

Standardisation of methods and integration in the ESS

Appraisal of projects

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Standardisation is a strategic response of the statistical system to both budget cuts and the necessity to improve the comparability of statistics over statistical domains and over countries. Standardisation is not a goal in itself; it facilitates the integration of processes. Only the broad implementation in statistical production processes across countries can produce the potential benefits: efficiency, quality, flexibility and return on investment.

The objectives mentioned above will not be met by setting standards, but by implementation of standards, by further integration of processes and more efficient interoperability between countries.

The discussion in this paper focuses on standardisation in the European Statistical System (ESS) and draws on discussions in the ongoing standardisation initiative. With proper adaptations the issues discussed will be relevant in other contexts, e.g. at the national level or at the broader international level.

In line with the proposals of the ESS project Preparation of Standardisation we will adopt the ISO definition of standard (ISO/IEC Guide 2:2004, definition 3.2):

A standard is a document, established by consensus and approved by a recognize body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.

In this paper we will propose a tool for the appraisal of projects that aim at standardisation and integration in the European Statistical System. The paper starts with a brief description of the current state of standardisation.

Current standards in the ESS

The rules or guidelines can concern different elements of the statistical production process: definitions, classifications, formats, methods, tools, processes etc. In the European Statistical System (ESS) some of these elements are standardised as rules through statistical legislation; this concerns mainly definitions, classifications and formats (popularly referred to as output regulation). On the other hand, methodology is usually laid down in guidelines; rules are usually not efficient, as the Member States of the European Union differ for instance in size, industrial structure and access to administrative sources. Countries need degrees of freedom to adapt to local conditions.

Advantages of the legal approach are:

- the clear adoption procedure;
- the longer term stability (planning of the work);
- the availability in all official languages.

The legal approach also has some obvious disadvantages:

- lack of flexibility;
- heavy legal procedure distracting resources from statistical work and sometimes deviating the outcome from the technical optimum for formal reasons;
- involvement of the political sphere in rather technical issues, putting a burden on the political process and introducing a risk to the statistical process.

The legislative policy is currently under discussion. The body of statistical legislation has been developed over time and within statistical domains, thus creating a piece of patchwork without global structure and coherence. Without proper justification pieces of legislation may differ in the use of statistical units, the breakdowns, definitions and quality requirements. This hampers the integration over statistical domains. Another aspect is the enforcement of effective compliance with some parts of the legislation. For instance, the compliance with the Regulation on statistical units in the domain of business statistics is far from complete, whereas harmonisation of statistical units is crucial to integration over statistical domains and comparability over countries. A new legislative policy should concentrate on a coherent framework and a high level of compliance with perhaps less details in the technical aspects. It will be a challenge to reach an agreement on such a policy and framework, as the advantages and disadvantages can be spread in an uneven way over the partners in the ESS. The burden of the legal procedure is mainly on the European statistical office (Eurostat), whereas the advantage of easier planning or of the language versions appears in Member States. The unbalanced spread of costs and benefits over the parties concerned is typical for standardisation and integration issues.

As for the guidance, the European Statistical System has over 300 statistical handbooks and guidelines (www.ec.europa.eu/eurostat/ramon). Some are domain specific; others are dedicated to one business process step or to the process as a whole. The status of these documents is often unclear: how were they

adopted and how are they updated? There is no procedure to secure the coherence of the total body of guidance offered. In 2010 a survey¹ was conducted among methods departments in 32 national statistical institutes (EU+EFTA+some others); the core question was whether they knew and used 27 listed methodological handbooks. We have received a reply from 20 countries. We would not like to speculate about the practices in the non-respondent institutes, but from the respondents we learned that not all handbooks were known and used. The use was high with the newer and more general handbooks (on seasonal adjustment, quality reports).

We wondered why some standards are implemented and others not. This issue was discussed with the directors of methodology in the European Statistical System and there seemed to be a common understanding that it is not sufficient to adopt a standard, but it is required to support the implementation with:

- Communication;
- Supporting IT-tools;
- Supporting training activities;
- Organisation of the maintenance.

The challenges for standardisation in the ESS are:

- Combining coherence with flexibility;
- Using of the legal instrument in an optimal way;
- Clarifying the status of handbooks.

