot foresee if the frequency of the routine on the long run will diminish. Comments gathered through interviews regarding the perception of tasks now express an increased perception of complexity: *“It was not easy for me and for my team to see in the same way all the little actions that we used to do, EPs could move freely in the system, we had no clear overview of the situation”* – Marco Pignalosa, local responsible Napoli. Higher task complexity lead to lower variety of tasks, as the teams have to deal with an unprecedented scenario which requires more effort in terms of time and performance understanding of the pattern to be carried on. This directly influences the performing, shifting the focus on the first branches:

	November 2014	May 2014	November 2013
.# of informative sessions	56	40	42
# of assessment centre.	162	139	120
# of interviews done	54	67	56

Figure 4: performances compared on three recruitments. Source: internal archive

What we can see from these data is that the frequency of the steps regarding the first branches of the recruitment increased, while the following steps decreased due to a longer time required by the previous tasks. This is more visible when comparing the performances results of the last three years in the specific quarter when organizational change took place:

Q4 2012								
October			November			December		
Apply	Match	Realize	Apply	Match	Realize	Apply	Match	Realize
23	18	33	15	15	20	44	14	9

Q4 2013								
October			November			December		
Apply	Match	Realize	Apply	Match	Realize	Apply	Match	Realize
56	38	35	24	25	29	59	21	13

Q4 2014								
October			November			December		
Apply	Match	Realize	Apply	Match	Realize	Apply	Match	Realize
65	44	39	20	24	22	55	18	10

Figure 5: National report of performances. Source: National reports

We can see that despite having an increase in terms of the performance outcomes of the routine, this did not contributed directly to an increase in the results on the short term for the overall routine.

November report Entity	Sign-up	Apply	Matched	Realized	Completed	Reintegrated
Italy	291	20	24	22	0	0

Figure 6: monthly report of performances. Source: experience.aiesec.org

Higher frequency of the new patterns can be seen as a reaction of actors when dealing with such a scenario, to re-acquire the benefits of coordination, cognitive savings and learning by doing that the previous patterns allowed them. Therefore, we can say that when facing change, actors increase the efforts in naturally restoring the desired outcomes of recurrent interaction patterns to serve their purpose within the routine and facilitate their work. *E.g. a team that faces changed and is dealing with a higher tasks complexity within the routine will more likely increase the effort and the performances in the pattern of the routine that faced higher change.* In this way, it is possible for the organisational to start back a process of learning exploiting the routine.

5.6.2 Task interdependence.

Interdependence becomes recognizable when single actions form a sequence, then becoming repetitive when such sequences occur more than two observations (Pentland et al, 2010). The higher the interdependence between steps of a recurrent interaction pattern, the lower the sequential variety of the recurrent interaction pattern will be observed (Becker, 2005). Interdependence at time $t=1$ is present both between the steps of the process (which are sequential and repeated by teams), both between the different elements that are part of the process, such as tools and artifacts, fundamental to enact the routine. Interdependence was observed to increase on different level as more actions were needed between the team, between the community, between the steps of the process, between EP and EP manager, as reported in several interviews. Higher interdependence increased the communication between actors of the team in different Local Offices, as proved by usage of instant text messages, higher email frequency and higher usage of tools to check the progress of EPs across the flow. We can analyse the behaviours of actors that by facing such issues were working to increase the level of coordination and set the behaviours needed in a situation that is more interdependent than before. The performances observed in the Local Offices showed how in the first days actors did not know how to face the situation of increased interdependence in an efficient way, not having a clear pattern of communication within the team to manage their channels. As they were gaining experience, they developed new patterns by which they knew where to find information, where to store it, to whom to communicate it and so on. Increased interdependence brought to lower sequential as a key factor to determine the reproduction of performances. Actors through a process of trial and error arrived to define the path of stability of their actions, whether following the SOPs or not. Higher interdependence forced agents to foster coordination and to define new rules of behaviour within the team in the enactment of the patterns, as the routine creates understanding about what need to be performed and how. In this way, interdependence needs to be addressed and understood as a basis for the adaptation and integration of the new routine. We can say that higher interdependence caused by organizational change plays a relevant contribution in the integration of new aspects of the routine through performances of actors, as actors are led to share the same understanding about how to run the recruitment. This contribution can be analysed by monitoring the connections happening between the actors of the routine, in the specific case, of the teams within the Local Office, and the OGCDP community and can be fostered guiding the common understanding of the new aspects of the routine. This can be achieved with the participation

of managers in meetings happening between actors, reports and updates, increased touch points with the team and the rest of the organization, to build a strong and common understanding which will define the stable patterns of the routine.

