MAPPING ORGANIZATIONAL CHANGE IN THE STATE: CHALLENGES AND CLASSIFICATIONS

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Introduction

In attempts at mapping the pattern of state organizations, four questions arise: 1) What constitutes a *state* organization? 2) What constitutes *one* state organization? 3) What constitutes different *types of state organizations*? 4) What constitutes different *types of change* of state organizations? There are no clear and straightforward answers to these questions on state boundaries, units of analysis and classifications. The answers provided have to be well-founded, as well as take into consideration the availability of relevant information.

In this paper we will primarily discuss the fourth question on organizational change, while the three other questions are discussed in a separate paper (Rolland and Roness 2009). The focus is on changes in the formal structure of organizations, and we will draw upon contributions from organization theory and public administration that may be of some relevance. In order to analyse changes in the formal structure, one has to specify the populations and units that are being subjected to change. Thus, we will first briefly attend censorship problems, i.e. challenges related to which organizations and changes to be included in the analysis. We will then discuss different types of change and continuity in state organizations. While most studies of populations of organizations only distinguish between births, survivals and deaths of organizations, some use more detailed classifications. Moreover, while most studies analyse birth, survival and death rates in populations, others are more interested in the form and extent of change in (different types of) organizations. Finally, we will explain how (different types of) organizational change and continuity is recorded in the Norwegian State Administration Database (NSA). This database is covering (changes in) the formal structure of the Norwegian ministries, civil service organizations outside the ministries, state-owned companies and governmental foundations from 1947 onwards (cf. Rolland and Roness 2009).

Censorship problems

The relevance of censorship problems are primarily discussed in studies using population ecology models and event history analysis, on populations of organizations in general (e.g. Hannan and Freeman 1989) and on public organizations in particular (e.g. Peters and Hogwood 1991). As noted by Peters and Hogwood (1991: 88), the most common forms of censorships in event histories are right and left censorship. *Right censorship* means that we have no information about events occurring after a certain date, while *left censorship* means that we have no information about events occurring prior to a certain date. Like for organizational and social research in general, right censorship is unavoidable, since we cannot know the future. They emphasize the importance of left censorship:

> ".. if we assume that all organizations in a population begin the time period under investigation at the same age and with equal chances of death, then left censorship can introduce the danger of substantial error. Some of the organizations may enter the time period with long and successful histories, others may be fledging organizations founded in controversy, and yet others may be 'dinosaurs' which have outlived their usefulness." (Peters and Hogwood 1991: 88)

To avoid left censorship problems in the study of organizational change in the state, one needs information on organizations and changes going back to the date when the first state organization was created. Thus, if one wants to analyse the population of all state organizations, this is probably most easy in states where the whole administrative apparatus was created from scratch, e.g. in a change of regime. However, even in those instances, some organizations may be based on organizations from the previous regime. Otherwise, one may restrict the analysis to a sub-population of state organizations, like the studies by Lewis (2002, 2003, 2004, cf. also Carpenter and Lewis 2004) on the US federal agencies created in the 1946-1997 period, and by Boin, Kuipers and Steenbergen (2008) on the New Deal organizations created during President Roosevelt's first term (1933-1936).

Peters and Hogwood (1991) also point at the importance of *middle censorship*, which means that we have no information about events occurring between certain dates. According to them, this is a major problem in the study by Kaufman (1976) where he identified the population of organizations that existed in the US federal government in 1923 and then looked again in 1973 to determine which ones had survived. This study ignored the organizations being created after 1923 and what happened to them. To avoid middle censorship problems one needs continuous information on changes taking place between the dates in question.

Types of organizational change

The formal structure of state administration can be described in terms of a vertical and a horizontal dimension (Christensen and Egeberg 1997, Egeberg 1989, Lægreid et al. forthcoming, Lægreid and Roness 1998, Roness 2007). The vertical dimension concerns centralization and decentralization (Pollitt 2005), in other words, how responsibility for political and administrative tasks is allocated among organizations at different levels of the hierarchy. The horizontal dimension focuses on how tasks and responsibility are allocated among different organizations at the same hierarchical level.

Most studies of changes in the formal structure of state administration don't distinguish between different hierarchical levels and regard organizations in a (sub-) population of state organizations as being on the same (horizontal) level. Moreover, most studies don't distinguish between different forms of births, survivals and deaths, even if many of them examine challenges related to how different types of organizational change may be regarded as one or more births or deaths of organizations. Thus, we will start by discussing classifications of births and deaths in contributions from organization theory (particularly population ecology theory) and public administration (particularly from the US). We will then extend the discussion to studies that include different types of survival and change, and also to studies that include changes along the vertical dimension.

Wanted dead or alive?

Over the past three decades, the literature explicitly drawing on ideas and concepts from population ecology theory in the study of change and continuity in (populations of) organizations has become quite extensive (e.g. Aldrich et al. 1990, 1994, Carroll and Delacroix 1982, Hannan and Carroll 1992, Hannan and Freeman 1989, Kaufman 1985, Meyer 1985, Peters and Hogwood 1991). In what is one of the most comprehensive studies of different types of populations of organizations, Hannan and Freeman (1989) analyse the life histories of all organizations within a population. They distinguish between starting events (i.e. births) and ending events (i.e. deaths), noting that it often may be difficult to determine the exact time of starting and ending.

