

## *Chapter 6*

# **Information Systems**

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Information systems are the backbone of the monitoring and evaluation systems that critically support the process of local development.

Setting up an information system starts with establishing links with the strategy design and delivery. Key partners to strategy must be involved as well as other relevant stakeholders.

Development of the information system must be integrated with the process of strategy building and delivery. Information systems need to be linked to key assessment activities prior to, during and after strategy delivery, including baseline studies, assessments of needs, and establishing results.

Professional information systems need specific technical support, but it may be more important to create a feasible and useful information system that facilitates basic data and conclusions on project activities, outputs and results, rather than having a comprehensive, but overly complex data storage system in place, without the capacity to analyse or use the data correctly.

When building information systems, one needs to take into account demand for different types of information and identify appropriate sources for respective categories of indicators.

## Introduction

Functional information and monitoring systems are key features of any effective assessment and evaluation process for strategy development and implementation, this being true for prior assessment as well as for ongoing and *ex post* evaluation. A system of information defined to assess the policy objectives and management arrangements requires that:

1. The objectives and their priority status are clearly stated.
2. A definition exists of how those objectives are to be measured before, during and after policy or programme start-up.
3. A definition of the way this data is to be obtained exists, ensuring the availability of such data in each stage of the process.
4. Planning the technical, human and material resources required for monitoring and evaluation is done.
5. An efficient instrument is available to correct the orientation of measures clearly unsuited to achieving the objectives in good time.

Unfortunately, there is no such thing as a blueprint for information systems. Local or regional development strategies often require their own information systems and approaches and dimensions can vary considerably. Factors such as the number and type of stakeholders; information needs of stakeholders; evaluation requirements or other mandatory reporting mechanisms; availability of budget and human resources for technical assistance, monitoring and evaluation; experience and legal frameworks will influence the design, size and specific functions of information systems across countries, regions and policy sectors.

Nonetheless, some general guidelines may be defined on the effective creation and functioning of information systems in the wider framework of a local development strategy.

In this chapter we discuss the following questions:

- When and how to set up an information system?
- What to monitor?
- How to find and collect monitoring data?
- What to do with all the data?

## Setting up an information system

The process of setting up an information system is essentially linked to the process of strategic planning and evaluation. Developing and implementing an effective and functional information system depends on the level of understanding of the linkages between programming, implementation, monitoring, evaluation, revision and feedback.

Information systems help to strengthen the capacity of relevant stakeholders to manage local development strategies, programmes and projects and to support decision making.

A good information system will provide information at the initial stages of local strategy development, by providing the baseline data for the programming and planning process. In the course of the programme implementation, information systems help to gather relevant information to support the assessment processes to identify specific improvements.

### ***Monitoring information – links with project design, planning and evaluation***

Defining and implementing a monitoring or information system should be physically, conceptually and operationally linked to the design and definition of a local development strategy.

Possible exceptions from this crucial linkage of monitoring and programming activities are, for instance:

- The setting up of a local development strategy by an institution or organisation that already has an institution-wide or local information system or monitoring and evaluation unit in place.
- The development of a programme or project with specific information and monitoring requirements and obligations. These need to establish the steps to be taken when providing information about programme progress, results and expenditure. Although in this case an information system is put in place, it may be limited to fulfilling a data production and control function, while rarely creating any benefit for the efficiency and effectiveness of the development strategy itself, since it is not linked to the programme development cycle or to general learning and feedback loops within programme management. One example of this might be the compulsory monitoring and evaluation systems put in place for the financial management and control of European Union Structural Fund programmes, as is the case of the computer programme FONDOS 2000, for the European Regional Development Fund (ERDF) in Spain (funding period 2000-06), which facilitates supervision and

control of financial execution, but is not conceived to offer the information needed for analysing the efficiency and effectiveness of programmes financed by those funds.

- The (late) development of an information system for an already existing and partially implemented development strategy. From a long-term perspective and with regard to future programmes, this could be a constructive measure, although it may lead to incomplete data analysis and evaluation for a given development strategy.

There are various links between programme design and implementation, and monitoring and evaluation, corresponding to subsequent information needs. If the objectives and accompanying measures are clearly defined, the variables enabling them to be monitored may also be clearly defined. Once these variables have been defined, the measures may be implemented and the data to be used in their subsequent evaluation compiled simultaneously.

The prior assessment stage in particular is where specific links between programme design and an information system may be established, tested and improved for the sake of the whole programme and future evaluations. Prior assessment of new programmes and projects in local development facilitates a “trial and error” approach to defining indicators, data collection methods, identification of key actors, and identifying and assessing expected results.

Even if the first selection of indicators or round of data collection turns out to be useless or ineffective, it may still be early enough in the programme cycle to adapt the chosen variables or instruments. All this is what makes an honest prior assessment so valuable – if it leads to reasonable changes and improvements in programme management and monitoring techniques.

### ***Key actors***

Aside from the technical staff in charge of the programme or policy, other key players in setting up an information system are the **implementing partners**. Their opinions with regard to the implementation of the programme and monitoring of activities will, ideally, be closely linked to those of the technical staff.