Standardisation as a process

In an ideal situation the process of standardisation should follow a sequence of steps:

- Establish the need
- Develop
- Develop support measures
- Adopt
- Register
- Apply
- Monitor
- Review

The need to standardise or integrate is to be established in an ex-ante evaluation. A positive decision should be linked to the facilitation of the development of the standard. In an early stage this should be linked with the development of support measures: tools, handbook, training, legislation, implementation plan, maintenance plan etc. A recognized body adopts the proposal and the supporting measures. Registering the standard is not only a way of disseminating the body of common standards, but it is also a tool to analyse the

coherence of proposed standards with the existing corpus and to identify areas where standards are missing or obsolete. Only the application in statistical production processes can produce results. The application should be monitored and the standard reviewed at least according to the schedule set in the adoption.

Such a process of standardisation requires several structural elements like a recognized body for the adoption, the register of standards, a procedure for reviewing and a template for the evaluation. Some elements exist, especially where the legal approach is applied, for instance with the revision of the classification of economic activities (ISIC, NACE). Other examples are the SDMX framework (www.sdmx.org) and seasonal adjustment. The seasonal adjustment guidelines ([ESS seasonal adjustment guidelines](#)) contain clear guidelines and the documents is adopted by a recognize body (by the Statistical Programme Committee on 14 February 2008 and by the European Committee on Monetary, Financial and Balance of Payments statistics CMFB on 11 April 2008). Also the implementation and maintenance is taken care of: a tool (DEMETRA+) allows the smooth implementation, training events are organized and the Seasonal Adjustment Steering Group (SASG) manages the implementation and development of the standard.

What we see is that standardisation occurs more or less by accident in specific sub domains without global plan or priority setting and without verification of the coherence. The schematic standardisation process as presented above suggests a more deliberate and coherent process based on three key assessment points:

- The relevance assessment or project appraisal is done when establishing the need for standardisation; it is necessary condition to the decision to finance the development;
- The adoption assessment substantiates the decision to implement;
- The evaluation of the implementation should lead to allocating necessary support or maintenance actions, if positive, or to the decision to discontinue the standard in the opposite case.

Stressing the element of coherence, it would be natural to have one body deciding on all projects in all phases: the ESS Committee. This will evidently lead to serious congestion, so that the Committee will have to split-up and delegate the tasks. The register of standards has an important role in this respect. It is not only a dissemination tool, clarifying what standards are in place, but it also helps to distribute the work and to check the coherence of new proposals with the existing framework.

There is no systematic way to find potential standardisation or integration projects. Possible approaches are:

- User driven: solutions for new user needs (e.g. information on perceptions and attitudes, better timeliness)
- Process driven: select business process steps requiring much resources, producing large delays or constituting a quality risk
- Technology driven: how can new technologies be used in statistics production (e.g. the internet as a data source)

A strategic plan on standardisation would provide a useful basis for standard related decision making, especially for decisions on the development of standards. From the three assessment points listed above, we

propose some guidance on project appraisal in order to support the decision making and selection process for project proposals.

Appraisal of standardisation projects

The standardisation and integration projects in the European Statistical System aim at quality and/or efficiency. This provides a basis for a common framework for the appraisal. As this assessment is at a strategic level, and requires subjective judgement on the relative importance of the separate elements, the SWOT² analysis framework seems to offer a useful model. SWOT is a method for the appraisal of projects on the bases of **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats. More formal approaches like cost benefit analysis would require much more financial information and modelling. This is, cost benefit analysis would be more expensive without improving the accuracy.

The common objectives and the common appraisal framework allows for an integrated assessment of a set of projects. The SWOT technique is more stable for a set of projects, as the weight of strengths and weaknesses is clearer in relation to alternatives. For this reason it is good to start with the broadest possible list of project proposals.

By the way, it would be good to check projects outside the scope of standardisation and integration for hidden implications to avoid unpleasant surprises.