With regard to ending events they distinguish between four ‘generic kinds of organizational mortality’: disbanding, absorption by another organization, merger, and radical change of form (p. 150). They state that, while the identification of a disbanding (but not the exact time) normally does not pose any problems, absorption and merger may raise some difficult conceptual issues. Does an organization end when it enters a merger? According to them, the answer will to some extent depend on what is happening to the structure of the organization:

> “When leaders of the merged organization are replaced or clearly subordinated to the leaders of the organization with which it merges, there is reason to assume that its autonomy of action has disappeared, and it may make sense to view this as an ending. More generally, our interest is in organizational forms: if the structure of the organization changes radically as it merges, so that it no longer manifests the form in evidence before the merger, this is counted as an ending.” (Hannan and Freeman 1989: 151)

An alternative way of answering the question is to rely on the way the organization represents itself to the outside world: “Name changes and publicity generated by the organization often signal important life events such as endings.” (p. 151) In the part on national labour unions in the US they also distinguish between three forms of starting events: founding, secession (i.e. a union is formed by a faction that secedes from a national union) and merger (i.e. two or more unions merge to form a new national union) (p. 159). Here, too, the discussion is mainly intended to clarify how the number of births and deaths can be determined. For example, a merger is counted as one starting event (birth) and two (or more) ending events (deaths).

Carroll and Delacroix (1982) also point at difficulties on assessing deaths and mergers, specifying different ways of interpreting mergers:

> “What is an organizational death? The question may seem trivial because all agree on the unproblematic case: an organizational death occurs when an organization fails, closes down its operations, and disbands its constituent elements. But what about mergers? When two organizations combine, at least one ceases to exist and this must be considered a death. If the merger involves a dominant partner that has absorbed the resources of the other partner, then the subordinate organization dies and the dominant organization experiences a change in structure. If, however, neither merger partner assumes a dominant position, it is difficult to assign a death to one organization and a structural alteration to the other. Instead, it is useful to consider the resulting organization as new and the two merger partners as dead.” (s. 170)

In his study of bureaucratic growth in municipal financial organizations in the US, Meyer (1985) explicitly discusses how relevant data sources were used for recording births and deaths. In general, accounts of organizations given in official records were followed. Thus, a birth of an organization occurred at the point it first came into existence, while a death occurred at the point it no longer existed according to these records. More specifically, the classification of changes includes the following:

> "- Where dissolution of one unit and formation of a new one to replace it appear to have occurred, a death and a birth are recorded provided that two or three things have occurred: the name has changed, the staff has changed substantially (plus or minus twenty per cent), and functions have changed.
> - When two units merge, one death is recorded if the merged unit retains the name of the former units. However, should the merged unit have a new name, then two deaths and one birth are recorded.
> - When a unit is 'demoted' from departmental to divisional status, which among the agencies studied is the most fundamental kind of change that can occur, or from divisional to sectional status, a birth and a death are recorded. 'Promotions', which are infrequent, are also recorded as a birth and a death." (Meyer 1985: 86-87)

Moving to studies on (sub-)populations of state organizations, some of the same challenges related to classifications noted above are discussed, but handled in somewhat different ways. Firstly, Kaufman (1976) argues that one has to go beyond official birth and death certificates in official documents to identify births and deaths. The main criterion he uses for determining organizational survival and death is related to the demarcation and defence of organizational boundaries:

> "As long as a boundary around a group of people included in the study was uninterruptedly maintained, I treated them as an ongoing organization, even if the composition, activities, outputs, and inputs of the group did not remain constant. When the borders became indistinguishable, I assumed all other evidence of collective life had diminished to the vanishing point also, and there-upon declared the organization deceased." (Kaufman 1976: 28)

According to him, in many cases this involves making impressionistic judgements. As noted by others, this may be quite problematic: "the judgement, whether a boundary is still visible or not, is not operationalized clearly, but is left to the personal judgement of the researcher." (Adam et al. 2007: 227) Kaufman also states that, in order to offset the inducements to exaggerate turnover, the bias was heavily in favour of continuity.

This means that, as noted by Starbuck and Nystrom (1981: xiv-xvi), Kaufman exaggerates the extent of stability. Thus, Starbuck and Nystrom has made a similar study of 1,174 US federal agencies, where agencies are classified as disappearing when they merged, when they acquired significantly different responsibilities, or when they reorganized substantially. However, since the population and time period is poorly described in this study, it is a bit difficult to compare the results of the two studies.