Primary stakeholders, who are involved in the programming and planning process, such as representatives of target groups, environmental organisations, local or regional development agencies, business support providers and so on, should also be considered in the development of an information system, particularly in their role as potential contributors and/or targets for specific information during or after programme implementation.

While potentially contributing specific information on sectors or target groups (surveys, studies or data), they may request specific aspects or effects to be monitored as a way of assessing the relevance, effectiveness and impact of the development strategy from their sector, local or individual point of view. Primary stakeholders in particular will have a more realistic view of expected results and may help in the *ex ante* appraisal of programme objectives and desired outcomes.

**Other stakeholders** (related institutions, other sector departments, regional or local third-sector partners, research institutes, business organisations, universities, etc.) should be considered as potential information sources. At the same time, they may be interested in some of the issues arising from the policy, which would make them particularly interested in its impacts.

Besides the parties involved in the development strategy, it may be helpful to rely on **practical and technical support** in information system implementation, maintenance and updating (*i.e.* consultants, information and communications technology [ICT] specialists, database or software developers, social researchers, specialists in statistics, evaluators, etc.). One issue to be defined from the very beginning is who will actually do the data collection, processing and analysis. This could be done by the staff who are implementing the programme or by external technical staff – whether an independent evaluation unit or a consultant – or by a combination of both.

### ***Key activities***

Key information system establishment activities should also go hand in hand with development strategy planning and programming.

A situation analysis or baseline studies (socio-economic analyses, pre-assessment, SWOT [strengths, weaknesses, opportunities and threats] analyses, etc.) will provide a detailed review of regional and local needs, according to different target groups, territorial units, sectors and/or policy fields. Such initial information should clearly influence the design of a local development strategy.

The following points should be considered, not only for programme management reasons, but also for the sake of a well-functioning information system:

- Identifying primary and secondary **stakeholders**.
- Determining the available **budget and other resources** (not only for implementing measures, but also for monitoring and evaluation).

- Planning the **time horizon** of the development strategy (implementation) and expected results and impacts. If focused on results, monitoring and evaluation should be continued after the end of implementation to detect and react to the observation and analysis of results (or the lack of results). **Milestones and key events** (meetings, data collection deadlines, annual report dates, evaluation deadlines, etc.) should be planned from the beginning and in accordance with the overall process of planning of future development strategies.
- Defining the **goals, objectives, purposes and activities** of the local development strategy, including the definition of performance questions and indicators. One useful technique is to classify the objectives of a development strategy hierarchically, linking each specific objective to its global objective (*e.g.* through an objective tree), thus making the overall intervention logic explicit.

Setting up an information system requires other activities, which depend on the final use to which the information collected should be put. Data is never collected as a means in itself, but rather as a basis for some further analysis, progress report or evaluation.

The character and function of this future use will determine, among other things, data requirements, data collection methods, the organisation of the information, deadlines, technical support requirements and the relation between quantitative and qualitative data. All these details should be clarified at the pre-assessment stage in a **conceptual mapping or evaluation matrix** (Table 6.1).

An evaluation matrix helps you to define what you want to know about your development strategy, in particular its relevance, effectiveness, efficiency, impact and sustainability.

For each of the **performance questions** you want to answer with your monitoring data, you should also define the quantitative and qualitative **indicators** you require; the **sources of information, data collecting methods**; as well as the **possible problems or limitations** that will need to be considered.

Setting up a conceptual framework for future information and evaluation needs is an **important feature of the prior assessment** of a local economic development strategy. Although not all of the details are already known or solved, it obliges technical staff and politicians to think about realistic information needs in a given context (and budget). Possible constraints may be accepted at this early stage or further resources could be dedicated to data gathering or analysis activities.

Table 6.1. **Two examples of a conceptual matrix for an information system**

Performance question and related targets	Information needs and indicators	Baseline information and status n	Data gathering: methods, frequency, limitations, responsibilities	Planning and resources: need for external experts	Information use: analysis, feedback, reporting, change management
1. Example: GOAL: Creation of new jobs and income generation through an improved entrepreneurial climate and more business activity.					
How did the local business culture change?  30% increase in business creation in programme lifetime.	Changes over time in % of total businesses created.  Possible reasons for changes (other than the programme).	Total number and average annual change in % of local business creation figures.	Local commercial register statistics, new entrepreneur surveys.  Monthly.  Project technical staff will collect data.	Organise with local administrative staff at Register Bureau.  Invite an expert for survey implementation and analysis.	Feedback and final report with data.  At the end of the year, hold workshop to present findings and discuss programme results.
2. Example: GOAL: Better child nutrition and education, offering daily school breakfasts with balanced diets.					
Did the school breakfasts have any impact on children's health and malnutrition?  50% reduction of malnutrition among school children.	Did the school breakfasts have any impact on children's health and malnutrition?  50% reduction of malnutrition among school children.	Did the school breakfasts have any impact on children's health and malnutrition?  50% reduction of malnutrition among school children.	Did the school breakfasts have any impact on children's health and malnutrition?  50% reduction of malnutrition among school children.	Did the school breakfasts have any impact on children's health and malnutrition?  50% reduction of malnutrition among school children.	Did the school breakfasts have any impact on children's health and malnutrition?  50% reduction of malnutrition among school children.