5.6.3 Time pressure

The time required by pattern observed within the routine became longer, especially in the apply and matching phase, increasing the time needed by the overall process. As EPs for the first time had the chance to look at different opportunities by themselves, the time between sign up and apply phase became longer than expected. As actors were used to enact old patterns, change in the time of the patterns and new methods of enacting them influenced the time of specific patterns of the routine, resulting in a longer overall time required for the routine. Longer times required means at the same time higher time pressure to meet planned results. At the beginning, the Local Offices did not know how to respond to such issue, as the routine before was acted in a very automatic way, the “how to do things” had increased in comparison to the “why to do things” with the old routine. To cope with that, increasing informative sessions was the first answer on how to reduce time and align expectations. Also here the role of connections within actors is and the interdependence of actions is important in order to understand the consequences on performances. Higher time pressure lead to higher frequency and lower sequential variety. At the same time tough, on the short term it influences actors by increasing the level of pressure on them: *“We were in delay with the matching as it was taking more time than expected to run the promotion activities, so we focused more in covering the gap with offline matching with the Entity partner, or we would have lost the cooperation.”* – Silvia Cozzella, local responsible Milano. With time constraints imposed, some of the actors seem to not mind enacting actions that do not integrate SOPs and the new ostensive definition of the routine, thus influencing performances.

5.6.4 Uncertainty

The level of uncertainty rose within the routine as actors did not now how to face new patterns, which were requiring different actions and performances compared to the previous routine. The freedom given to EPs to choose where to apply and the few control that actors had was the main factor reported to increase uncertainty. Also, despite the role of routine helping to cope with decision-making, observed behaviour in the period were showing different patterns. The global indicators of the process changed, at the same time, the methods to accomplish specific patterns were different, and there was less predictability of the outcomes. With less

predictability, increased routinization helps actors to deal with uncertainty in a better way (Becker and Knudsen, 2005), causing lower sequential variety. Despite this, routinization of tasks was easily associated with the three steps process and old routine patterns, that was helping actors in understanding how to deal with the new patterns, as actors were not exploring all the spectrum of performances allowed by the new routine but rather focus on the old patterns. The National Office had different meetings with the Local Offices to address the matter and to make sure that the performances were done according to the new SOPs, which the author personally attended. During such meetings, the National Office was asking how the local responsible were dealing with the specificity of the new steps. Interviewee when answering were indicating actions related to patterns specific of the old routine, pointing out how actions to reduce uncertainty were gained by their previous experience, and how that was helping them in guiding their decisions rather than adopting the new SOPs and artifacts. Despite routinization helping in a situation of high uncertainty, decreasing it thanks to the lower sequential variety of recurrent interaction patterns, it is necessary to monitor such routinization and map the performances that do not allow integration of new aspects of the routine.

5.6.5 Effect on performance outcomes

Regarding coordination, overall we saw how change contributed to a lower level of sequential variety within the patterns of the routine. By looking at case studies (Hutchins, 1991; Weick and Robert, 1993), we can see how previous findings confirm how actors react in a scenario of change where the challenge of coordinating is fundamental to achieve a task: agents focus their attention on each others in order to understand and to pick hints and clues on which behaviours to expect. Actors need to explore standardized process (low sequential variety) with a careful attention to the new patterns of the routine in order to achieve coordination. As standards contribute in lowering down sequential variety and can influence control, achieving standards in performances in the shortest amount of time will allow actors behaviour to cope with change and create a common pattern within performances that can allow an easier monitoring and measure non routinized behaviour in a more effective way.

If take into consideration higher time pressure and uncertainty presented in the case study, we can say that cognitive resources, bounded by the need of acquiring and integrating new patterns of actions reduce and limit the cognitive resources are limited, thus detracted to those available to solve coordination issues. This reinforce the need of tools to foster connections and the acquisition of standards within the routine in the shortest amount of time, increasing

the role of artifacts such as guidelines for such purpose. Higher routinization can therefore be achieved by establishing predispositions that allow to answer to change in a specific way, not in new or improvised ways, but limiting the choice of solutions to the problem and therefore the effort in term of cognitive resources needed for it. This is also supported by the findings of Ashmosh et al (1998) which suggests how achieving predispositions within routine help in achieving results with limited cognitive resources. As cognitive resources in the business case are needed to face the new patterns, addressing way to report and give feedbacks to the performances of actors would allow better coordination and attention in the new actions required by the routine. This also allow a stable baseline on which it is possible to set learning by doing in the new routine, which otherwise would end up in a long process of trial and error and experiments meant to find the best alternative.

If this conditions are not guaranteed and managed by the management, attempts and experimentations by the actors to find the most suitable path of actions by the actors would limit the effectiveness and decrease the routinization of activities. In order to guarantee the qualities of the routine in a process of change and be able to have a good degree of control on the performance outcomes of routines, the monitor of the performative aspects become important to assess the response of actors and the behavioural implications of change.

By monitoring the frequency of activities, it was possible to understand how they were reacting to new patterns: if frequency increased, this would have had a positive impact on coordination increased causing less problems as actors learn how to work and set expectations between themselves, increasing impact of the learning curve. This considered, we can say that in a moment of change, monitoring the frequency of tasks is useful to understand on which basis actors are learning and implementing new patterns. Not in all the processes frequency can be fostered; in our case we observed a natural increase of frequency by certain patterns, as response to lower sequential variety and new needs of learning.