The importance of judgements and classifications is also apparent by comparing some recent studies of US federal agencies. Like in other event history analysis, Lewis (2002, 2003, 2004) coded each agency with a start date and a termination date (where appropriate). In this data set an agency is considered new (i.e. a birth) if it has a new name and different functions from any previous existing agencies (Lewis 2003: 41). According to the more complex definition of termination (i.e. a death), this is the case if: 1) an agency has been eliminated whole with all of its functions, or 2) if it has a name change, location change (i.e. change related to the proximity to the president) and change of function (Lewis 2002: 92). Boin, Kuipers and Steenbergen (2008) also note how difficult it can be to determine what constitutes a new organization and the termination of an organization. Their point of departure is that organizations that are the result of a merger, or that are split off from existing organizations are considered as new. Likewise, a merger of organizations or split into two or more organizations counts as a termination. However, when organizations are only changed in name and some of their functions they are not considered to be terminated. They also add that this departure from the criteria used by Lewis (2003) implies significantly more creations and terminations of agencies.

Summing up, while many authors discuss different forms of births and deaths of organizations, they normally end up by determining what constitutes birth, survival and death. Moreover, in discussions of organizational termination (death), there is a lot of conceptual variety and ambiguity (cf. Adam et al. 2007). Challenges related to making judgements also apply to discussions of organizational birth. However, even if there are no general or objective ways of describing births and deaths, clarifications of the basis for the classifications being used are necessary to make well-founded choices and make it possible to compare results across studies.

Or something in-between?

Peters (1988, cf. also Peters and Hogwood 1988) is among the few that extend the discussion beyond births and deaths. He supports the critique by Starbuck and Nystrom (1981) on the strict definition of termination used by Kaufman (1976), but adds that they don't go far enough. Thus, the definition which Starbuck and Nystrom employ groups terminations and changes together: "We believe that for the sake of theoretical development it is very important to maintain the distinction between the two categories." (Peters 1988: 82) He distinguishes between three main types of change (p. 83):

1) Initiation: The formation of an entirely new organization.
2) Termination: The abolition of an organization with no replacement organization being established.
3) Succession: The replacement of an organization by a 'new' one directed at the same problem or clientele.

For *succession*, a distinction is made between six sub-types (p. 84):

a) Linear replacement: The direct replacement of one organization with another addressed to the same problem but with different goals or methods.
b) Consolidation: The complete or partial termination of two or more organizations and their replacement with a single organization.
c) Splitting: The division of a single existing organization into two or more components.
d) Partial termination: The termination of some aspect of an organization while the remainder of the organization continues to function.
e) Nonlinear replacement: A new organization formed where the purpose is closely related to previous organizations but for which the goals, programs and/or structural features may be quite different.
f) Complex replacement: Patterns of change involving some or all of the types of successions above.

To make the classification complete, *maintenance* is added, i.e. 'the continuation of an existing organization with the same task definition and structure' (p. 83). However, like most others, Peters doesn't distinguish between different hierarchical levels and regard organizations in (sub-)populations of state organizations as being on the same (horizontal) level.

Vertical and horizontal specialization and de-specialization

Among the studies reviewed above, some have elements that point in the direction of changes along the vertical dimensions. Thus, Lewis (2003: 92) includes change in the proximity to the president (location change) as part of the criterion to assess the termination of an organization. Moreover, what Meyer (1985: 86-87) calls ‘demotions’ and ‘promotions’ is related to the vertical dimension. In addition, in his study of the creation of US federal agencies in the 1933-1973 period, Grafton (1979: 439) include ‘a shift in status from one organizational category to another (e.g., from independent commission to department bureau)’ as an example of reorganization (cf. also Grafton 1975, 1984). However, in the analysis he doesn’t distinguish between different types of reorganizations.

In general, for changes along the vertical and the horizontal dimension, we may distinguish between vertical and horizontal specialization and de-specialization across organizational boundaries (Christensen and Egeberg 1997, Egeberg 1989, Lægreid et al. forthcoming, Lægreid and Roness 1998, Roness 2007). *Vertical specialization* can take the form of structural devolution, meaning conversion of existing state organizations into units that are organizationally further away from the central political authorities. It also includes the transfer of tasks to existing units that have a structurally more devolved form, and an increase in the number of new organizations with a structurally more devolved form. *Vertical de-specialization* implies the movement of units and tasks in the opposite direction, in other words a decrease in the number of units with a structurally more devolved form. *Horizontal specialization* may mean that existing organizations are split into smaller sub-units or that new organizations are founded at the same hierarchical level, while *horizontal de-specialization* generally involves the merger, absorption or termination of existing organizations. For the horizontal dimension we will focus on changes involving whole units, e.g. the splitting, secession, founding, merger, absorption and termination of organizations. Since we are primarily interested in changes in the formal structure of state administration, the transfer of tasks between organizations at different hierarchical levels or at the same level is not included unless the organizational structure is affected.

In a study of the structural anatomy of the Norwegian state in the 1985-2007 period based on the Norwegian State Administration Database, Lægreid et al.

(forthcoming) distinguish between three main types of state organizations according to their formal autonomy from central political authorities. Taking civil service organizations outside the ministries as the point of departure, vertical specialization means that some of these organizations are converted into state-owned companies or governmental foundations (i.e. move from one sub-population of state organizations to another). It may also mean that new state organizations to a larger extent are established as state-owned companies or governmental foundations than as civil service organizations. Likewise, vertical de-specialization means that some of the civil service organizations outside the ministries are moved into ministries, or that new state organizations are established as civil service organizations to a larger extent than more structurally devolved forms.