The basic template for SWOT analysis consists of a four fields table to list the strengths, weaknesses, opportunities and threats of a project. Strengths are the opposite of weaknesses and opportunities the opposite of threats. This introduces the option to enter the same type of item in both positive and negative formulation, for instance saves human resources (strength) and costs human resources (weakness). SWOT analysis is usually applied to analyse the strengths and weaknesses of businesses or teams; in such applications the lower part of the templates refers to what is external to the business or team, e.g. technological developments, legal environment or weather influences. The distinction is less clear when applied to projects. Our interpretation is that the project concerns the development phase, this is between the positive appraisal of the project and the adoption of the standard. This implies that everything that is in time beyond the project, for instance the adoption and the implementation, should be classified as opportunities and threats. For instance that threat that the adopted standard does not get implemented. Opportunities and threats also include the impact of developments beyond control of the European Statistical System. The strengths and weaknesses refer to the expected impact after adoption and implementation. From a governance perspective strengths and weaknesses are in the responsibility of project management, whereas opportunities and threats are more of a strategic nature.

It is important to have a clear definition of the projects that should be assessed.

Project:

Strengths	Weaknesses
Opportunities	Threats

We have completed the template for a few projects, and this has resulted in the following list of items for the respective boxes:

Strengths

- Increase comparability of data
- Improve other data quality aspects (timeliness, accuracy etc)
- Improve process quality (documentation, transparency etc)
- Improve efficiency; this concerns the recurring benefits (and costs) after implementation of the standard; in case of dominant costs, the item will get a negative score (as if it were listed under weaknesses)
- Lower costs of development: developing one time in the ESS could be less expensive than developing 27 times at national level
- Reduce burden on respondents
- Coherence with the adopted framework for the production of statistics; the framework is not yet completely clarified, but consists of the body of statistical legislation and the relevant handbooks. Coherence is the desired situation, unless the project aims at changing the framework.

Weaknesses

- Costs of developing the standard
- Costs of implementing; this concerns both the one-off costs to convert to the standard, the recurring costs are considered under strengths *improve efficiency*
- Ignore special national or subject-matter aspects
- Limited scope (small impact): indicate the scope by business process step and by statistical domain
- Not sustainable (e.g. requires frequent maintenance)
- Unbalanced spread of costs and benefits (both between countries and inside a country)

Opportunities

- Contribute to cost-effective development of tools (creating a larger market)
- Facilitate automation (contribute to common specification)
- Improve cooperation of NSIs
- Increase consistency of data over statistical domains
- Development of new statistics e.g. because of new sources or new combinations
- Facilitate communication with users and stakeholders

Threats

- May not be adopted (lack of consensus)
- Over and under standardisation
- Rigid implementation
- May restrict innovation, for instance through the lack of variation (natural selection) or the prohibitive costs involved in developing a new version of the standard
- May serve only the needs of a group of countries or a subject matter domain (does not contribute to integration)
- May not be implemented (lack of communication and management)

To accommodate for missing aspects and for all difficulties to classify the relevant aspects, we added the category *other* to all four lists.

In this way we have produced a common framework for the assessment of potential projects. The aim is to compare the projects. This can be done on the basis of the characterisation of the projects according to the SWOT elements listed above; this characterisation can be produced by the proposer of the project. The problem is that such a characterisation has many dimensions and scales. However, the final result of the appraisal should be a ranking of projects. For this reason we have introduced a simple scoring system for the production of a summary score. Per item the score is based on three elements: relevance to the project, inclusion in the project plan and importance to the quality or efficiency of the European Statistical System.

Relevance to the project offers the option to distinguish elements in the template that are highly relevant from elements that have no relevance. For instance, for standardisation of seasonal adjustment methodology the item *increase comparability* is highly relevant, whereas *reduce burden on respondents* is not relevant in this context. The possible values are not relevant (0), relevant (2) and top relevant (3). The score top relevant should occur only once per box.

The second element reflects the idea that in case an issue is dealt with explicitly in the project plan, it is more likely to produce the desired result. The possible values are not included (1), implicit (2) and explicit (3).

The last element tries to assess the importance of the contribution to the quality and efficiency objectives of the European Statistical System. The possible values are not important (1), somewhat important (2) and very important (3).

The costs of developing the standard will always be regarded as highly relevant and the importance classified according to budget: less than 1 million euro, between 1 and 4 and over 4 million euro. In order to give proper weight to the item, the element inclusion in the project will get the default value 1 (although we can not imagine a project proposal not considering the costs of development).