The performance outcomes analysis allowed us to understand better what caused the pursuit of stable behaviour at time $t=1$. Low sequential variety and high frequency are important condition to foster the conditions that allow to achieve stable performances, but the organization itself can influence by influencing the behaviour of actors, which otherwise can vary, as experienced in the case study. Monitoring and giving feedbacks is a way to increase such patterns of stability in order to increase the understanding of people, who have limited cognitive resources in such a scenario and need to focus on their new role and actions. By monitoring and through performance feedbacks, the management can explore what actors do,

therefore they can understand which elements of the routine bring stability and communicate to the actors, which need a baseline on which they can assess their performances as their previous benchmark changed. When this did not happen, we saw the rise of behaviours that were different from SOPs and were carried out benchmarking their actions on previous patterns.

5.7 Second Survey

In order to assess better what emerged through observation and to assess the characteristics emerged at time $t=1$, we run a survey to understand how the actors were responding to sudden change. The elements assessed through the survey are meant to determine how change was perceived in terms of antecedents and outcomes of the routine, frequency of touch points with the community and teams, main contributors in guiding the decision making process of the actors, and what helped them the most during the transition period.

Task complexity

Questions n1

If any, did you observe any change in the steps of the recruitment since the 7 th of November?	Respondents	% of responses
There are more steps	16	80%
No change	4	20%
There are less step	0	0%
Total	20	100%

Question n2

To which extent you have influence in the order in which of the recruitment tasks compared to previous of the 7 th of November?	Respondents	Percentage
Very much	1	5%
Much	3	15%
Not little / not much	7	35%
Little	8	40%
Very little	1	5%
Total	20	100.0%

Question n1 and n2 are meant to assess the complexity of the tasks that are now part of the recruitment. From question 1 we can see that the majority of the respondents consider the recruitment constituted of more steps, therefore that the possible combinations and the complexity of the task is higher. Relating complexity with sequential variety, we know that the outcome depends upon the case under exam, and according to the answers of the question n2 we can say that there is less sequential variety, as the perceived influence over the order or the tasks is decreased compared to Survey n1 and that actors recognize such change.

Interdependence

Question n3

If any, would say that the actions related to the steps of the “apply-reintegrate” flow constitute a higher boundary in terms of order of the tasks?	Respondents	% of responses
To a great extent	8	40%
To some extent	8	40%
Not little/ not much	4	20%
Little	0	0%
Very little / none	0	0%
Total	20	100%

Question n3 is related to the level of interdependence of the tasks of the recruitment, we can see how according to the answers interdependence increased regarding the amount of steps necessary before another can begun, and similarly, even tough we see less strong answers regarding the interdependence caused by the elements required in the process. Respondents also points how that

Uncertainty

Question n4

If any, do you perceive a variation in the predictability of the tasks and of the environment?	Respondents	% of responses
Very high	0	0%
Higher	1	5%
Not little/ not much	5	25%
Lower	8	40%
Very low	6	30%
Total	20	100%

We can see how the perception of the uncertainty is increased. According to the framework presented by Becker, this should lead to an increase of the predictable behaviour, and a lower sequential variety. As observed though, this does not happen when actors seek stability looking at the previous patterns they experience, recalling them when enacting the new patterns of the routine.

Question n5

Would you say that the knowledge acquired in your past experience helped you in overcoming the uncertainty during the past month?	Respondents	% of responses
Very much	2	10%
Much	6	30%
Not little / not much	7	25%
Little	5	35%
Very little	0	0%
Total	20	100%

Evaluating the role of previous experience, respondents provide different answers. Despite the role that a routine should play for actors in choosing a path of action, which “activate organizational memory processes” (Paoli and Prencipe, 2003:153), triggering a behaviour needed at specific time that helps throughout the actions, these findings do not display the same. We can consider and evaluate the change in the different aspects of the routine as the main cause for actors to choose different paths of actions from the standard procedures. Agency stands out as different actors have different perception and dealt with uncertainty in different way. It is in this cases that increasing the level of control to guide behaviour, assessing performance and guiding behaviours can contribute to actors leaving experimentations and stick to SOPs.

Question n6

If any, did you observe any change in the frequency by which recruitment tasks are being carried out since the 7th of November?	Respondents	% of responses
Higher	7	35%
A bit higher	7	35%
Did not change	3	15%
A bit lower	2	10%
Lower	1	5%
Total	20	100%

In terms of frequency perceived by the actors, major respondents reports that frequency was observed to be a bit higher or higher. With these answers it is not possible to determine in an absolute way how the frequency of actions changed in the recruitment process regarding all the recurrent patterns, but it is possible to state that frequency for the patterns one under enactment in that moments (promotion, assessment centre, interviews) increased, which serves as baseline for the organizational learning of new routine patterns by the actors.

Question n7

If any, did you observe changes in the tasks of the recruitment since the 7th of November? (multiple choice)	Respondents	% of responses
In the <i>way</i> in which we carry on tasks	14	70%
In the <i>order</i> of the tasks	7	35%
In the <i>content</i> of the tasks	2	10%
No changes	2	10%

Answers to question n7 points out that part of the Local Offices (35%) after the switch to experience.aiesec.org modified the order in which they carry on tasks within the routine, as the branches of the routine they were dealing with changed with the new platform, some followed an order of tasks that did not match the previous sequential order. We can see that the majority of the respondents (70%) tough perceives a change in the way in which tasks are performed, identifying new elements that are now re-defining the recruitment routine. When asked about it during the interviews, all interviewees pointed out that they had to learn how to work using experience.aiesec.org and how to read the information of each of the step, from the sign up to re integrate and in managing EPs. The need to learn and integrate new way of working represents a need that have to be monitored by the management to stabilize performances in the routine.