### ***Technical support***

The setting up of a new information system may require important technical activities, which may, in turn, require the support of external experts and specialists.

It may be the case that the programme or policy for which the information system is being designed is so complex that monitoring may only be done using a computer system. This has been observed in some European Union countries with relation to the financial management of the European Structural Funds.

Once the need for such a monitoring system is confirmed, if the prior assessment has detected the need for data linked to the operations the computer system is to control, it may be technically feasible for it to be set up in such a way as to supervise and monitor more qualitative, strategic features of the policies and programmes involved (Box 6.1).

**Box 6.1. Example of an information and policy monitoring system: the National Agency for Regional Development, Slovenia**

One case of a complex policy monitoring system arose in Slovenia, where in order to support all the necessary activities relating to the country's economic development, the National Agency for Regional Development (NARD) proposed building an information system, the centre being a data warehouse that would be fed directly and systematically with data from different sources. This would mean that centralised implementation of contents supervision of all programmes and sub-programmes would be available in one place.

The first stage aimed to monitor territorial objectives. Data or indicators of different territories were taken directly from public databases (Statistics Office, Tax Agency, Employment Office, etc.) and fed into the data warehouse. In the NARD database, such data would be the basis for fulfilling information needs of NARD users or employees in a multidimensional form (Online Analytical Processing). Thus, the people responsible would be able to get regular reports on the state of projects, territories, etc. so as to monitor the achievement of objectives, analyse deviations from the projects and conduct research into the reasons. Later, it is intended to include both financial and physical data on implementing projects, sub-programmes, main programmes, priorities and finally programmes and strategies.

It is often more useful to start with a less technical information system that can be used in random assessment reports, progress control and evaluations, rather than creating cemeteries of useless data. This is usually the case of small-scale or local strategies. An information system may already be helpful with complete data files in simple databases or balance sheets, as well as complete sets of annual statistical reports on a given region or municipality.

It is vital to be realistic about information requirements in terms of the availability and validity of suggested variables. It is also important to have an awareness of the technical capacity required to launch complex information systems.

In many cases variables are not available at a sufficiently disaggregated level. For some variables the national statistical authority does not undertake data gathering at the local or regional level. It might then be necessary to define specific information systems to collect the information needed at the required territorial detail.



In other cases some variables may be available, but they are not available over a sufficient length of time to feed sophisticated analytical models. In such cases, a simple evaluation approach is needed in order to obtain results with a limited number of variables.

Finally, even where series of more sophisticated variables are available, it is helpful to carry out a prior assessment of the derived cost/benefit ratio involved in starting up an econometric or other, potentially overly sophisticated, system. This may avoid excessively high costs or major problems that could result in losing interest as policy application generates increasingly diversified processes that are more difficult to reduce to a mathematical or computer model. Here, a prior assessment of the policy would enable a comparison of the value and practicality of the selected variables, and to verify whether the method used for their analysis is suited to the evaluation of the programmes and policies under consideration.

Another aspect to be considered is how to overcome problems arising when it is not possible to obtain some of the data – or when part of it is missing – to be included in the information system.

In this case we have to use a range of techniques, such as completing the time series by analogy with developments in geographically more extensive zones, to using qualitative information to substitute quantitative data. Any results obtained this way would have to be carefully analysed so as to assess their coherence with the general conclusions drawn from the rest of the data. Any contradiction would mean analysing the reasons in detail, as the contradiction may be due to the fact that the evolution was in effect different or proved largely irrelevant. Ultimately, it may be necessary to change the interim or final conclusions to make them coherent with the global analysis framework.

## **What kind of data is needed?**

Specific information needs should be defined in line with the foreseen hierarchy of development strategy objectives, since the main reason for collecting data in the first place is to answer specific questions related to activities, outputs, and overall results:

- Can planned activities be completed on time and with the resources available? How many partners are required, and who?
- What direct tangible products or services could the projects deliver as a result of activities?
- How would this affect target groups or the target sector? What are the potential effects of projects and activities?

- To what extent might the strategy contribute to longer-term goals? Can we define a clear and attributable relationship between activities, results and the changes in the overall (sector, local) regional socio-economic situation?

Considering the future use of the information system defined as a result of these considerations, we need to remember that when information is collected for assessment, evaluation and related improvements in programme management and implementation as well as progress control, then data is not the only important feature.

For example, why a project failed or was successful, whether the effects are sustainable or not, and what has been learned from strategy implementation for the future, the reasons are also important. In this case, analysis and interpretation of raw data is necessary and should be carried out in the form of mid-term or *ex post* evaluation or impact assessments.

For prior assessment, the gathering of baseline information and the overall design of information, monitoring and evaluation needs are the key aspects.

### ***Monitoring data – the use of performance questions and indicators***

To define more clearly what kind of information is needed, two tools are used in information and monitoring systems: performance questions and indicators. **Performance questions** help to make programme and project objectives operational and translate them into specific information needs.