Two summary scores are calculated; one at the immediate level based on strengths and weaknesses, and one on the strategic or long term level on the basis of opportunities and threats. It is assumed that the immediate

score is leading for the ranking, as the more strategic is even more arbitrary. We show only the formula for the summary of strengths and weaknesses:

$$SWOTSCORES = \sum_{i=1}^6 R_i^S P_i^S I_i^S - \sum_{i=1}^6 R_i^W (4 - P_i^W) I_i^W$$

Where

R_i – relevance of i-th item

P_i – included in the project of i-th item

I_i – importance of i-th item

S, W Refers to strengths and weaknesses

The score for the strengths is the sum over all items of the product of relevance, inclusion and importance. To compare the projects over the same items, the category *other* is not considered in the summary. The items not relevant or applicable for the project contribute 0, and there is no need to reflect on inclusion or importance. The score for weaknesses is in a similar way, but with a negative sign. The inclusion in the project plan has a different impact for weaknesses, as the inclusion means that the weakness is recognised and perhaps that corrective actions are proposed.

The number of items under strengths is not equal to the number of items under weaknesses. The summary score helps to rank the projects; the sign of the summary score should not be read as a positive or negative net contribution.

The choice of the elements, the proposed values and the formula are highly arbitrary; only broad application can teach us how to improve the scoring system. Anyway, the scoring results in a tremendous loss of information; it is probably useful for detecting projects not selected for further consideration. The other projects should be analysed on the bases of the full descriptive information.

Examples

We have selected example projects to illustrate the approach; the nature of the projects is different. The presented projects are real in the sense that similar projects are considered or currently running in the European Statistical System. The presented projects are also fake: they are based on a rudimentary project sketch produced by the authors for the purpose of this article. The sketch does not necessarily coincide with any ongoing activity. The projects concern common infrastructure (the EuroGroups Register), sharing of tools (for web data collection) and standardisation of methods (seasonal adjustment).

EuroGroups Register (EGR)

Multinational corporations constitute both a problem and a challenge to official statistics. The problem is to collect coherent statistical information on the (sometimes truncated) national part of the business. The

challenge is to describe the process of globalisation and its impact on the national economies. The Eurogroups Register aims to offer for the largest multinational corporations a common infrastructure for the coherent determination of the group boundaries and structure and the exchange of information in the ESS ([EuroGroups Register](#)). It is also expected to improve the common understanding on profiling and classification; this could spread beyond the domain of large multinational companies. As the multinational is profiled only once, and not up to 27 times, it should improve overall efficiency. The distribution of costs and benefits could be unbalanced; this will require a long term agreement on the financing rules. The operational management could be complex, depending on the type of organisation selected. The EuroGroups Register is conceivable with some countries opting not to participate.

Sharing tools for web data collection

Many statistical offices have already started to use web questionnaires in their social and business surveys. The advantages are obvious, it makes data collection cheaper and data processing easier. Some methodological issues remain to be answered. Web questionnaires typically have to be applied in a mixed mode design. What do we know about mode effects and how can we optimise the design and estimation to produce robust statistics? In the framework of the example for the SWOT analysis we will exclude this issue, as it was hard to complete the template for such a mixed project (this might be a general conclusion). Concentrating on the sharing of tools, the project should clarify what is required from web data collection tools, review the tools currently available and investigate what hinders sharing in the ESS. The requirements not only concern methodological aspects of questionnaire design and testing, but also documentation, data security, interfaces and technical requirements. A wide range of issues could hinder the sharing, for instance language, financial aspects, service and maintenance, legal aspects. The project will result in a set of minimum requirements; the project will also clarify the market for sharing of tools in this domain. This project is not supposed to produce one European solution; it is supposed to promote the sharing of tools.

Standardisation of seasonal adjustment methodology

We already mentioned before that seasonal adjustment is probably the clearest example of a methodological standard in the European Statistical System. For the sake of the example we argue as if methods were not yet harmonised over the Member States, thus hampering the comparability of key economic indicators and undermining the validity of European totals. The purpose of the project would be to recommend methods that are scientifically sound, applicable in all Member States and allowing a valid aggregation to European totals. The project should also make sure that tools are available to apply the recommended method. The recommendation should get a high degree of formal support: comply or justify why the alternative solution does not hamper the comparability of the results. The tool, however, is merely a service to facilitate the implementation of the adopted method; any other tool that produces the same outcome is just as good.