Question n8

If any, do you observe any change in the level of coordination of the people involved in the recruitment process during the shift?	Respondents	% of responses
Higher	10	50%
A bit higher	5	25%
Did not change	4	20%
A bit lower	1	5%
Lower	0	0%
Total	20	100%

For the majority of the respondents, the level of coordination observed is higher during the transition period. The main motivation was reported to be more communication between EP manager and EP, EP manager and the rest of the team. Greater coordination is found to reduce uncertainty (Becker and Knudsen, 2005) and to work as a response of the team to the increase interdependence. Higher coordination have been made possible by higher interaction between participants in the routine, which in a more simplified way that in Hutchins's case (1991), have to work coordinating themselves to achieve results with new definitions of the routine.

Question n9

What is the frequency of the touch points with the functional network (OGCDP community) since the 7 th of November?	Respondents	% of responses
Higher	12	60%
A bit higher	3	15%
Did not change	3	15%
A bit lower	2	10%
Lower	0	0%
Total	20	100%

Touch points with the community increased during the period of transition. Interviewees report that it was a natural way to compare their action with others, and this helped them to cope with a new scenario, confirming the role played by communities and teams, which learn by learning by doing and share knowledge between themselves. Communities, exchanging knowledge on an higher basis increased their touch points to limit friction. Connections developed between teamsters appear to be important as well for the enacting of the routines, as proved by Feldman and Rafaeli (2002).

Question n10

What contributed the most to you in running the recruitment in this period? (multiple choice)	Respondents	% of responses
Personal knowledge acquired through previous experience	14	70%
Brainstorming with the team / shared decision making process	4	20%
Ogcdp Community	15	75%
Your own team	6	30%
Support from the National Office	8	40%
Guidelines and tutorials	11	55%
Degree of freedom over the tasks	11	35%
Other (PLEASE SPECIFY)		

The answers show the different perceptions regarding what contributed the most in helping the actors during the transition period. The role of communities played an important role, for

75% of the respondents, being the most chosen option and the higher contribution in running the recruitment, as reported by Westley (1990:19) “Partecipation in the conversation routine is shown to relate member’s understanding of the larger context”. As second element we find the previous experience gained enacting the routine in the past, confirming the answer to question n9 as an element that helped in guiding the decision making process and contributed to deal with the uncertainty of the period. As third answer we find guidelines and tutorials provided during the period, which increased the level of information but helped the actors giving all the instructions needed. Answers to the option “Other” reinforce these data: *“I received support from people who have a really good knowledge thanks to their experience, they helped me doing some steps I couldn't figure out by myself in that moment.”*

“National Office’s support, personal knowledge and the functional network support who was constantly under brainstorming were the elements that made the difference.”

This data are relevant because on one side they make us understand how it is important to foster frequency of touch points and connections within the teams; on the other side, they reinforce the message that experience alone cannot guide actors when facing change if performance stability wants to be achieved in a fast way, but that learning by doing needs to be fostered when enacting new patterns of the routine, which cannot rely on previous experience to be integrated in the routine.

5.8 Findings

The survey allowed to get more insights regarding what happened on the actors perception, which we are interested to dig deeper when drawing conclusions on what change means on the behavioural level. We saw an increase in task complexity and also in interdependence. According to the framework presented in section 2, these factors combined should lead to higher routinization, thanks to lower sequential variety. This finding is coherent with the increase in the frequency of recurrent interaction patterns within the routine. Observations though, report that not all the agents which increased the frequency of the patterns they were enacting were able to achieve higher routinization (here meant as stable sequence of steps in the *new* recurrent interaction patterns of the routine). Elements such as higher uncertainty, which depicts the needs for more cognitive resources from actors, influenced the decision-making process. Findings from the survey suggest how the decision on how to react to change by a lot of actors have been made based on their previous experience. This explains how not for every Local Office the adaptation to the new routine was just a matter of integration of

new patterns, but how when higher complexity, interdependence and uncertainty are part of the environment, for actors it is easier to recall past experienced and act on the base of the organizational memory they carry thanks to their experience. We also saw the important contribution played by connections and interaction within the actors who take part at the routine, and how they help to achieve a common understanding of the new patterns, by sharing information and learnings. The increased touch-points gives us an interesting insight on how it is possible for the management to exploit such element to foster the integration of new patterns within the routine: not just by exercising control through SOPs, but also by fostering communication and information sharing within actors as a way to drive behaviours.