As a crucial tool for monitoring and information handling, **indicators** should therefore not be listed in direct relation to programme objectives and goals (one to one), but as an attempt to answer specific performance questions. Specific information needs should be highlighted, even if a single quantitative indicator cannot describe them.

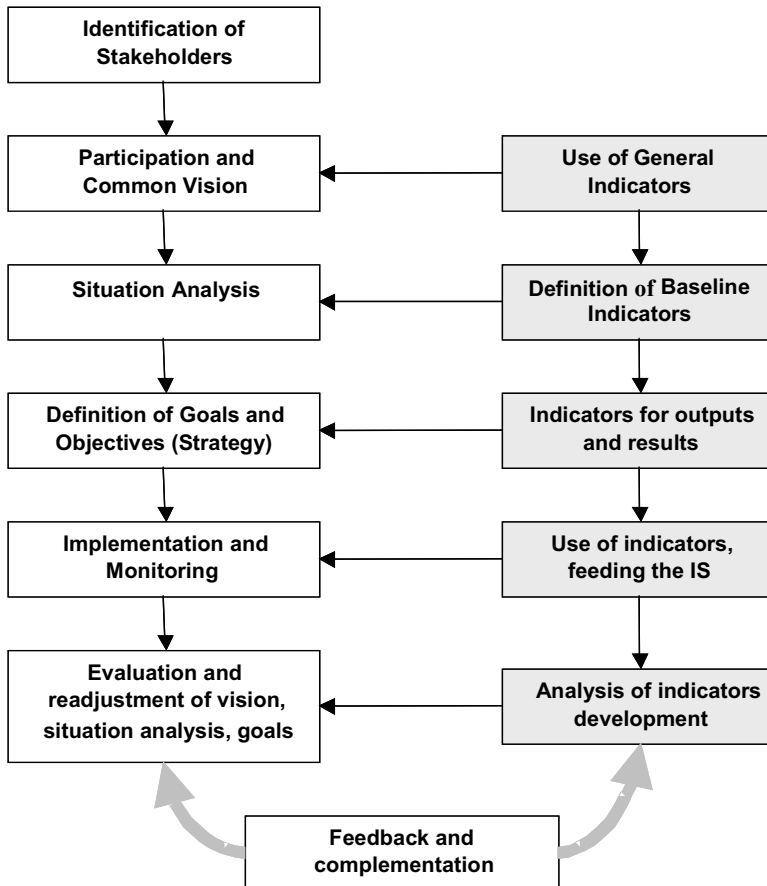
For example, if an objective of a given strategy is the “**development of businesses through the creation of a network of rural business incubators**”, performance questions could help to break down and make operative the overall objective of “business development” as set out in Table 6.2.

As Figure 6.1 shows, indicators can be classified as baseline indicators, output indicators and result indicators.

Table 6.2. Performance questions and indicators

Performance questions	Indicators
How will the programme influence the number of existing firms?	Number of registered firms
How will the programme influence the region's sector structure; will firms emerge and consolidate in new (technology-based) sectors?	Number of registered firms per sector In-depth analysis of new (technology) sectors
Are the effects sustainable in time?	Mortality rate of newly created firms, changes over time (2-5 years)
What external factors have influenced any changes?	Analysis of external factors for business creation and overall economic climate

Figure 6.1. Use of indicators in local development strategy management



Impact and result indicators normally correspond to baseline indicators. Both try to show the overall socio-economic situation in a given local or regional context. By comparing a baseline (a time unit before project start or at the beginning of the strategy implementation) and the final situation (at  $n$  = programme end or at  $n+1$ ,  $n+2$ ,  $n+n$ ), the impact of a strategy should become visible. However, given the limited size and budget of some strategies, as well as the importance of external factors (macro-economic evolution, crises), it is not always possible to detect relevant or attributable changes in baseline indicators. Quantitative, “easy-to-measure” indicators are particularly useful for describing programme activities and direct outputs (products, services delivered). To monitor results and effects, as well as meet specific information needs, qualitative indicators and in-depth information should be used to complement quantitative data.

It is precisely in the definition of these indicators where the information system can most clearly benefit from the prior assessment process. After an assessment, if suitable macro- or meso-economic statistical variables for measuring the impact of the policy to be implemented are shown not to be available, then we will need to define impact indicators consequent on the measures to be put into practice. At the same time, the necessary resources will need to be identified to collect information on the actual implementation of measures, *e.g.* by introducing in investment aid application forms sections requesting information on the type of enterprise, the technology it uses, employee skill levels, etc. It will also be necessary to make resources available for collecting impact information, *e.g.* by requiring certain subsequent information before providing assistance, including data on improvements in billing, jobs created, improvements in employee qualifications, how the export market has developed and so on. To define the indicators appropriately, the help given by the prior assessment is crucial. It allows the availability of data to be established. If not, internal policy procedures that will enable us to obtain the data about the effects of actual implementation can be developed.