Looking at horizontal specialization and de-specialization, Lægreid et al (forthcoming) are interested in the *net* number of changes along the horizontal dimension. This means, for example, that a founding of a new organization, a splitting of an existing organization into two organization or a secession of a new organization from an existing organization are counted as one horizontal specialization. Likewise, instances of a termination of an organization, a merger of two existing organizations into a new organization or an absorption of an existing organization into another existing organization are counted as one horizontal de-specialization.

Types of studies

The types of studies of organizational change that have been made, or are possible to make, will to a large extent be determined by the classifications of change and continuity being used. Thus, studies of birth, survival and death rates in populations through event history analysis normally presuppose dichotomous dependent variables. On the other hand, to analyse the form and extent of different types of change and continuity in state organizations, more detailed classifications are needed. We will here provide some examples of both types of studies of changes in the formal structure of state administration.

Studies of birth, survival and death

Studies of populations of organizations based on population ecology theory and event history analysis (e.g. Hannan and Freeman 1989) focus on births (founding rates and entry rates) as well as on deaths (disbanding rates, exit rates and failure rates). The aim is to explain variations of birth rates or death rates among organizations within a population or across populations. Typically, the explanatory variables are characteristics of organizations, like age ('the liability of newness') and type (e.g. generalists vs. specialists), of populations (e.g. density/number of existing units) and of environments (e.g. niche, variability and variation/grain). Type of birth has also been included among explanatory variables in studies of death rates (e.g. Aldrich et al. 1994), but has not been used as a dependent variable. Where different types of death are studied, they have been analysed separately (e.g. Aldrich et al. 1994).

With regard to state organizations, the study by Peters and Hogwood (1991) on US federal agencies in the 1933-1986 period is probably the one that most explicitly uses ideas and concepts from population ecology theory. Even if the authors distinguish between initiations (births), terminations (deaths) and different types of successions, they primarily analyse death rates for different types of organizations and environments. For example, for organizational age they formulate an obsolescence hypothesis in addition to the liability of newness hypothesis, and find some support for both. As noted above, they are also somewhat critical of previous studies of organizational death among US federal agencies by Kaufman (1976) and Starbuck and Hedstrom (1981). While these two studies don't explicitly relate to population ecology theory, in a later book Kaufman (1985) discusses the relevance of these ideas, like natural selection.

The study by Lewis (2003) on US federal agencies also uses event history analysis, but draws upon ideas and concepts from 'the new economics of organization' rather than population ecology theory. Thus, he is more interested in agency design by presidents than in natural selection by environments. He examines factors that may affect the form and extent of political insulation of agencies (e.g. legislative origin of agencies, majority strength in Congress and presidential durability), and also how the form and extent of political insulation may affect the durability of agencies. In some other publications (Carpenter and Lewis 2004, Lewis 2002, 2004) he focuses more explicitly on terminations (deaths) and factors that may affect agency mortality. Thus, he compares hazard rates ('the probability that an agency will be terminated given that it has not been terminated already', cf. Lewis 2002: 96) across agencies with different types of characteristics (e.g. how it was founded, form and extent of political insulation and political environments).

In their study of the special population of US federal agencies, Boin, Kuipers and Steenbergen (2008) discuss whether the life and death of public organizations is a question of institutional design. They also draw upon ideas and results from previous studies, including Kaufman (1976) and Lewis (2003). However, their dependent variable is somewhat different: organizational lifespan, measured as the duration in years between the creation and termination of an organization. The New Deal organizations being established in 1933-1936 that still exists at the end of 2007 are treated as right-censored cases. They examine the importance of different types of agency characteristics, like location (i.e. the proximity to the president), legislative origin and presence of a sunset clause.

In his studies of US federal agencies, Grafton (1975, 1979, 1984) is particularly interested in the creation and reorganization of agencies that may be regarded as a response to a sudden shift in social, economic or technological change. He counts births and deaths without using event history analyses, and also has a more eclectic theoretical approach than the more recent studies. This makes it somewhat difficult to compare results across studies of US federal agencies.

In their comprehensive review of studies of the termination of public organization, Adam et al. (2007) discuss some explanations, like termination by chance, termination as a result of political turnover, termination as a consequence of learning and the impact of organizational characteristics on termination probability. They also mention some factors or determinants to be examined in future research, related to two dimensions: external political incentives (e.g. political turnover, societal pressure, problem pressure and budgetary constraints) and internal characteristics of a public organization (e.g. age and adolescence, size and multi-purpose vs. single purpose). These factors may also be of relevance for studies of the form and extent of different types of change.

Studies of form and extent of change

As noted above, Peters (1988) distinguishes between six sub-types of succession, in addition to changes through initiations and terminations of agencies. Applied to the US federal agencies, he counts the number of all types of changes in each decade from the 1930s onwards. For the whole period, he also counts the number of main types of changes for different types of organizations (i.e. location) and different sources of authority (i.e. legislative origin) of agencies (cf. also Peters and Hogwood 1988). This provides the basis for mapping more nuanced patterns of change than in the previous studies by Kaufman (1976) and Starbuck and Nystrom (1981).