5.9 Discussion on the period of change

T=1 equals new patterns within the routine, different aspects on the ostensive, artifact and performative level. It also means a need for adaptation and integration of the new aspects that are part of the routine, by the actors and above all, by the organization. The inclusion of a new ostensive definition requires the actors to enact it by performing the specific patterns required and making usage of the new artifact, experience.aiesec.org, in this way adapting knowledge and patterns into the new description defined by the routine. Such process of integration and adaptation is important for the routine, to keep its qualities and to allow performances evaluation (Becker, 2005); it is also the base under which the organization can evaluate its processes and understand the contribution of each aspect of the routine (Feldman and Pentland, 2005). When such integration does not happen, the actors' agency decide plays an important role in choosing what to do to in terms of implementation of SOPs, artifacts and so on. The actors who avoided the usage of the platform in the first branches, running most of the action steps offline: application, "apply" and "match", carried outside of the platform, were not ensuring the standard procedure of the platform. In this way, their performances were disconnected from the definition of the routine that the management was expecting after organizational change, rather than integrated with it. Choosing to adhere to the new requirements would foster the integration, and the evaluation of performance outcomes at t=1 and a good baseline for comparison on the benefit or the change that occurred from t=0. When change happens, actors are unaware of the time required nor the quantity and quality of information required per step of the process, all things that they had to find out by enacting the routine (Tyre and Orlikowski, 1996). When the information acquired by enacting the routine does not integrate the one provided by guidelines and SOPs, a state of tension between

the aspects of the routine emerges. Having analysed the interaction within aspects of the routine, we suggested how increasing the level of control right after change, would allow to address better behaviour in the actors and to increase the expectations between actors and other actors, actors and the management. The change in the precedents of the routine per se, does not implied a higher routinization, despite what was observed as a lower sequential variety, more interdependence in the actors and increased uncertainty. In order to overcome such limits, some actions that can be taken are therefore related to the control enacted towards the teams participating in the routine, and on providing them stable performance feedbacks. On the other side, to avoid the control, we can observe other interesting facts that emerged: communication with the other Local Offices of Italy increased as they were sharing their findings and experience on the new routine. This fostered the role of the community, as each responsible might have had EPs at different steps of the flow, it was possible for them to share and report how to behave in each phase, and to help each other consequently thanks to the connection established within the routine (Feldman, 2000). Communication reported to increase up to a day by day conversation through emails, video conference and instant messaging. After the switch to the new platform, with an increase sense of uncertainty, the interaction with communities and personal connections helped the actors throughout the period. A similar behaviour was observed between the Local Offices and between teams, who increased the touch points and communication. The local responsible who took part at the interview stated that *“As we were all in the same unexpected situation, we started to share information every day to make sure we knew how to behave and to respond unexpected situations”*. As some process and rules part of the organization were interiorized by the actors, by changing them there was the need of starting back acquiring knowledge regarding the specific tasks that were performed in that particular moment. Considering routine as a source to store knowledge, it have been clear how operational knowledge have been stored in the organization thanks to the enactment of the previous patterns of the routine, which still contribute to shaping the actions of the actors and to refer tom, in some cases. Fast change did not allow to create organizational memory on the actors, who kept on repeating similar performances to those at time $t=1$. The recruitment routine over time might have contributed the actors to un-know the reason behind the existence of some patterns within the routine, increasing the difficulties to understand its reason once some patterns changed. If we consider this, we can look up for the solutions in the frequency of patterns carried out in the Entity, to understand the influence of such change. Frequency of the tasks performed at local level was analysed regarding: number of informative sessions done at Local level, number of

assessment centre, number of interviews done with the Entity partner. The data were gathered at National level and November 2014 was compared to the recruitment May 2014 and November 2013, months in which the recruitment was at the same stage.

	November 2014	May 2014	November 2013
.# of informative sessions	56	40	42
# of assessment centre.	162	139	120
# of interviews done	54	67	56

Figure 4: performances compared on three recruitments. Source: internal archive

What we can see from these data is that the frequency of the steps regarding the first branches of the recruitment increased, while the following steps decreased due to a longer time required by the previous tasks. This is more visible when comparing the performances results of the last three years in the specific quarter when organizational change took place:

Q4 2012								
October			November			December		
Apply	Match	Realize	Apply	Match	Realize	Apply	Match	Realize
23	18	33	15	15	20	44	14	9

Q4 2013								
October			November			December		
Apply	Match	Realize	Apply	Match	Realize	Apply	Match	Realize
56	38	35	24	25	29	59	21	13

Q4 2014								
October			November			December		
Apply	Match	Realize	Apply	Match	Realize	Apply	Match	Realize
65	44	39	20	24	22	55	18	10

Figure 5: National report of performances. Source: National reports

Higher frequency of the new patterns can be seen as a reaction of actors when dealing with such a scenario, to re-acquire the benefits of coordination, cognitive savings and learning by doing that the previous patterns allowed them. This set the basis as a fundamental need for the organization in a moment of change to allow actors to regain the benefit of routines which, at the very end, can be reconnected to their definition of recurrent.

November report Entity	Sign-up	Apply	Matched	Realized	Completed	Reintegrated
Italy	291	20	24	22	0	0

Figure 6: monthly report of performances. Source: experience.aiasec.org

A decrease in the overall National results was observed. Part of this is also due to the non reporting of such operations in the platform, as reported in the Official report by AIESEC International, which underlines how there was a drop in operation from all the different Entities in Western Union and North America compared to the previous year.