The LEGITE Programme provides a useful illustration of these points. LEGITE was financed through an Innovative Action regulated by Article 10 of the European Commission’s European Regional Development Fund in the Spanish region of *Castilla y León*, a particularly large, sparsely populated Objective 1 region with industrial cities and huge rural areas with major risk of population drift. The programme sought to improve the region’s territorial equilibrium through a series of actions designed to get technology improvement and innovation support measures through to peripheral rural areas, where low population density and the scarcity of businesses made it impossible to generate the kind of support infrastructures available in urban zones.

It was clear from the outset that major problems would be encountered in the evaluation of the programme's impact. In the first place, the programme's macro-economic impact was going to be very limited, largely because the total number of beneficiary businesses would represent a small percentage of the total number of enterprises in the region. Furthermore, its effect on the economy as a whole would only really become clear several years after the programme had ended. Statistics available in Spain also made it impossible to follow the evolution of zones where the programme was to be implemented, as it involved territorial units such as municipalities or even smaller, for which there are no statistics (much less business statistics), and where they did exist, were not readily available.

The regional authorities were advised to develop a series of *ad hoc* indicators allowing them to monitor LEGITE's impact on businesses and territories later. This led to the definition of an information system based on micro- and meso-economic variables that were relevant to the objectives set. The variables were defined realistically, as the idea was to make them genuinely operational, reasonable to obtain in terms of resources and available readily. The indicator system defined specifically for LEGITE is shown in Table 6.3.

### ***Quality of indicators***

The quality of indicators and the appropriate selection of quantitative, qualitative and/or descriptive information needs contribute considerably to the overall quality and usefulness of the information system.

Several guidelines are available that help to define valuable and useful indicators. The SMART methodology is perhaps the best known guideline, used by many evaluators and monitoring and evaluation managers. SMART means that indicators should be specific, measurable, achievable, realistic and time-bound.

Other guides stress the importance of the validity, reliability and relevance of the indicators, and that their use is reasonable in terms of cost and the time needed for them to be processed.

It should also be noted that more indicators do not automatically imply a better information system. To be manageable and easy to use, and owing to common restrictions of resources and budget, the number of indicators should be limited and the information system should focus on the "necessary" information.

Table 6.3. **LEGITE innovative action Castilla y León - summary of indicators**  
(proposed pre-implementation)

Indicators for monitoring	
<b>Action 1: Demand boost</b>	<ul style="list-style-type: none"> <li>• Number of diagnoses performed</li> <li>• Number of technology audits</li> <li>• Number of action plans carried out</li> <li>• Number of conferences and seminars</li> <li>• Qualified executive staff trained</li> <li>• External specialists identified, selected and trained</li> <li>• Handbook and other material prepared</li> <li>• Evolution of budgeted expenses</li> <li>• Number of enterprises contacted</li> </ul>
<b>Action 2: Technology watch forecast and intelligence</b>	<ul style="list-style-type: none"> <li>• Number of sector or cluster forums started up</li> <li>• Number of action plans at technology centres</li> <li>• Number of technology centre internationalisation projects</li> <li>• Increase in international projects where technology centres partner with regional businesses</li> <li>• Number of businesses taking part in forums</li> <li>• Number of research projects started up</li> <li>• Reports and other material prepared</li> <li>• Evolution of budgeted expenses</li> </ul>
<b>Action 3: Excellence policy in digital content industry</b>	<ul style="list-style-type: none"> <li>• Number of businesses taking part in workshops</li> <li>• Number of university departments participating directly or indirectly in the action</li> <li>• Number of innovative projects for existing enterprises</li> <li>• Number of proposals for the creation of new enterprises</li> <li>• Number of new entrepreneurial projects</li> <li>• Evolution of the budgeted expenses</li> </ul>
<b>Action 4: Policy definition</b>	<ul style="list-style-type: none"> <li>• Number of international networks in which take part</li> <li>• Number of diffusion activities</li> <li>• Reports and handbooks elaborated</li> <li>• Evolution of the budgeted expenses</li> </ul>
Indicators to measure global impacts and effects of the LEGITE Programme	
<p>Changes in business opinions about innovation and valuation of the programme in particular</p> <p>New entrepreneurial attitudes towards innovation</p> <p>Evolution of budget execution as compared to the one programmed (analysis of diversion)</p> <p>Number of participant small and medium-sized enterprises (SMEs) in the actions</p> <p>Number of SMEs assisted by the action</p> <p>Increases in business investment in innovation in targeted sectors</p> <p>Quantitative increase and changes in business use of Internet (e-business and e-commerce)</p>	

Indicators to be used should be defined **before** data collection starts. That means in or even before the prior assessment. When different partners and stakeholders are involved in data gathering, a clear and agreed definition for the particular information system should be in place to avoid misunderstandings, errors in data collection and, finally, useless data records and lack of comparability.

In the prior assessment process all these aspects may be reviewed as regards the information system, as you can verify in practice if, and how, data can be obtained, and if such data can be used to provide results relevant to what the programme is designed to achieve.

Table 6.4 is an example of a comprehensive indicator sheet that establishes an ensemble of categories for a given indicator, relating in this case to a new business creation policy.