In the study of the structural anatomy of the Norwegian state, Lægreid et al. (forthcoming) are interested in whether the form and extent of changes is characterized by increased specialization or a pendulum shift. To find out whether changes of government or the adoption of new doctrines has made an impact, the 1985-2007 period is divided into sub-periods, mainly corresponding with the party constellations in government and the prevailing international and national administrative policy doctrines. Here, too, this provides the basis for mapping a nuanced pattern of change.

The Norwegian State Administration database (NSA)

The Norwegian State Administration Database has been developed from 1992 onwards through collaboration between the Norwegian Research Centre in Organization and Management (later the Stein Rokkan Centre for Social Studies) and the Norwegian Social Science Data Services (NSD). The purpose of the database is to provide systematic information on the organizational structure and administrative resources in the Norwegian state administration. It covers all non-temporary state organizations with full-time employees from 1947 until present, maps their organizational structure at any time as well as changes in the organizational structure throughout this period. Moreover, it is accessible through the NSD website (English version on http://www.nsd.uib.no/civilservice/).

Mapped organizations

The units in the NSA database consist of state organizations with different *forms of affiliation* to the central political authorities, where the main forms are as follows:

- ministries (including sub-units like divisions, sections and offices)
- civil service organizations outside the ministries
- state-owned companies
- governmental foundations

For organizations outside the ministries, all organizations reporting directly to a ministry are included, but to some extent handled in different ways:

- National single civil service organizations without subordinated units. The database covers all units in this category. Moreover, for practical reasons, all state-owned companies and all governmental foundations are recorded as a national single organization, although several of them are organized as complex hierarchies.
- Integrated services that consist of a central (national) unit and regional/local offices: All central units are mapped, but not all of their regional and local offices.
- Groups of similar organizations: Civil service organizations with similar tasks, each covering a specific territorial area, are grouped together and counted as one unit. However, in some instances every single territorial organization is also recorded separately in the database.

This means that the database is quite flexible and allows for different levels of detail and aggregation. See also Rolland and Roness (2009) for a more comprehensive presentation of the mapping of organizational units in the database.

Types of organizational change

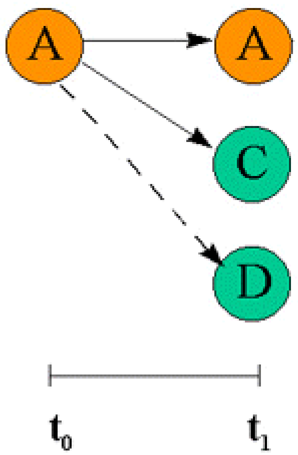
Like in event history analysis, our point of departure is different types of change that an organization may go through. We distinguish between three main types of organizational change (or events): birth (starting events), survival (maintenance events) and death (ending events). For each main type we also distinguish between several sub-types, to a large extent based on the academic literature reviewed. We draw particularly upon ideas from population ecology on births and deaths (e.g. Carroll and Delacroix 1982, Hannan and Freeman 1989) and upon discussions of different forms of succession (e.g. Peters 1988, Peters and Hogwood 1988). However, we use a more extended set of sub-types of organizational change, including 23 different categories (see the appendix for a detailed presentation of the classification and the exact codes being used for recording the changes).

Some instances only involve one organization. This applies to what we call a *pure founding* (i.e. new organizations with no prior organizational history) and a *pure termination* (i.e. changes where no parts of the organization are continued in other organizations). It also includes change of name, change of parent ministry and change of form of affiliation of organizations.

However, in most instances, several organizations are involved at the same time. Here, we distinguish between five types of organizational change processes: 1) secession, 2) splitting, 3) absorption, 4) merger, and 5) complex reorganization. They imply different patterns of change for the organizations involved, but, as noted by several authors, in practice it is not always easy to determine exactly what has happened.

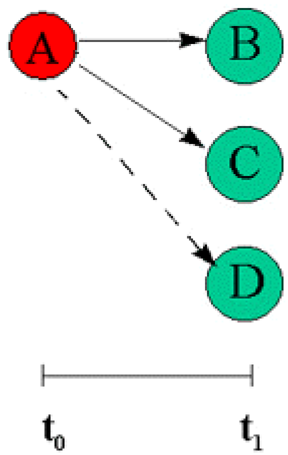
Below, we have outlined graphically how the different types of processes affect organizations. Since the pair-wise distinctions between secession and splitting and between absorption and merger are most important, these types of change are contrasted.

Secession



Unit A: Maintained by secession
Unit C: Founded by secession
Unit D: Founded by secession

Splitting



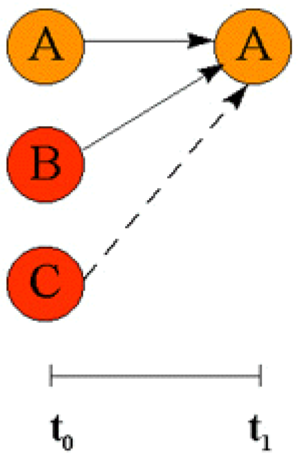
Unit A: Terminated by splitting
Unit B: Founded by splitting
Unit C: Founded by splitting
Unit D: Founded by splitting

Looking first at secession vs. splitting, *secession* implies that the existing organization (A) is maintained in a somewhat smaller scale, while one or more new organizations (C, D, ..) are founded based on parts of the existing organization. On the other hand, *splitting* implies that the existing organization (A) is terminated, while two or more new organizations (B, C, D, ..) are founded based on parts of the existing organization. Thus, we use splitting in the same sense as Peters (1988) and secession in the same sense as Hannan and Freeman (1989). However, even if secession is mentioned by Hannan and Freeman (and counted as one birth, or starting event), in general it has not got much attention in the research literature (as separate from what we call pure founding).