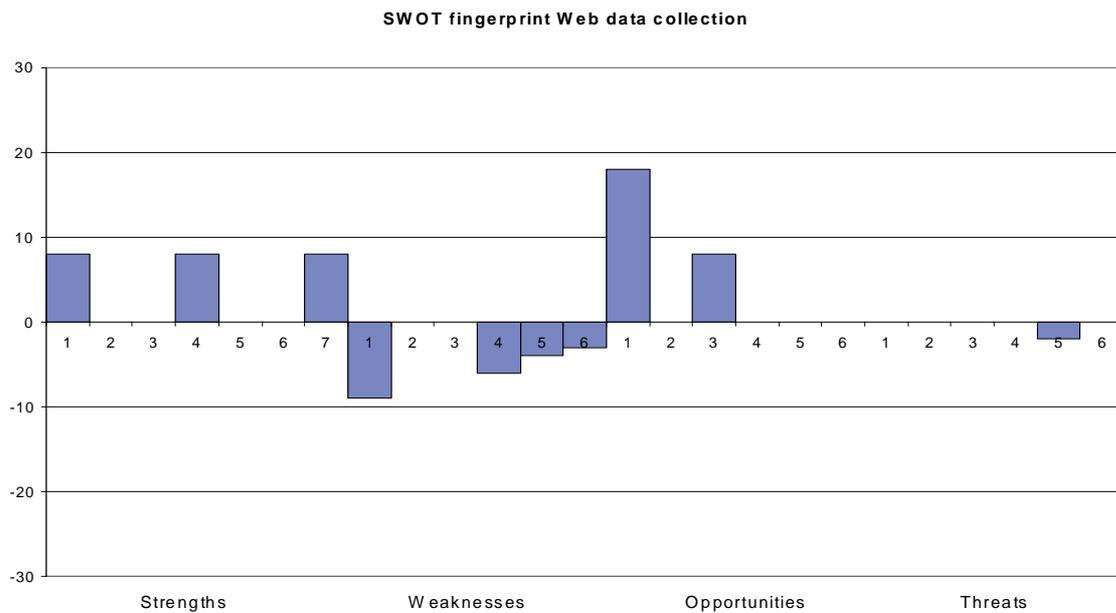
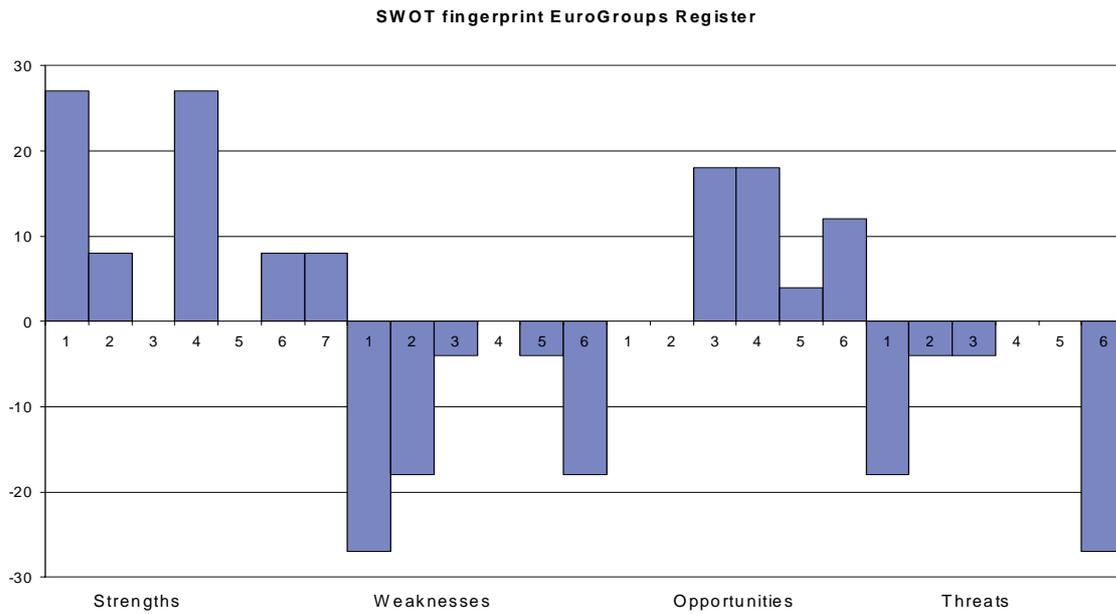
All three projects aim to improve the quality or the efficiency of European official statistics, but they are very different in scale, in business process step and in organisation required to make sure that the project results have a sustainable impact.