Table 6.4. **Indicator sheet**

<b>Definition/name:</b>	Business development (new firms)
<b>Purpose (why are we measuring it?):</b>	To monitor the creation of business activity in a rural area
<b>Priority:</b>	Core
<b>Numerator:</b>	Number of newly registered firms in the region in one year
<b>Denominator:</b>	All registered firms
<b>Measurement tools:</b>	Business Register at the Chamber of Commerce
<b>Timeframe</b>	2000-05
<b>What it measures:</b>	The indicator tracks the creation of new businesses in the region.
<b>How to measure it:</b>	The total number of newly registered firms (in one year) over the last five years will be collected, as well as the total number of registered firms.
<b>Strengths and limitations:</b>	<p>The indicator shows the objective figure of new firms in the area. This is a good indicator to measure the effects of the support for new business activities within our programme.</p> <p>However, business creation may well depend on other external factors (macro-economic climate, bank loans, existence of venture capital) that we have not been able to influence so far. In addition, business growth may be cyclical.</p>
<b>Analysis and interpretation:</b>	<p>To be able to interpret the raw data, we will calculate the yearly growth rate for the last five years (in % of previous year).</p> <p>The indicator can be compared to the national average and to other regions of comparable size in order to detect overall developments.</p> <p>Interviews with new entrepreneurs should be conducted to detect other factors that influenced the recent development.</p> <p>The indicator should be related to the mortality of firms and an overall business growth rate should be established. This will help to interpret the figures and to connect them with the overall impact of our programme (development of the regional economy).</p>

One activity may require different types of indicators (activity, output, result). This refers to the difference between addressing the **level** (pure number or unit), the **level of change** (absolute change or change rate in

percent, evolution over time), the **extent** of an activity or coverage (in percent of a whole or a specific population group), the **relevance** within a wider context (percent participation in a regional or national average or total figure, index calculation). The type of indicator that best responds to actual information needs and what this means for the data-gathering process (*e.g.* the need for national figures or statistical time series) should be clear from the beginning.

### *The importance of baseline data*

Creating sufficient baseline data is a crucial activity. It is impossible to assess the value and impact of a programme or project activity only by output or result indicators. To be useful, monitoring data must be related to the wider local and programme framework. The following information should be available from the beginning:

- The situation (socio-economic, of target groups, external conditions) before implementation of the strategy.
- The strategy and its operational plan (timeline, milestones, foreseen activities, expected results, financial resources and budget, other resources, management and monitoring and evaluation activities).

Changes in the overall or a specific local socio-economic situation, which, intended or not, may have been caused by a programme and its activities, can only be observed, measured and adequately analysed when comparable data with regard to the previous situation exists in the framework of an information system. In addition, information in the shape of indicators should be available on activities planned, the results expected and resources to be used. In particular, the effectiveness and efficiency of a given programme can only be determined and assessed if relevant information exists on the original programme planning. In this context it is important to stress that changes in programme planning during the programme implementation phase are easier to cope with when possible modifications regarding performance questions, expected results, indicators to be used, etc. are introduced in an updated version of programme design or an adapted version of prior assessment. Gathering baseline information involves two different forms of studies:

- A **situation analysis**, which should already have been produced as part of the programme design.
- A **baseline survey** (including definition of information needs and indicators), which is undertaken after programme design has been completed.



A situation analysis is more open-ended in terms of the themes and questions analysed (such as the problems and needs of stakeholders, institutional setting, organisational links, cultural background, external variables which may influence programme results), while a baseline survey normally only includes data and specific indicators needed to make impact-related comparisons. Situation analysis normally requires qualitative methods (in-depth studies, case studies, focus groups, face-to-face interviews, observation) to detect relevant information, whereas baseline surveys refer mostly to the gathering of quantitative, statistical or official survey data.

Practically every local development strategy, programme or project is based on a formal or informal situation analysis, which detects the need to act in the first place (a development problem, desire for improvement, etc.). To make informal or popular knowledge usable for prior assessment and any future evaluations, informal information should be **formalised** or at least written down (as a case study, a narration, etc.) and stored as part of the baseline information of the development programme. Obviously, qualitative information obtained from the situation analysis could and should be used during and after programme implementation, even if it cannot be presented by means of quantitative and objective indicators. The opinions of stakeholders involved, a description of the state of the art and the review of habits, regular practices and routines may be compared in another round of focus groups, interviews, case studies or observations during an intermediate or final evaluation as a means of detecting tangible changes associated with the programme. Occasionally, it may be difficult to carry out comprehensive baseline studies prior to the implementation of a programme and its activities. As alternatives to the elaboration of new baseline studies, information systems could be built on:

- Existing **qualitative information** of the situation analysis as a starting point for future comparisons: this approach has just been presented. It facilitates some insight into the tangible and intangible impacts of a programme. However, the information will be mostly testimonial and subjective and should be complemented with objective data as soon as possible during programme implementation.
- **Rolling baselines** as a middle-ground option between undertaking a baseline or a total retrospective assessment in the future: as resources sometimes only become available as programmes are implemented, technical staff will need to launch activities together, and collect baseline data and formalise informal knowledge as fast as possible. In this situation, programme activities must be combined with a steady effort to gather baseline data and to complete the baseline data during the programme lifetime, ideally until the mid-term evaluation. Although

the baseline information may in this case relate to several different “baselines”, it will provide an overview of the situation before programme implementation or impact generation.