Sometimes it can be difficult to decide whether an organizational change is a secession process or a splitting process. Particularly in cases where information has been scarce, it is obvious that the choice between these two codes has involved some discretion. However, these judgments have been based on certain criteria. When a major part of an existing organization seems to carry on after a change process (i.e. with the same name, almost the same size and mostly the same functions and tasks) we have interpreted this change process as a secession. If all organizations after a change process are very different from the existing organization (the name and size has been considerably changed, and the functions and tasks are not the same), we have interpreted this change process as a splitting.

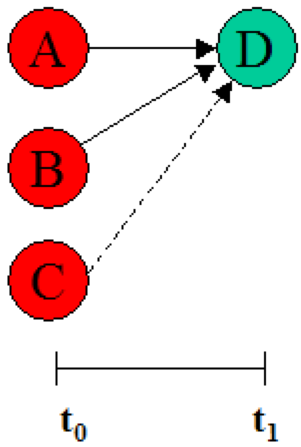
With regard to absorption vs. merger, *absorption* implies that an existing organization (A) is maintained in a somewhat larger scale, while one or more other existing organizations (B, C, ..) are terminated and forms parts of the organization being maintained. On the other hand, *merger* implies that two or more existing organizations (A, B, C, ..) are terminated, while a new organization (D) is founded based on the other organizations. Thus, we use these two concepts in the same sense as Hannan and Freeman (1989).

Absorption



Unit A: Maintained by absorption
Unit B: Terminated by absorption
Unit C: Terminated by absorption

Merger

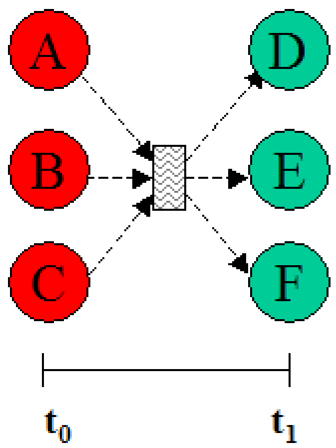


Unit A: Terminated by merger
Unit B: Terminated by merger
Unit C: Terminated by merger
Unit D: Founded by merger

To ascertain whether a certain change process is to be interpreted as absorption or merger will also sometimes have to be based on judgments. The criteria we have used are also in these cases based on information about factors such as size, name, functions and tasks. Typically, smaller units are absorbed in a larger existing one that mainly carries on with the same name, functions and tasks as before. A merger process, on the other hand, is more characterized by two or more equal units being dismantled giving birth to a new and larger organization with expanded tasks and functions and usually a new name.

Finally, what we call *complex reorganization* is a process where the formal structure of two or more existing organizations (A, B, C, …) are completely wiped out and replaced with two or more new organizations (D, E, F, ..). This implies that it is very hard to identify the units going into a reorganization process *after* the process is completed, although tasks and functions handled by the new organization(s) are much the same as before the change. Tasks, functions, resources and staff carry on, but are mixed in a new formal structure, usually with new names. Old units are permanently terminated and no longer visible after the change. To a large extent, this corresponds to what Peters (1988) calls (succession through) complex replacement.

Complex reorganization



Units A, B, C Terminated by complex reorganization
Units D, E, F Founded by complex reorganization

Data sources and recording

Compared to most other countries, (changes in) the formal structure of the Norwegian state administration is quite well documented. Some yearly publications covering the whole civil service go back to the 19th century, like the Norwegian Government Yearbook ('Norges Statskalender') and the annual state budget (St. prp. no 1). Other propositions and reports to the Storting may also contain information on changes in the formal structure for (parts of) the state administration. The same applies to reports from public commissions and working groups, published in the series Official

Norwegian Reports (NOU). Moreover, the National Archival Services of Norway has published a handbook (Johannessen, Kolsrud and Mangset 1992) as well as comprehensive books describing the development of the ministries in different time periods (Kolsrud 2001, 2004, 2008). In addition, for the ministries, special phone books have been updated and published (at least) since the early 1970s.

Our main data source has been the Norwegian Government Yearbook. Thus, we have compared the presentation of ministries (including sub-units) and civil service organizations outside the ministries from one year to the next. In developing the database we have also supplemented and cross-checked this information with information provided through the state budget, other propositions and reports to the Storting, reports from public commissions and the publications from the National Archival Services of Norway. In many instances, we have been able to determine the exact date of the change – otherwise the change is recorded as having taken place at the turn of the year. For state-owned companies and governmental foundations the information is somewhat more incomplete, particularly for governmental foundations and changes in the first decades of the period. However, we have had access to some comprehensive mappings undertaken by the ministries, and also consulted public registers of business enterprises and foundations in general.