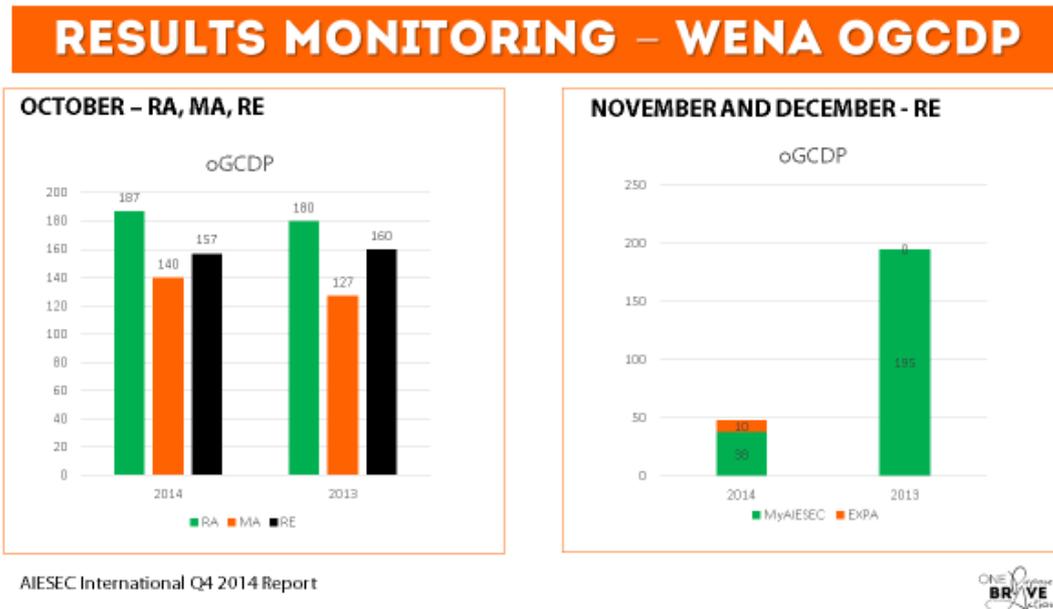


Figure 8. RA-MA-RE equals to apply, match, realize. Source: AIESEC International quarter report, Q4 2015.

The non-adaptation and integration of new patterns within the routine was therefore not an isolated fact of the Italian Entity, but it influenced the organization at international level. The change of complexity, interdependence, the new learnings required required by patterns after the shift had similar repercussion in different Entities when actors chose not to follow SOPs. This also open the discussion regarding how to address the result tracking and reporting when organizations are facing organizational change, but as it would be a topic that does not address the behavioural level of the routine, rather focus on the artifacts, it won't be analysed in this paper. At t=1 similar repercussions of change were observable around different Entities, and even tough at current time it was not possible to have a the Global Report on Entities results, interviews with National responsible of other Entities which were selected for the first survey confirmed the same behaviour to be present in their Entities.

Section 6. Discussion and conclusion

6.1 Discussion

In this dissertation, we have analysed how routines react to organizational change using different perspectives. We identified the different elements that contributed to the enactment of new patterns and those limiting it, exemplifying how to evaluate the characteristics of a routine and the impact on performances within an organization that is facing a process of change. This approach involved four steps; the first one was to define the level of analysis and the framework we would have used to assess the routine, to do this we reviewed the main contributors in literature considering routines under different aspects: as generative systems, analysing changes within the routine, and considering antecedents, characteristics and outcomes of recurrent interaction patterns. The second one was to evaluate the organization and identify a relevant routine subject to change. In the third one, we run the analysis using the framework at time $t=0$, to assess what are the characteristics that qualifies such routine to create the benchmark of comparison and to understand their influence in the routine. In the fourth one, we examine the routine at $t=1$ comparing the changes within the framework.

The dissertation focused on an organization that faced high growth in the last years of activities, in which few changes within the routine were observed, until the moment of observation. In order to be able to assess organizational change we had to work analysing different levels that take into account the routine as a whole (artifacts, ostensive, performative, branches, nodes, architecture, characteristics, performance outcomes). In a moment in which organizational change deeply influenced the aspects of the routine, dynamics and standards were subject to change as routines were followed and reproduced.

A central point that emerged in this case study is the tension that arose between the different aspects of the routine: the ostensive aspect did not fully guide performances and the artifact subject to change did not serve as prescription of the procedures. To understand such phenomenon we analysed the behaviours of actors at $t=1$ according to the framework developed, assessing the different aspects of the recurrent interaction patterns that were influenced by organizational change.

We observed how agency of the actors directly influenced the routine and its performances, therefore the behavioural level, influencing the routine in a moment of change. In the case examined, members of every Local Office had no issue in describing the ostensive aspect of

the routine at time $t=0$: when referring to “matching” or “realizing” for example, these patterns were clear and coupled with actions that presented the same patterns throughout the organization. In fact, as proved by interviews and survey in the case study, actors had clear understanding of the recurrent interaction patterns that constitute the routine; “Apply-match-realize” was a referral point for all the actors involved in the OGCDP recruitment. When these patterns changed at $t=1$, they redefined the perception of the routine itself: in this moment the ostensive aspect did not serve immediately the purpose of guiding, accounting and referring and the perception of the actors, influenced by their personal interpretation of the routine, directly influenced the performative aspect of the routine, which mutually constitutes it (Bourdieu, 1990).