- The use of **existing research documentation** that does not require field data collection: earlier programmes and projects have often been implemented or at least research has been conducted in the field where baseline information on socio-economic indicators is necessary. This information may be used, even if it does not reflect the “initial” situation of the new project, but the “final” situation of a programme that concluded some 18 months ago. Additional data might be available in research reports, doctoral theses, thematic studies or other sources, which are not available on administration bookshelves, but can be found on the Internet, at the local university, at environmental organisations or non-governmental organisations, etc.

### **How to find and collect monitoring data**

Apart from the data obtained in the actual implementation of the programme (forms, surveys, opinion of programme management, etc.), you may use different and complementary social research methods to find and collect monitoring data. The selection of adequate methods is limited in many cases by restrictions of time, budget and/or other resources. However, some general rules should be established and followed in order to guarantee data objectivity and comparability.

#### ***Information sources***

People and documents are the main sources of information. Although different sources of information will be exploited for different programmes and strategies, some sources should be considered in any case. Remember that certain sources only have a specific and limited knowledge of the programme, according to their particular perspective. For example, there is no point in asking programme managers about programme effects on particular target groups if they do not know about, or only have a largely biased view of, the real global impact of the programme. Below is a list of the most relevant information sources that are normally easiest to find and their particular knowledge fields:

- Programme management → operational information, financial management, payments, funding structure, expected results, equipment and staff management, etc.

- Implementing partners or bodies (public, private, other) → operational information and financial management of specific activities, project implementation, problems and relevant changes during implementation.
- Participants in supported activities and schemes (during activity but also tracking of benefits after implementation, six months, one year, two years) → implementation and operational management of specific activities, relevance of activities and projects, outputs, results and impacts on their specific situation.
- Beneficiaries (direct and indirect) or representatives of target groups (associations, foundations, NGOs, etc.) → relevance of programme and specific activities, outcomes and impacts of global programme and its activities, sustainability.
- General stakeholders and representatives of cross-cutting or horizontal issues (environmental organisations, ethnic minorities, female or migrant associations, children’s organisations, etc.) → relevance of programme and specific activities, integration of horizontal and cross-cutting issues in programme design and implementation, outcomes and impacts of global programme and its activities from a particular perspective.
- Existing information and data-gathering systems (national and regional statistical systems from the government or other agencies) → socio-economic situation, context and baseline indicators, evolution of specific and thematic issues, impacts of global programme and its activities.

### *Useful data collection methods*

For prior assessment, quantitative methods (for the baseline survey) should be combined with qualitative methods (as part of the situation analysis) to get the whole picture of the *ex ante* situation. Qualitative methods such as face-to-face interviews, focus groups and case studies may be time-consuming and provide few clear-cut, measurable indicators. However, they are essential at the beginning of a programme as a basis for future interpretations of outcomes and results and to detect possible intangible impacts on the beneficiary groups. According to the requirements on data, the focus will either be on quantitative indicators, qualitative (additional) information, background and expert information, or on general observations of actions and stakeholder interactions. The most important data collection methods would include:

- Methods for collecting primary data (interviews, surveys, observation, focus groups, etc.).

- Methods for collecting secondary data (review of documents and operational or financial information, analysis of statistics and other information, use of previous or related evaluations, impact assessments or monitoring reports, etc.).
- Methods for collecting spatial information or linking data with territorial units (geographic information systems, mapping, photographs and videos).
- Methods for collecting expert opinions and qualitative background information (expert panels, Delphi rounds, case studies, etc.).

Some of the most common data collection methods, and their specific implications, are shown in Table 6.5.

Table 6.5. **Some of the most common data collection methods**

<b>Questionnaire survey</b>	<p>A written or electronic version of the questionnaire. Details of institutions and persons to whom the questionnaire will be sent, by mail or e-mail. The selected people will or will not return the questionnaire. Especially suited to covering a large population and satisfying a need for statistical data in a given area.</p> <p><b>Disadvantages:</b> You need to test the questionnaire before sending it. The rate of return is normally low without reminders by mail or telephone. There is little room for explanations, qualitative answers, comments or second questions. Very time-consuming.</p>
<b>Face-to-face interview</b>	<p>This method requires personal interaction. You will need an interview guideline with open or closed (yes/no) questions and an interviewer with experience in this technique, who will register and codify the answers for further analysis.</p> <p><b>Disadvantages:</b> It requires experienced interviewers. All interviewers should be trained specifically to obtain comparable and objective results. Codification of answers may lead to a loss of qualitative information or too much information.</p>
<b>Telephone interview</b>	<p>This is a personal interview made by telephone. Less qualitative information will be obtained than in a face-to-face interview, but it is less time-consuming. Suited for closed questions and if the group of people you want to interview is geographically dispersed.</p> <p><b>Disadvantages:</b> The attention of the interviewee will descend after a certain time. There is a lack of personal interaction and rapport, which could influence the level of trust and honest answers.</p>
<b>Group techniques (group interview, workshop, focus group)</b>	<p>This requires discussion in small groups (normally 7-12 people) with similar characteristics or representing a particular stakeholder group. You will need an experienced group facilitator to guide the group and the discussion, as well as someone to write down the comments.</p> <p><b>Disadvantages:</b> This requires good preparation, the availability of a whole group and an expert in group techniques. It will be difficult to obtain quantitative information. Some members of the group might not feel free to speak.</p>
<b>Document review</b>	<p>You need the documents, reports or evaluations in a written or electronic form to review them thoroughly. Information needs to be summarised, classified and made usable for further analysis. Especially valuable if you need background data or a historic perspective regarding a particular problem, region, etc.</p> <p><b>Disadvantages:</b> The information might be outdated, unorganised, or not objective. You might need to read up and do scientific research. The use of various sources might include the risk of mix and comparing statistics or data that are not comparable.</p>