From the start and to the present, the development of the database and the recording of the changes have been undertaken by the same person(s). In case of doubt, the specific change has been discussed among the authors of this paper to determine the appropriate code(s). This should provide for high consistency in recording over time and across the whole state administration.

Censorship problems

As noted above, the time period covered by the NSA database is from 1947 to the present, and all relevant units that have existed during this period are included in the database. For units founded *before* 1947 it means that we don't have full information about events occurring prior to this year (left censorship). For important units (e.g. ministries and major civil service organizations outside the ministries) with well-documented and known institutional history we have tried to solve this problem through backward mapping to record all changes from the founding until 1947.

However, for smaller units (e.g. sub-units within ministries), information about founding and further changes before 1947 is less complete. All such units are given a separate founding code to enter them into the database.

Since we have covered all relevant units from 1947 throughout the whole period, there are no middle censorship problems. For studies based on the database covering parts of the period ending before the present date, we have some information on events afterwards. However, like for this type of research in general, right censorship problems can’t be solved completely.

Conclusion

The mapping of organizational change in the state involves several challenges, including the handling of censorship problems, the development of classification frameworks, and the application of these frameworks. In the best of all worlds, the information should be complete, the categories should be exhaustive and mutually exclusive, and the framework should be easy to use. In practice, however, some imperfect choices have to be made. This is the case for the studies reviewed above, as well as for the development of the Norwegian State Administration Database.

In the NSA database, left censorship problems are handled (somewhat incomplete) by backward mapping of organizations existing at the start of the period covered (1947), middle censorship problems are avoided by continuous mapping throughout the whole period, while right censorship problems may be reduced (but never completely resolved) over time by updating the database in the future.

With regard to classification frameworks, most studies distinguish primarily between births, survivals and deaths, but some (e.g. Lægreid et al. forthcoming, Peters 1988) use a more comprehensive set of categories of organizational change. The latter option may make the classification framework more exhaustive, but also make it more difficult to have mutually exclusive categories. The problem of overlapping categories may be handled by specifying in more detail what different types of change imply, like it is done for the NSA database (see appendix).

However, even when using quite comprehensive classification frameworks, it may be difficult to determine exactly what has happened, based on the available information on the change processes. Thus, like for other datasets, in recording organizational change in the NSA database, some judgements have to be made, particularly on whether it is a secession or a splitting process, and an absorption or a merger process. There are no general and objective ways of determining this, but the challenge may to some extent be handled by clarifying the criteria being used. Moreover, the problems may be reduced if several data sources are drawn upon, and if the same people have made the recording, like it is done in the NSA database.

The way the NSA database is constructed – i.e. by allowing for different levels of detail and aggregation in the mapping of organizational units, and by using a distinction between three main types of organizational change (or events) as well as a more comprehensive classification framework – implies that it can form the basis for different types of studies of organizational change. In addition to the study by Lægreid et al. (forthcoming) on the structural anatomy of the Norwegian state in the 1985-2007 period, so far this has included studies of changes in all ministries (Rolland 1999), all state-owned companies (Hodnefjell 2001) and in certain ministries and their subordinated civil service organizations (e.g. Lovik 1997, Mathisen 1998) from 1947 until the 1990s. However, the potential for drawing upon the database for further studies is high, also for utilizing ideas from population ecology and event history analysis.

Appendix: Classification of organizational change in the NSA database

The database aims at covering all organizational events of all relevant state organizations from starting events to ending events. 23 predefined categories for organizational change are used. For events not covered clearly by the predefined set of organizational change codes, an explanation is added in a text field.

The changes (events) are divided into three main groups:

1. *Starting codes*: changes giving birth to an organization (founding).

2. *Maintenance codes*: changes where the border of an organization is maintained, but the relationship to other organizations is changed. Examples are change of parent ministry and change of form of affiliation. Change of name is also in this category.

3. *Ending codes*: changes implying the death of an organization (termination).

Exact codes:

- 101 = Pure founding

  This code is used for new organizations with no prior organizational history. Some units given this code will most probably have a history or background, which indicates that other codes should have been used. If this information is not available at the time of coding, this code has been used.

- 102 = Founding by secession

  This code is used when a unit is given an independent standing/status through secession from an existing unit. In this process, the remaining unit is given the code 202 ('Maintenance by secession'). Information about the relationship between the units involved in this process is given in a separate field ('Relation').

- 104 = Founding by splitting

  When a unit ceases to exist through a splitting into two or more new units, this code is used for the new units. In this process, the terminated unit is given the code 304 ('Ending by splitting'). Information about the relationship between the units involved in this process is given in a separate field ('Relation').

- 106 = Founding by merger

  This code is used when two or more units are merged into one new unit that is given an independent standing/status. In this process, the terminated units are given the code 306 ('Ending by merger'). Information about the relationship between the units involved in this process is given in a separate field ('Relation').