The summary score on the strengths and weaknesses gave the best result for the seasonal adjustment project. The summary score is not a sufficient basis for selecting projects; it could be a basis for not selecting certain projects. Richer information is required; the next step could be to look at the scores in the four aspects.

Strengths		Weaknesses	
EuroGroups Register	78	EuroGroups Register	-71
Web data collection	32	Web data collection	-22
Seasonal adjustment	61	Seasonal adjustment	-28
Opportunities		Threats	
EuroGroups Register	52	EuroGroups Register	-53
Web data collection	26	Web data collection	-2
Seasonal adjustment	26	Seasonal adjustment	-37

This presentation shows the different scale of impact of the three projects; the EuroGroups Register is in all aspects the largest project and the sharing of web data collection tools is the smallest. This difference in scale is an opportunity and a risk; it should be reflected in the strength of project management. Attention should be paid not only to the exploitation of strengths, but also to the reduction of weaknesses, the development of opportunities and the avoidance of threats. It also requires strategic decisions on the distribution of costs and benefits over the partners in the ESS and on the operational management of the register.

The next level of detail is the SWOT fingerprint, a graphical presentation of the contribution of the separate items. When we compare the fingerprint of the EuroGroups Register project with the Web data collection project two aspects are immediately visible. Both the positive and the negative impacts are more substantial and the number of relevant items is higher in the EuroGroups Register project. A lower number of relevant items make projects easier to manage. This result was produced by excluding the aspects of mixed mode design and estimation from the project on sharing of web data collection tools. Restructuring projects can help to make them more homogeneous in strengths and weaknesses. Such a strategy does not work in all cases; the EuroGroups Register project is inherently complex. It is possible to define more homogeneous sub-projects, but the overall complexity will remain.



To deal with the strengths and weaknesses belongs to the domain of project management; the opportunities and threats are beyond project management. The most prominent opportunity of the web data collection project is the cost effective development of tools; this opportunity could be developed in a follow-up project. In the EuroGroups register project adoption and implementation were identified as major threats. The approval of the project should indicate the basic preparedness to adopt and implement the project results. Some of the projects may run over several years; in the course of the project better information on the costs and benefits will become available, also the environmental settings change. This may justify a different evaluation at another point in time; it might be justified to have intermediate evaluations for this reason. Frequent changes of strategic direction should be avoided.

Conclusions

SWOT analysis is a useful tool for the appraisal of standardisation and integration projects in the European Statistical System. It is fairly easy to apply in a situation where reliable information on costs and benefits are not yet available. The format invites to the systematic consideration of both positive and negative aspects. The distinction between strengths and weaknesses on the one hand, and opportunities and threats on the other hands, helps to identify different responsibilities in the management of the projects.

In this paper we have proposed a set of items to be considered. The list allows more systematic comparison of projects. The list can also be used as checklist for the description of project proposals, thus making project proposals more complete and balanced.

The scoring mechanism should be improved, although it will always be affected by some degree of subjectivity. Potential biases due to the subjectivity can be reduced by involving several persons in the scoring and by organising a feed-back process on observed differences for better common understanding. Anyway, the core of the approach is not so much in the score, but in the systematic description of the projects.

The strengths, weaknesses, opportunities and threats should be dealt with. It would be good to update the SWOT description at the end of the project, indicating how to exploit the strengths, mitigate the weaknesses, develop the opportunities and avoid the threats.

Acknowledgements

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Further information on standardisation in the ESS will become available on the [website](#) of the Sponsorship on Standardisation.

¹ Survey about the use of methodological standards (2010), Csaba Ábry, Kornélia Mag, Ildikó Szűcs, Katalin Szép, Judit Vigh from the Hungarian Central Statistical Office

² Dealtry, T. Richard (1994): Dynamic SWOT Analysis; <http://rapidbi.com/created/SWOTanalysis/>; <http://www.businessballs.com/swotanalysisfreetemplate.htm>