In cases where too little or no quantitative data is available, the collection of data and the creation of a local/regional information system in a specific field (business environment, environmental situation, health or education situation, infrastructure, etc.) could, in itself, be part of the local development programme. An information system might be included as a specific ongoing programme line (monitoring and evaluation system) or might be built up as an initial step within the overall programme development.

If little or no resources can be dedicated to an external study for the collection and preparation of baseline information during a prior assessment, internships and doctoral students may offer valuable support, being grateful for the practical experience.

## **What to do with all the data**

The final step in completing an information system is the preparation of the raw data and its transformation into valuable and useful information.

### ***How to turn monitoring data into useful information – storage, classification and updating***

Data can be maintained over a relevant time period. While keeping it available for use in progress reporting and evaluation, the conditions and necessary requirements for data storage, classification and updating need to be considered at the very start of the information system setup.

**Data storage** involves the consideration of sufficient storage place, either physical (storage rooms) or virtual (adequate software, computer memory capacity). Control and auditing obligations make it increasingly important to store operational data, as well as contracts and expenditure data, for at least ten years.

**Classification** of data is a relevant issue if large amounts of data need to be prepared for future use. Each information system should find its own way of classifying data according to information requirements (per project, programme line, target group, type of activity, etc.). Modern databases and specific information system software increasingly permits automatic programme data classification and storage.

**Aggregation** of data regarding single project activities, locations or time periods may be another necessary step in data preparation. Data storage and treatment systems should be able to aggregate and summarise data according to information needs.

Regular **updating** is necessary not only for the data to be collected, but also for the particular information needs of the stakeholders involved and the selection and definition of useful indicators and data collection methods.

### *Use of monitoring information*

Information systems fulfil their function only if they offer useful information for monitoring, control, assessment and evaluation purposes. They complete their commitment if available data and information is finally used.

The active and recommendable use of monitoring information in the context of local development strategies includes two steps:

1. The use of raw monitoring information in the phases of project and programme evaluation, revision of strategies or final assessment of activities.
2. The use of evaluation and assessment reports (where monitoring data has been interpreted as well as complemented and cross-checked with other types of information) for learning purposes (revising strategies, adapting or developing new projects or readjusting schemes and measures), as well as for accountability (the presentation of outputs, outcomes, results and impacts).

## **Conclusions**

Information systems are one of the key elements of a local development strategy monitoring and evaluation system. Setting up of a useful and functional information system requires proper understanding of programme development and evaluation processes. At first sight, “information system” is a general management term that must be adapted to the context of a specific local or regional development strategy that needs to be monitored and assessed. It may involve files of written data on programme activities and beneficiary and target group surveys, but it will also require an integrated software package and modern technical support (databases, ICT) used in programme implementation by all project managers and overall programme management. Professional information systems need technical support, related to the requirements for data collection, data storage and classification. However, it may be more important to create a feasible and useful information system that facilitates basic data and conclusions on project activities, outputs and results, rather than having a comprehensive, but overly complex data storage system in place, without the capacity to analyse or use the data correctly.

## Information Systems – Summary of Do's and Don'ts

### Do's

- Start with simple, common sense approaches.
- Define performance questions for each of your programme objectives and plan future monitoring and evaluation activities.
- Use a limited number of key indicators with realistic possibilities of obtaining updated data.
- Define the baseline situation through indicators and qualitative information.
- Define a time horizon for impact evaluation and analysis in line with the time it takes to produce socio-economic impacts and to change habits and mindsets.

### Don'ts

- Don't try to cover everything by generating a complex, ultimately unusable system.
- Don't define a system that is based on unavailable, inexistent or useless data.
- Don't forget the real objectives of policy makers and stakeholders.

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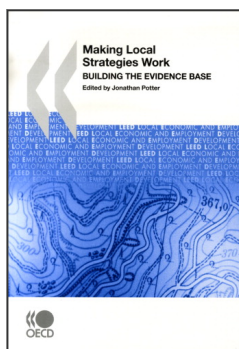
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