- 111 = Founding by complex reorganization

  Sometimes it is difficult to use specific codes for organizational change – for instance when major changes occur at the same time involving several units. It can be difficult to trace exactly what happens to the units involved in the change. In such complex events this code is used for the new units. The codes 211 (‘Maintenance by reorganization’) and 311 (‘Ending by complex reorganization’) may also be used for any possible maintained and terminated units.

- 112 = Entered (new relevant unit)

  This is a technical code used when a unit is entered in the database and we don't know the time of birth or the history behind the birth.

- 202 = Maintenance by secession

  This code is used for the remaining unit when a new unit is given an independent standing/status through secession from an existing unit. In this process, the new unit is given the code 102 (‘Founding by secession’). Information about the relationship between the units involved in this process is given in a separate field (‘Relation’).

- 203 = Maintenance by absorption

  This code is used when an existing unit absorbs another existing unit. In this process the terminated unit is given the code 303 (‘Ending by absorption’). Information about the relationship between the units involved in this process is given in a separate field (‘Relation’).

- 207 = Change of name

  This code is used when a unit changes its name without changing any other obvious aspects (i.e. a cosmetic change). It can also be used in combination with other specific codes for organizational change to ensure the presentation of a correct name of a unit at any time. Obviously, other changes concerning functions, tasks and structure of the unit in question may be behind this type of change.

- 209 = Change of location

  This code is used when a unit is moved from one geographical location to another.

- 211 = Maintenance by reorganization

  Sometimes it is difficult to use specific codes for organizational change – for instance when major changes occur at the same time involving several units. It can be difficult to trace exactly what happens to the units involved in the change. This code is used for units that survive the upheaval.

- 213 = New line of reporting

  This code is used in cases where a new unit is established between two existing units. In such cases, the unit lowest in the hierarchy will report to a new superior unit. For example, if a new section is established between an existing office and an existing division within a ministry, the existing office will have a new line of reporting.

- 221 = New superior organization (horizontal movement)

  This code is used when a unit reports to a new superior organization without changing its own form of affiliation or administrative level (horizontal movement). For units within a ministry, this type of change may occur both inside and between ministries. For units outside ministries, this type of change involves movement between ministries (i.e. a change of parent ministry).

- 222 = New form of affiliation/administrative level

  This code is used when a unit is reorganized and changes its form of affiliation/administrative level. Reorganization along the vertical dimension (conversion from one form of affiliation to another) is mainly used for units outside ministries. The unit reports to the same ministry after the change. But the code is also used for units within a ministry to capture change of administrative level.

- 223 = New superior organization and level

  This code is used when a unit reports to a new superior organization and at the same time changes its form of affiliation/administrative level. This code is a combination of code 221 ('New superior organization (horizontal movement))' and code 222 ('New form of affiliation/administrative level'). The code is always used when a unit is transferred to local government, or privatized (i.e. transferred to the non-profit or market sector).

- 291 = No change to unit, but change of superior organization

  This code is used when a unit reports to a new superior organization at the same time as its previous superior organization is terminated. There is no change in form of affiliation/administrative level. The code is widely used to transfer all units subordinated one ministry to a new ministry when the first ministry is terminated. This code is of a technical character as no specific change happens to the subordinate units (i.e. the change is only taking place on ministerial level). The code is necessary to put all subordinated units under its new parent ministry (i.e. there is no change to the unit itself, but change of the superior organization).

- 292 = Unit moving into integrated services

This code is used when a unit moves into an integrated service or a group of similar organization (i.e. the unit in question becomes part of a larger service or group of similar organizations).

- 303 = Ending by absorption

  This code is used when another unit absorbs an existing unit. The unit being maintained is given the code 203 (‘Maintenance by absorption’). Information about the relationships between the units involved in this process is given in a separate field (‘Relation’).

- 304 = Ending by splitting

  This coding is used when a unit ceases to exist through a splitting into two or more new units. In this process, the new units are given the code 104 (‘Founding by splitting’). Information about the relationship between the units involved in this process is given in a separate field (‘Relation’).

- 306 = Ending by merger

  This code is used when two or more units are merged into one new unit that is given an independent standing/status. In this process, the new unit is given the code 106 (‘Founding by merger’). Information about the relationships between the units involved in this process is given in a separate field (‘Relation’).

- 310 = Pure termination

  This code is used when a unit is permanently terminated. In the database, this code probably is used too often due to lack of information about possible continuation of tasks and functions.

- 311 = Ending by complex reorganization

  Processes where the formal structure of one or several organization are completely wiped out and replaced with one or several new organizations characterize these changes. This implies that it is very hard to identify the units going into a reorganization process *after* the process is completed, although tasks and functions handled by the new organization(s) are much the same as before the change. Tasks, functions, resources and staff carry on, but are mixed in a new formal structure, usually with new names. Old units are permanently terminated and no longer visible after the change. The codes 111 (‘Founding by complex reorganization’) and 211 (‘Maintenance by complex reorganization’) may also be used for any possible new and maintained units.

- 312 = Discharged (no longer relevant entity)

  This code is used when a unit is no longer a relevant entity in the database by not being subordinated a ministry (e.g. by being privatized or transferred to local government).

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