This considered, the choices of actions of each participants played an important role for the organization, generating variations from the expected recurrent interaction patterns as described by the SOPs and by the artifact at $t=1$. These variations do not have the characteristics of a resistance to change that can be due to increase control over work (Braverman, 1974), in fact, the organization was prepared to change, and the managers were all aligned in the intents with the local responsible, as a decision took at Global level for the organization. We can therefore draw conclusions based on the behavioural level, analysing the characteristics of the routine which emerged and the performances of actors, not on the base of a resistance to change due to power or control over work.

In a normal enactment of the routine, variations could be considered helpful to manage unexpected situations and exceptions (Perrow, 1967). The ability to improvise is usually a skill, but as in the case observed, it lacks to be so when it does not work in a dynamic way with the ostensive aspect and the artifact, integrating new patterns in the routine. So what is that triggered tension and unexpected behaviours, as seen in the case study? How can actors stick to formal standards of a recurrent interaction pattern and increase performances? To analyse what triggers or limit the enactment of standard behaviours, we considered the experience of actors and the institutional pressure.

With experience, actors embed organizational memory, acquire coordination between themselves, learn and influence directly the performance outcomes of the routines, as they directly influence the characteristics of its patterns when enacting them. By processes of interaction and trainings, actors learn about the obligations encapsulated in a role, an identity, a membership in a political community or group, and the ethos, practices and expectations of its institutions (March & Olsen, 2008), therefore with experience they acquired the definition

present in the previous patterns (three step process), not being able to directly transfer it to the new one in the short term. Another aspect is the institutional pressure of the organization, the adherence between ostensive and performative. Such context set the direction for that is desirable and appropriate of the specific performances of a routine (Suchman, 1995). The social context and the experience contributes in the dynamics of the ostensive and performative aspects, as they influence “how actors account for, refer to and execute routine performances” (Wihlmen and Chromik, 2012:12). Experience and institutional pressure are capable of influencing performances during the transition period, enhancing or limiting the routines’ characteristics and its performance outcomes.

We advance the hypothesis that actors with little experience in the act of enacting a routine will be in need of knowledge regarding both the ostensive aspect and experience on the performative, and they are more likely to follow to the SOPs as they did not gain strong organizational memory that they can recall, as more experienced actors did. On the other side, when actors gain experience, their understanding of ostensive, performative and artifact aspect will develop broader, together with a base under which it is possible to evaluate the routines performance (Pentland et al., 2011). Actors with more experience are more likely to engage in customization rather than to follow formal standards, as they are assumed to know better how to run tasks (Larson, 1977). The actors taken into consideration for the case study went through a process of trainings and education: each local responsible enacted the whole recruitment routine several times and took part as team member in previous recruitments. Therefore it is right to assume that such actors are strong on their experience and developed a high sense of understanding of the routine, acquiring a strong level of customization in their actions within the routine. The task of the routine was executed frequently by every local responsible, which accumulated experience on the base of such actions throughout their experience. It as to be taken into account tough that “experience is often a poor teacher, being typically quite meagre relative to the complex and changing world in which learning is taking place” (Levinthal & March, 1993: 96). In fact, there was no way to prepare actors to the sudden change which increased complexity, thus limiting the benefits gained with their experience on the old recurrent interaction patterns of the routine.

We argue that actors with strong experience are more likely to reproduce the patterns developed in their experience with the previous routine. Such actors will apply the same framework and add elements of customization when an element of change is introduced in the routine. This behaviour directly influence the performance outcomes of the routines’

characteristics. In the case study, lower sequential variety and increased frequency of the recurrent interaction patterns did not contribute directly to an increase in coordination, saving on cognitive resources and in a learning by doing process in the short term if actors did not operate within the standard procedures of the routine.

To overcome this, actors (specifically, the local responsible) and the management proceeded by increasing the communication and interaction within the community, in order to replicate the benefits of the “test and try” thanks to the experience of other actors, as they lacked the coordination gained with experience, so they relied on procedures that have been already tested and tried by others. This is aligned with the findings of Feldman and Rafaeli (2000), which relate how people who are engaged in organizational routines have higher understanding about what needs to be done in a routine thanks to their connections. This influences the ability of an organization to face change, as the connections that the routine make and the understandings that comes from it help actors in performing the routine, and more specifically, helps the ostensive aspect and specific patterns required to be embed in the performances (Feldman and Rafaeli, 2000).

For actors to follow SOPs and norms in the shortest amount of time, we argue that is possible to adopt solutions that can limit the tension and foster the outcomes of recurrent interaction patterns such as coordination, as it was done through the functional community, is a way for the management to cope with different variations of performances that might emerge and to address the drivers of performance effects on the behavioural level.

By complying with rules and norms in a moment of change, an organization can work efficiently in its environment. Supposedly, everyone in the organization aim to ensure the legitimacy of the organization as it secures social endorsement and access to resources (Deephouse & Suchman, 2008). Organizations should therefore work following such norms and rules, which can be defined by the organization itself, and empowered through the ostensive-performative relation, which refers to the pressure put by the organization on the actors or a community to follow specific norms or procedures (Pentland and Feldman, 2005). High institutional pressure by the organization should employ the enactment of standards in the routine (Wihlelm and Chromik, 2012). It was possible to assess the level of the institutional pressure with data and interviews to see whether the management is able to tackle the issue efficiently. From interviews the National Office, institutional pressure to the Local Offices have been increased through higher communication via online channels (informative newsletter increased in frequency from 1 per week to an average of 1,5 during the period that

goes from 7th of November until the middle of December), and a hot line have been set up for support.

Therefore, institutional environment and context becomes a relevant variable when dealing with organizational change. In this way, we argue that organizations can work to limit the tension between different aspects of the routine in different ways: reward and recognition, penalties, more frequent communication are just some examples. Redefining what is “desirable, proper, or appropriate” (Suchman, 1995: 574) can influence which actions actors will account for when enacting the routine not only through more norms, rules and control, but also thanks to what is accepted by the community and by the agents. Methods that allow to increase communication and the ability to have influence within the community, have been proved to be relevant in influencing dynamics within the organization at $t=1$, building on what proposed by Feldman and Rafaeli (202). Actors who fail to comply with institutionalized expectations may face social disapproval such as “snide comments” (Kellogg, 2009: 679); for that to happen, the socialization must be fostered and a sense of identity and standard within the community created and maintained (March, 1994).

6.2 Conclusions

Complexity is defined by the amount of elements present in the routine that need to be enacted for the successful achievement of a task (Becker, 2005; Pentland et al., 2011). When in a process of change the high number may link to variations in the sequential variety exhibited in the routine and consequentially in the interaction of actors and their understanding of the routine, a state of tension can arise between aspects of the routine.

The ostensive aspect of a routine has the function of guiding the routine performances (Becker, 2005; Feldman & Pentland, 2003), but which of these performances will be performed after organizational change occurred depends on the situation in which actors found themselves in, on their experience and resources and on the organizational context. We argue that, the more complex a routine and its task and the speed of change, the larger the likelihood that actors will find themselves in a dynamic scenario of tension, where there is the chance of high variations of performances, and the ostensive aspect is more likely to be not reproduced or followed (D’Adderio, 2008).

As the performative aspect may vary a lot, the source of both change and stability that should be found in the ostensive-performative relation (Pentland and Feldman, 2003) is at a state of

tension, created by the difference between the ostensive and the performances. In order to overcome this state of tension, it is possible to guide the behavioural level of actors by working on elements that reproduce the performance outcomes of recurrent interaction patterns, such as coordination, thus working on the behavioural level in the routine.

In routines, actors play an important role in selecting the behaviour and the action to complete a routine; in doing so they sense the environment and choose between possible sequences of actions. Such sequences are the result of a sense-making done on beliefs, thoughts and assumptions based on personal experience coming from past routine enactment (Weick, 1988). When participants cannot recall on the base of their previous experience any behaviour, they will invest more cognitive resources to sense the situation, therefore intervention measures taken by the management, the community or actors which aim to limit the usage of cognitive resources will be used to economize (Becker, 2005). Actors need to know who holds the knowledge within the routine and within the community, the “who knows what” (Wegner, 1987: 198). This can become a property of the community, as proved in the case study when interaction level rose, to develop moments of collaboration and communication (Lewis, 2004). The higher the frequency with which agents exchange knowledge on a regular basis, the higher the chances they acquire faster new skills that can be used within the routine and change the behavioural level, reducing the state of tension and guiding performances. We argue that increased frequency of interaction between the knowledge communities can serve to guide actors in increasing their coordination and saving on cognitive resources, contributing to overcome the state of tension between ostensive and performative aspect, at the same time enabling proper learning by doing with the new performances.

In conclusion, with this dissertation we showed how it is possible to analyse which characteristics of a recurrent interaction pattern within a routine are subject to change and how they influence performances and the achievement of organizational results. Such analysis can be done using different frameworks that allow have a clear understanding about the response to change and how on the behavioural level performances and their outcomes are influenced. If the forecasted change involve high task complexity and interdependence, with new elements redefining the routine, it is possible to witness to a state of tension between different aspects of the routine. To overcome this, the management can analyse the routine and the behavioural aspects influencing the integration of the new patterns within the organizational routine, designing mechanism to trigger specific behaviours in the agents,

influencing the behavioural level of the routine, which is subject to variations in a moment of organizational change. This allows better monitor of the performances and a baseline of which set the desired performance outcomes after change. We say how actors and communities play an important role, as their path of actions are those will define the new patterns of the routine, if integrated in the new aspects that it present. Understanding on which definition of the routine they refer when enacting it, allow to see whether their performances are a solid base for learning by doing at $t=1$ or if they are not fostering the new patterns of actions. The management has the role of understanding which type of patterns are enacted within the organization: this allow to evaluate the state of implementation of organizational change and its repercussion into organizational goals. This understanding is the ground on which decisions regarding the routine should be taken, whether they involve the level of control, the empowerment of teams, or any incentive or sanction to behaviours.

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